

Ecosystem

Definition

There are many definitions of an **ecosystem**, but they all agree that an ecosystem consists of living and non-living parts which interact with each other. Perhaps the most well-known definition of an ecosystem comes from E. Odum, who has defined it as “any unit that includes all of the organisms in a given area interacting with the physical environment so that a flow of energy leads to exchange of materials between living and non-living parts of the system” (Odum, 1969).¹⁾ The Millennium Assessment (2005, v) defines an ecosystem as “a dynamic complex of plant, animal, and microorganism communities and the non-living environment interacting as a functional unit”. Humans are a component of these ecosystems too. Ecosystems are not static, but are continuously evolving and interacting among each other. Ecosystems are perceived as useful frameworks to study relations between people and the environment.²⁾

Challenges

Identifying an ecosystem can be a challenging since (1) ecosystems overlap and (2) there is the issue of scale. Ecosystems can range from very small (a pond) to very large (the planet). Ecosystems can be based on dominant features (vegetation) or on scientific interests (watershed) or economic interests (forest). Useful boundaries of an ecosystem are placed where most discontinuities in features coincide. “Setting the boundaries of an ecosystem necessarily involves value judgement; what is considered important and what is considered outside the ecosystem” (Dictionary of Human Geography, 4th ed, p 202).³⁾

Ecosystem Services

In the Millennium Ecosystem Assessment (2005, v) [ecosystem services](#) are defined as “the benefits people obtain from ecosystems”. The Millennium Assessment divides ecosystem services up in four categories, namely provisioning services (provide food, water, timber, and fiber), regulating services (affect climate, floods, disease, wastes, and water quality), cultural services (provide recreational, [aesthetic](#), and spiritual benefits) and supporting services (soil formation, photosynthesis, and nutrient cycling).⁴⁾ The term ecosystem services is relatively new. It was first used in the 1960s. In the last decade the number of studies on ecosystem services increased greatly. The ability of an ecosystem to provide certain ecosystem services is often perceived as a good indicator of the condition of an ecosystem. The concept can be used in the [management of natural resources](#).

See also

- [Glossary](#)
- [Ecosystem](#) AlpES Project Term

[natural resource management](#), [ecosystem services](#)

¹⁾

Odum, E. 1969. The strategy of ecosystem development. Science 164: 262-270

²⁾

Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis . Island Press, Washington, DC.

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Johnston, RJ, Gregory, D, Pratt, G & Watts, M 2000, The Dictionary of Human Geography (fourth edition). Blackwell Publishers, Oxford

⁴⁾

Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis . Island Press, Washington, DC

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