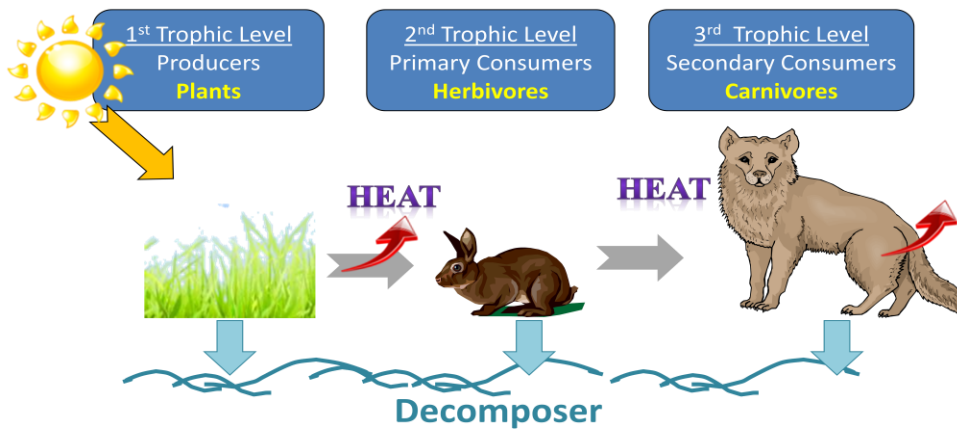


Ecosystem Production

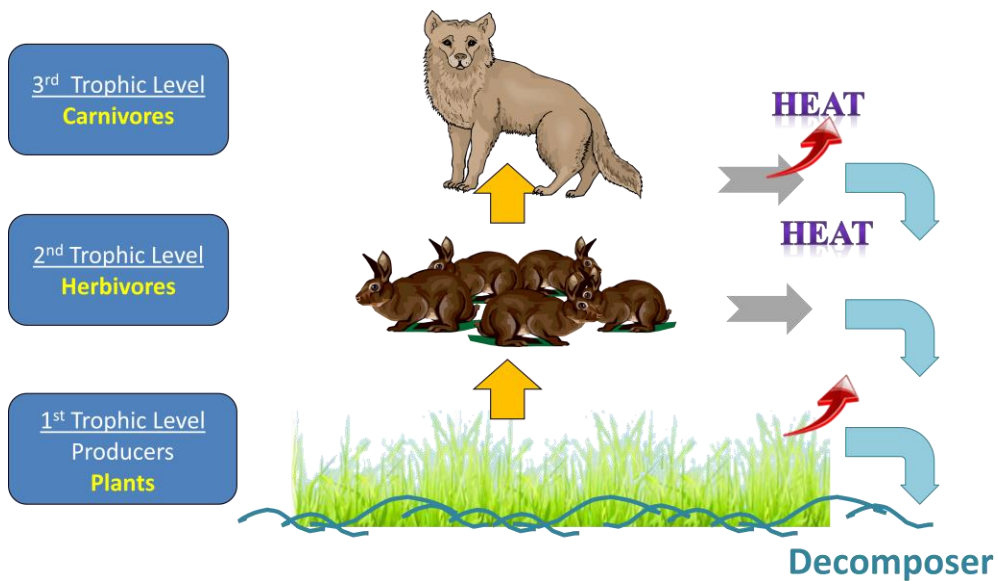
❑ Food Chains and Biomass Pyramids on Rangelands

❑ Trophic Levels

- Feeding levels with respect to primary source of energy
- Producers & consumers each occupy a different trophic level
- Energy is lost at each level



❑ Biomass Pyramids

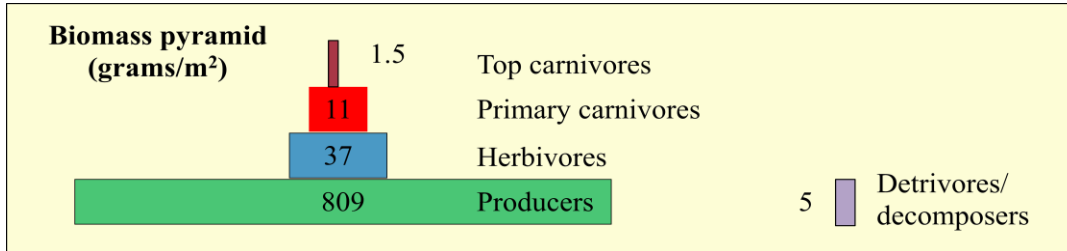


At each level
some biomass is not passed
to next higher level

Biomass Pyramid

- The total weight of all living organisms
- Biomass at each trophic level

→ biomass pyramid



Biomass decreases at higher trophic levels

- Not all biomass is consumed from one trophic level to next
 - Not all that is consumed
 - Not all that is consumed is digestible
 - Not all that is digested is turned into mass
 - Part of mass is converted to energy or heat
 - Lost mass is available for decomposition

Vegetarian Solution?

- Shorter food chain/web = less loss of energy
 - Vegetarianism results in a decrease of human position on food chain.
 - Is vegetarianism is the best way to feed a large population?

Will this solve the world food problem?

Two Good Reasons

- 1) Cellulose → most abundant, naturally occurring organic molecule on earth
 - Humans can't digest cellulose,
 - Ruminants & Hind-gut fermtors can.

- We need cows, sheep, goats, horses, llamas, alpacas, etc. to digest cellulose for us.
- 2) Only about 10% of the earth land surface can be farmed.
 - The rest is too rocky, too cold, or too dry.
 - We need animals to harvest these land for us.