A 60 SECOND GUIDE TO . . .

Food Webs

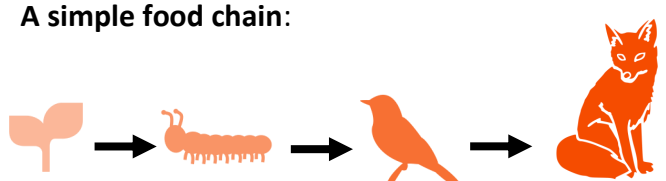
Royal Geographical Society with IBG

www.rgs.org

Definition

A food web shows the interactions between several organisms within both aquatic and terrestrial ecosystems. They were proposed by Charles Elton in 1927 as a way to combine and portray several food chains and associated processes visually.

A simple food chain:



Primary producer → Primary consumer → Secondary consumer → Tertiary consumer

What parts make up a Food Web?

- Species are connected by arrows or lines showing their relationship and pattern of consumption.
- The species themselves are referred to as 'nodes'

Trophic Levels

Each stage of a food web is called a trophic level. Trophic levels represent the order in which different organisms are likely to consume each other. Trophic levels increase in scale and complexity as one moves through a food web:

- Primary producers (autotrophs) do not rely on another organism as a source of food. Examples include plants and mosses.
- Primary consumers (herbivores and omnivores) consume primary producers. Examples include caterpillars and rabbits.
- Secondary consumers (herbivores and omnivores) consume primary consumers. Examples include birds and hedgehogs.
- Tertiary consumers (carnivores and omnivores), consume secondary consumers. Examples include foxes and owls. If a tertiary consumer has no predator itself, it is known as a top predator.
- Decomposers (detritivores) live off non-living remains such as decaying leaves and faeces. Examples include earthworms and fungi.

What does a food web show?

Throughout the food web energy and nutrients are transferred (through consumption) and used (through growth, respiration and waste material). This results in a loss of biomass (the amount of living matter) from each trophic level but a gain in nutrient concentration. Therefore primary consumers have to spend a lot more of their time feeding than a top predator in order to gain the same nutritional content from their food. Food Webs also demonstrate that some animals eat more than one organism and the complex predator-prey relationships in some ecosystems .

A Typical Food Web for a Deciduous Woodland: