The Eco Pyramid

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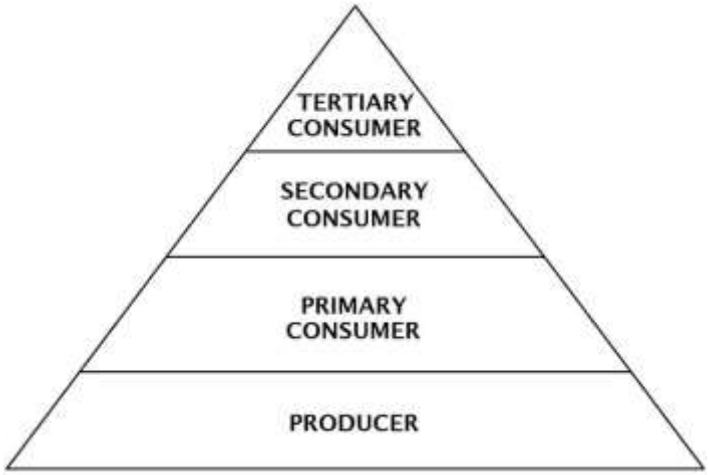

An ecosystem is a community of living organisms interacting with one another as well as with nonliving things. One very important aspect of an ecosystem is the energy that flows through it. Energy is exchanged between members of an ecosystem, creating an energy flow and assisting in the continuation of life. However, not all of the organisms living in an ecosystem absorb equal amounts of energy. An eco pyramid effectively illustrates the amounts of energy that are absorbed by the different types of organisms in an ecosystem.

The power of the earth's sun gets the energy flow of most ecosystems going. Solar rays enter the earth's atmosphere and reach the surface where plants utilize the energy from them. Through a process called photosynthesis, plants like trees, grass, and bushes, create food for themselves. Plants are able to take in carbon dioxide from the atmosphere, and their roots absorb water from the surrounding soil. Plants then use the solar energy and the hydrogen from water to transform the carbon dioxide into a nourishing carbohydrate. With photosynthesis complete and food and energy absorbed, the plants release the oxygen part of the water that they had taken from the soil back out into the atmosphere. Other living things, like human beings, take in oxygen in the breathing process. The plants of an ecosystem are called "autotrophs," which means "self-feeders." They are also called "producers" in an ecosystem.

The carbohydrates that were produced by the photosynthesis process give the plant energy to continue on living. Herbivores are animals that eat mostly, if

not strictly, plant life. Termites, koalas, field mice, and deer are a few examples of herbivores. Deer feed on leaves and grass, consuming the green plant life's energy. To consume means to eat something and absorb its nutrients for survival. After eating the plants of their choice, deer will then digest the plants and use whatever nutrients the plant had stored inside to create energy so that they can continue to live. The herbivores of an ecosystem are called "primary consumers." Some of the energy that the herbivores use is lost in the ecosystem when they create body heat. For example, when deer run and their bodies warm up, the excess heat within their bodies escapes into the atmosphere. If that did not happen, the deer's bodies would get too hot and their organs would fail to work any longer.

Energy is transferred again in an ecosystem's energy flow from primary consumers to "secondary consumers." Carnivores, or meat eaters, act as secondary consumers. Lions, tigers, and polar bears are carnivorous. They eat the meat of the herbivores after a hunt. When tigers eat their prey's meat, they go on to digest it and use the energy from it for their own survival. Like the herbivores in the previous section of the energy flow, carnivores also give off heat energy when their bodies warm up from exercise. Unfortunately for the carnivorous secondary consumers, they too will eventually find themselves targeted for their energy by other members of their ecosystem: the tertiary consumers.

Secondary consumers are carnivorous predators, meaning that they hunt down other animals and kill them for food. However, these animals are not at the very top of the food chain and they too can be hunted and utilized as a meal. Tertiary consumers are predators who lie at the top of the food chain. Human beings are the most obvious example of a tertiary consumer. Unlike the secondary consumers, tertiary consumers are not normally preyed upon by other members of the ecosystem.

Like the primary and secondary consumers, the tertiary consumers give off body heat. That energy is released into the atmosphere. Even if consumers or producers aren't hunted or eaten, all living things eventually die. When they do, they decompose. Bacteria and fungi attach themselves to a dead producer or consumer and begin to break down the matter of the body, releasing nutrients into the soil. These nutrients are then used to give life to new plants so that new energy from the sun can flow through the eco pyramid.