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Perspective

Trophic pyramids and the flow of energy

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DESCRIPTION

The Trophic Pyramid is a fundamental structure of interaction in all biological communities characterized by the way food energy is transferred from one trophic level to the next trophic level in a food chain. Every trophic pyramid is made up of a series of interconnected food chains called food web. Food chains are a series of organisms that start from the producers and end up rotting. Many food chains linked to others form a food web. Both the food chain and the food web are an integral part of the ecosystem. Ninety percent of the energy in each trophic level (Hierarchal levels in the ecosystem, where organisms share the same function and nutritional relationships within the food chain) is lost through heat energy as organisms use energy in metabolic processes. Food chains can contain three or four trophic levels. Typical successors may be producers, herbivores, carnivores, top carnivore, and decaying animals. In the global ecosystem, the main producers live in or near organic matter as they do not move. They grow and develop where nutrients are found. The main producers include green plants, lichens, moss, bacteria, and algae. Herbivores are known as the first buyers. Animals that eat meat or flesh of other animals are known as carnivores. About 50 percent of the energy in the food is lost in each trophic level when the organism is consumed, so it may not work well to be a higher consumer than the primary consumer. Thus, the transfer of energy from one trophic level to another, at the top of a chain, is like a pyramid; wider at the base and narrower at the top. Due to this inefficiency, there is not enough food for only a few high-level consumers, but there is plenty of vegetarian food at the bottom of the food chain. There are fewer buyers than manufacturers. Decomposition plays a key role in the digestive system as it helps to digest nutrients from dead matter to the bottom of the energy pyramid. When a living thing dies it is decomposed by certain invaders, fungi and bacteria.

Types

Pyramid of energy: This type of trophic pyramid also known as the production pyramid shows the rate at which energy is transferred from one trophic level to the next trophic level. The energy pyramids show the flow of energy in the food chain. The concept of production pyramid or power depends on the functions of G. Evelyn Hutchinson and Raymond Lindeman (1942)

Pyramid of Biomass: The biomass pyramid shows the relationship between biomass and trophic levels by calculating the amount of biomass present in each trophic level of the ecological community over a period of time. It is a symbolic representation of the total number of living and non living elements in an ecosystem at various trophic levels. In 1938 Bodenheimer developed the concept of a trophic pyramid based on biomass.

Pyramid of Number: The numerical pyramid ("Eltonian Pyramid") shows the number of organisms involved in each level in the food chain regardless of their individual sizes or biomass. The tower is not really straightforward. The idea that it was founded by Charles Elton developed the idea of a numerical pyramid in 1927. The living things that make up the lower level of the pyramid vary from community to community. In earth's ecosystems, multicellular plants often form the basis of a pyramid, and in freshwater lakes, multicellular organisms such as single-celled algae form the first trophic level. Trophic sea formations are built on plankton (like krill). In the ecosystem of fresh water, detritus (leaves and other parts of plants that fall into the water) as a source of energy is more than biological. The most unusual biological communities are those that surround the tropical oceans. These cracks are caused by volcanic activity and the movement of continental plates that create cracks in the ocean floor. Magma inside the earth's crust heats the water into the shore and then rises back to the bottom of the ocean. Chemoautotrophs such as Sulfur-oxidizing bacteria thrive in a warm environment. To fix carbon dioxide bacteria use reduced sulfur as a source of energy. The forces that form the basis of deep marine communities come from chemosynthesis; the ecosystem is therefore geothermal-supported instead of solar energy.

Some species around these ponds feed on these bacteria, but some species form mutualistic symbioses with sulfur bacteria. Such species have chemoautotrophic bacteria in their bodies to get nutrients directly from them.

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