

ECOLOGICAL PYRAMIDS

- The ecological pyramid, also known as the Eltonian pyramid, was introduced by Charles Elton in 1927.
- It visually illustrates ecological factors such as the number of individuals, biomass, or energy at various trophic levels of a food chain, with producers at the bottom and top consumers at the apex.

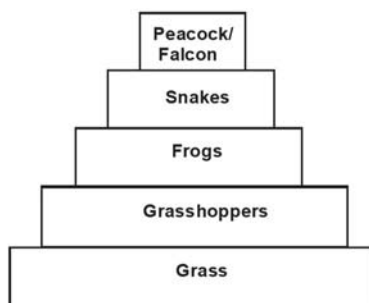


Fig: Pyramids of number in terrestrial ecosystem.

(a) Pyramids of Number:

- It is a visual representation showing the number of organisms per unit area at various levels of a food chain.

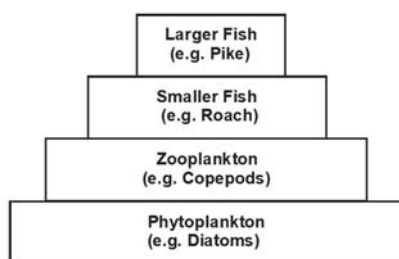


Fig: Pyramids of number in pond ecosystem—upright

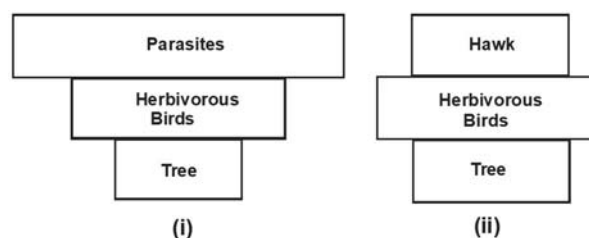


Fig: Pyramid of Numbers in Tree ecosystem
(i) inverted (ii) spindle shaped.

(b) Pyramid of Biomass:

- It is a visual representation that shows the amount of living matter (biomass) per unit area at different levels of a food chain.

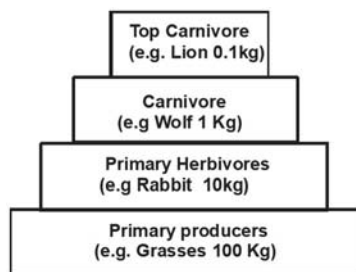


Fig: Pyramid of biomass in grassland—Upright

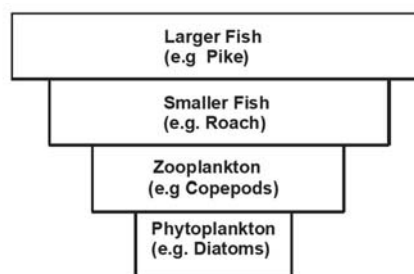


Fig: Pyramids of Biomass in pond ecosystem—Inverted

(c) Pyramid of energy:

- It is a visual representation of the amount of energy captured per unit area and time at different levels of a food chain. It always appears upright in all ecosystems.
- However, ecological pyramids have limitations.
- They do not consider species that belong to multiple trophic levels.

- They assume a simple food chain, which is rare in nature, and do not account for food webs.
- Additionally, saprophytes, despite their important role in ecosystems, are not included in ecological pyramids.

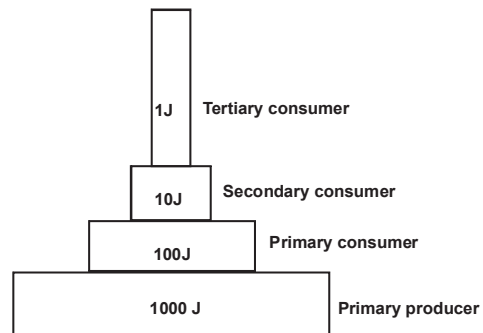


Fig: Pyramid of energy–Always upright