

THE ENVIRONMENT AND ITS ELEMENTS

1. Notion of ecological niche:

Organisms of a given species can maintain viable populations only under a certain range of conditions, for particular resources, in a given environment and during particular periods. The combination of these factors describes the niche, which is the position that the organism occupies in its environment, including the conditions in which it is found, the resources it uses and the time it spends there.

Organisms can change niches as they develop.

Example: common toads occupy an aquatic environment (feeding on algae and detritus) before metamorphosing into adults, where they become terrestrial (feeding on insects).

2. The concept of habitat:

Unlike the niche, the habitat of an organism is the physical environment in which an organism is found.

Habitats contain many niches and support many different species.

Example: A forest contains a vast number of niches for a choice of birds (nuthatches, woodcock), mammals (wood mice, foxes), insects (butterflies, beetles, aphids) and plants (wood anemones, mosses, lichen).

3. Concept of environmental factors:

An "ecological factor" is any element in the environment that can have a direct effect on living organisms.

There are two types of ecological factor:

Abiotic factors: all the physico-chemical characteristics of the environment, such as climatic factors (temperature, rainfall, light, wind, etc.), edaphic factors (soil texture and structure, chemical composition, etc.), etc.

Biotic factors: all the interactions between individuals of the same or different species: predation, parasitism, competition, symbiosis, commensalism, etc.

4. Interaction between the environment and living organisms:

The reactions of living organisms to variations in the physico-chemical factors of the environment affect their morphology, physiology and behaviour.

Living organisms are eliminated completely, or their numbers are greatly reduced when the intensity of ecological factors is close to or exceeds tolerance limits.