

*Commentary*

## Role of internal and external factors in the ecosystem process

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**DESCRIPTION**

An ecosystem (or ecological system) is made up of all the organisms that interact with the physical environment. Nutrient cycles and energy flows link these biotic and abiotic components together. Photosynthesis brings energy into the system, which is incorporated into plant tissue. Animals play an important role in the movement of matter and energy through the system by feeding on plants and each other. They also have an impact on the amount of plant and microbial biomass that is present. Decomposers release carbon into the atmosphere and facilitate nutrient cycling by converting nutrients stored in dead biomass back to a form that plants and microbes can use.

External and internal factors influence ecosystems. Climate, parent material that forms soil and topography are all external factors that influence the overall structure of an ecosystem but are not influenced by it. Decomposition, root competition, shading, disturbance, succession, and the types of species present all influence internal factors. While external processes generally control resource inputs, internal factors control the availability of these resources within the ecosystem. As a result, internal factors not only control but also are controlled by ecosystem processes.

Ecosystems are dynamic entities that are subject to periodic disruptions and are always recovering from previous disturbances. The ability of an ecosystem to maintain a close relationship to its equilibrium state despite disturbance is referred to as resistance. Ecological resilience refers to a system's ability to absorb disturbance and reorganise while undergoing change while maintaining essentially the same function, structure, identity, and feedbacks. Theoretical studies, studies monitoring specific ecosystems over long periods of time, studies that look at differences between ecosystems to elucidate how they work, and direct manipulative experimentation are all ways to study ecosystems. Ecosystems are divided into biomes, which are broad categories. Biomes and ecosystems, on the other hand, are not clearly distinguished. Ecosystem classifications are a

subset of ecological classifications that take into account all four elements of ecosystem definition: biotic components, abiotic complexes, interactions between and within them, and the physical space they occupy

**Ecosystem processes**

Both external and internal factors influence ecosystems. External factors, also known as state factors, influence the overall structure of an ecosystem and how things work within it, but are not influenced by it. Climate is the factor that "most strongly determines ecosystem processes and structure" on large geographic scales. The biome in which the ecosystem is located is determined by the climate. Photosynthesis is influenced by rainfall patterns and seasonal temperatures, which determines the amount of energy available to the ecosystem.

Time and potential biota, the organisms that are present in a region and could potentially occupy a particular site, are two other external factors that play an important role in ecosystem functioning. Ecosystems in similar environments in different parts of the world can end up behaving very differently simply due to the presence of different species pools. The introduction of non-native species into an ecosystem can result in significant changes in ecosystem function.

Internal factors in ecosystems, unlike external factors, not only control but also are controlled by ecosystem processes. While external processes such as climate and parent material influence resource inputs, internal factors such as decomposition, root competition, and shading influence resource availability within the ecosystem. Other internal factors include disturbance, succession, and the types of species present.

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