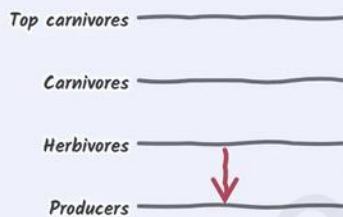


ecosystems, the pressure human demand puts on them, and what conservation actually requires

The ecosystem, and how energy moves through it



- an **ecosystem** is a community of living things together with the non living surroundings they interact with
- **producers** make their own food by photosynthesis, **consumers** eat other organisms, and **decomposers** break down dead matter
- a **food chain** is a single line of who eats whom, and a **food web** is the many chains of a real ecosystem linked together
- each step is a **trophic level**, and only about **10 percent of the energy** passes to the next one
- the rest is lost as **heat and in life processes**, which is why food chains rarely run beyond four or five levels
- **energy flows one way and does not cycle**, while **nutrients do cycle** and are returned by decomposers



the trophic levels stacked with the producers at the base: each rung upward carries only about a tenth of the energy of the one below it, which is why the higher levels support so few individuals

The problems, and their causes

- **air pollution** from vehicles and industry causes respiratory illness, acid rain and the enhanced greenhouse effect
- **water pollution** from sewage, industrial effluent and fertiliser runoff kills aquatic life and contaminates drinking water
- **fertiliser runoff** causes **eutrophication**: algae bloom, then die and decay, using up the dissolved oxygen and suffocating the fish
- **deforestation** causes soil erosion, loss of habitat, reduced rainfall and more carbon dioxide left in the air
- **biomagnification** is the build up of a persistent chemical along a food chain, so the **top level is worst affected**
- the **ozone layer** absorbs ultraviolet radiation, and it was thinned by chlorofluorocarbons, now largely banned