

Ecosystems

Ecosystem – a community of biotic and Abiotic things that work together.

Biotic – Living

Abiotic – Nonliving

The **sun** is the main source of energy in all ecosystems.

Organisms in an Ecosystem

Producers are organisms that use the Sun's energy to make their own food. Green plants are producers. They make their own food using energy from the Sun in a process called **photosynthesis**.

All of the other organisms in an ecosystem depend on producers for energy. This is because animals, including humans, cannot make their own food.

Consumers are organisms that eat other organisms to get energy and nutrients because they cannot produce their own food.

All animals are consumers. Some consumers eat only plants and are called **herbivores**. Some eat only other animals and are called **carnivores**. Consumers that eat both plants and animals are called **omnivores**.

Consumers that eat producers in a food chain (herbivores) are known as **primary consumers**. Consumers that eat the primary consumers are called **secondary consumers**. Consumers that eat secondary consumers are called **tertiary consumers**.

Decomposers are organisms that get energy from feeding on wastes and dead plants and animals. Fungi, such as mushrooms, are examples of decomposers. Some kinds of bacteria and insects are also decomposers. Earthworms are also decomposers. The role that decomposers play in an ecosystem is very important. Decomposers return matter and nutrients that were contained in the bodies of dead plants and animals back to the soil. The nutrients that decomposers release into the soil are used by producers for growth.

If producer populations become smaller (meaning there are less plants), populations of all the consumers in the community will also shrink. This is because the animals will have to compete more for food.

Predators rely on other animals for food. If there aren't enough **prey** (animals the predators hunt) for the predators to eat, there will not be as many predators. Predators also keep populations of other animals at the right size. But if there are not enough predators there will be too many prey.

A **habitat** is where a population lives. A niche is an organism's role in its habitat. Two organisms can live in the same habitat because they occupy different **niches**. Sometimes different populations occupy the same niche. When this happens, the populations **compete** with each other for resources such as food, water, and shelter.

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Human Impact on Ecosystems

Humans affect natural habits in many ways. Humans clear land for land development, such as building new homes or shopping centers. This leaves many organisms without food and shelter.

Deforestation is the clearing of forested land. Humans use trees for lumber, food, and other products. Once trees have been cut down, they may grow back, but it can take many years. Often forests are unable to support as many organisms as it once did.

Pollution is an unwanted change in the environment. Pollutants are often put in the air by products used by humans. This can be harmful to the environment.

Terrestrial Ecosystems

Terrestrial ecosystems are land-based ecosystems. Rainforests, deciduous forests, and grasslands are all examples of terrestrial ecosystems.

Grasslands - also called savannas, rainfall is low or seasonal, dominant plant life is grass. Other plants buffalo grass, sunflower, goldenrods, clover
Large herbivores: bison, antelope, zebras, prairie dogs

Deciduous forests -the biome where we live, deciduous trees (trees that lose their leaves), medium rainfall, foliage changes color in autumn (fall). Trees: redbud, oak, maple, pine dogwood, pine
Animals: squirrels, deer, foxes, bears.
(Sometimes called temperate forests)

Rainforest -abundant rainfall, very humid, trees have dense canopies, floor does not get much sunlight, many species of animals and plants. Plants: vines, ferns, orchids, large and small trees. Animals: orangutans, insects, sloths, jaguars

Aquatic Ecosystems

Aquatic ecosystems are water-based ecosystems. Lakes, ponds, estuaries, saltwater marshes, oceans, and thermal vents are all examples of aquatic ecosystems.

Lake - large bodies of water surrounded by land.

Lake usually contain freshwater. Plants: algae aquatic plants; Animals: ducks, turtles, beavers

Pond - small bodies of freshwater surrounded by land, temperature is usually the same from top to bottom, unlike in lakes. Plants: algae, aquatic plants; Animals: ducks, turtles, beavers

Estuary - an area where freshwater and salty ocean water mixes together. Plants: marsh grasses; Animals: muskrats, sea birds, shellfish, crocodiles

Saltwater marsh - marshy areas found near estuaries. Plants: marsh grasses, mangrove trees; Animals: saltwater crocodiles, crustaceans, migratory water birds

Ocean - large bodies of saltwater divided by continents;; can have many types of ecosystems.

Plants: seaweed; Animals: (shallow parts) jellyfish, starfish, crabs, tuna (deep parts) whales, sea turtles, dolphins, sharks, plankton

Thermal vent places under the ocean where the Earth's crust is very thin. Very hot water comes out of holes . Animals: must be able to live in very high temperatures and must be able to live without energy from the sun (example: tube worms).