

What is an ecosystem?



The ecosystem is the set of species in a given area that interact among themselves, through processes such as predation, parasitism, competition and symbiosis, and with their abiotic environment to disintegrate and become part of cycles of energy and nutrients. The species of the ecosystem, including bacteria, fungi, plants and animals, are dependent on each other. The relationships between species and their environment facilitate the flow of matter and energy within the ecosystem.

The concept of the ecosystem has evolved since its origin. The term, coined in the 1930s, belongs to British botanists Roy Clapham (1904-1990) and Sir Arthur Tansley (1871-1955). It was originally applied to units of diverse spatial scale; from a weathered piece of tree trunk to a pond, a region or even the entire biosphere of the planet, the only requirement being that organisms, physical environment and interactions could exist within them.

More recently, the ecosystem has had a geographical focus and has become analogous to formations or vegetation types, e.g., scrub, pine forest, grassland, etc. This simplification ignores the fact that the limits of some vegetation types are indistinct, while the boundaries of ecosystems are not. The transition zones between ecosystems are known as ecotones.

Alpha, beta and gamma diversity. Robert Whittaker (1920-1980), American ecologist and researcher of succession and vegetation gradients, proposed three measures of ecosystem diversity: alpha (α), beta (β), and gamma (γ). Alpha is the diversity within an ecosystem which is generally described as the number of species. Beta diversity involves the comparison of different ecosystems in environmental gradients, for example, in a mountainous area within a coastal area. Beta diversity shows us the size of the change of species from one ecosystem to another. Gamma diversity refers to the total diversity of a region, i.e. the geographic diversity. It is the sum of the alpha diversity of various ecosystems.

