

# Characteristics of Ecosystems

## What do organisms need to live?

Living organisms cannot exist without the nonliving parts of the environment. For example: air, water, and sunlight, which are all nonliving, are all essential to living organisms. Both nonliving and living things make up an ecosystem.



This cove forest in the Great Smoky Mountains National Park is a big ecosystem.



This tree stump is a small ecosystem.

## What is an Ecosystem?

Ecology is the study of ecosystems. That is, ecology is the study of how living organisms interact with each other and with the nonliving parts of their environment. An **ecosystem** consists of all the nonliving and living things interacting in the same habitat. Living organisms are **biotic** factors. The biotic factors of an ecosystem include all the populations in a habitat, such as all the species of plants, animals, and fungi. The nonliving factors are called **abiotic** factors. Abiotic factors include temperature, water, soil, and air.

## Ecosystems and Energy

All living things need energy. They need it to power the processes of life. For example, it takes energy to grow. It also takes energy to produce offspring. In fact, it takes energy just to stay alive. Remember, energy cannot be created or destroyed. It can only change form. Energy changes form as it moves through ecosystems.

Matter is also recycled in ecosystems. The nutrients are recycled so they are always available. These nutrients are used over and over again by organisms. Water is also recycled. The flow of energy and the recycling of nutrients and water are examples of the interactions between organisms and the interactions between the biotic and abiotic factors of an ecosystem.

## Summary

- An ecosystem consists of all the living things and nonliving things interacting in the same area.
- Energy is necessary for organisms to live.
- Energy flows through an ecosystem.
- Matter is recycled in ecosystems.
- The recycling of nutrients is important so they can always be available for the organisms that live in the ecosystem.