

Ecosystem :-

- The term Ecology is derived from Greek words - 'oikos' means 'home' and 'logos' means 'study of'.
- The ecology means study of living system 'at home'.

Definition :-

It is defined as a community of organisms interacting with one another and the environment in which they live i.e study of Home.

Structure of ecosystem :-

The structure of ecosystem consist of

① Abiotic structure :-

It includes the non-living things of the ecosystem such as soil, temperature, light & water.

② Biotic structure :- It includes plants, animals & micro-organisms present in ecosystem.

Function of ecosystem :-

① Autotrophic components (producers) :-

The self nourishing organisms are called producers eg:- plants & Algae.

② Heterotrophic components :- (consumers).

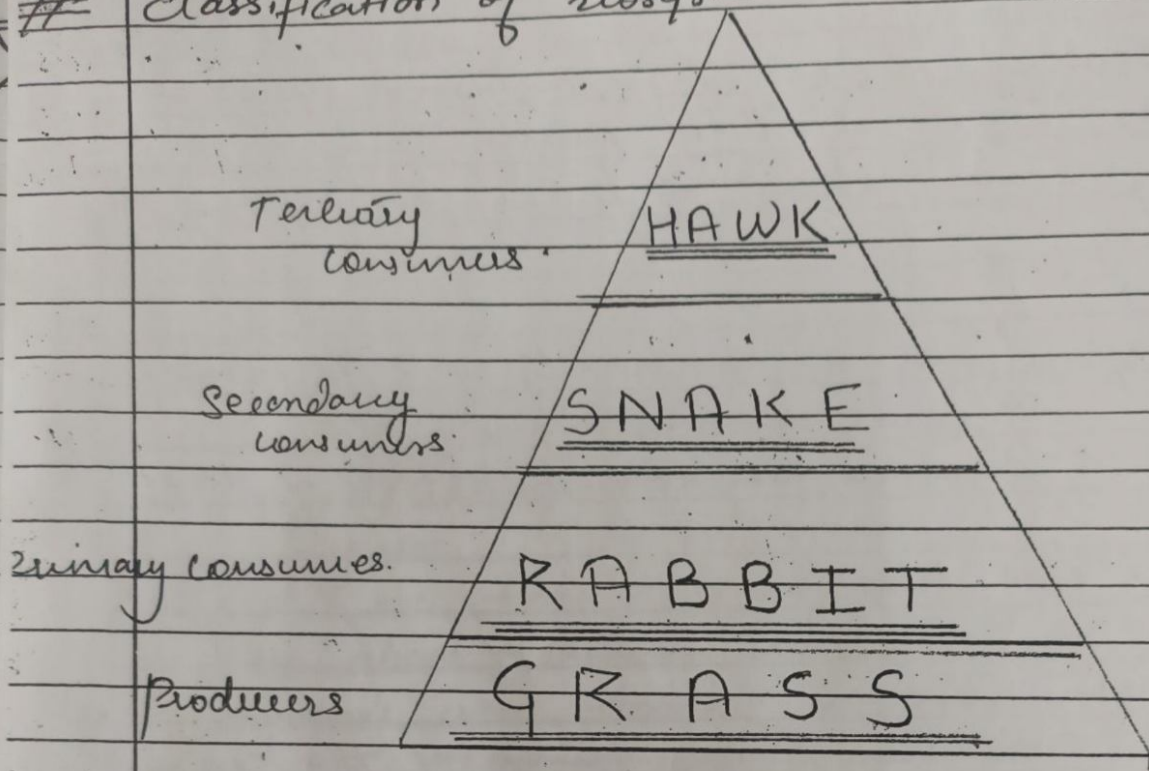
→ primary consumers or Herbivores
eg:- Deer, insects, rabbits etc.

→ secondary consumers or carnivores
eg:- snakes, birds, fox etc.

→ Tertiary consumers or Tertiary carnivores.
eg:- Lion, Tigers etc.

→ omnivores :- These feed on both plants & animals.

Classification of ecosystem



A] Terrestrial Ecosystem

This includes forest, grassland and desert ecosystem.

➤ Forest Ecosystem :-

a) Tropical Rain forest :-

- Such forest are located in equatorial regions such as in Africa, Central America etc.
- It is characterized by warm & humid climate.
- Tall plants are observed with broad leaves.
- High diversity of trees species, insects and invertebrates are found here.

b) Tropical Savanna forest :-

- Such forest are located where rainfall is seasonal but high like Africa, Australia etc.

- It is characterized by dry & wet seasons
- Animals like elephants, Zebra, giraffe & kangaroos etc. are found here.

c) Temperate forest :-

- Such forest are found in Eastern region of Asia & U.S.A. etc.
- They are characterized by abundance of insects, birds, tall trees etc.
- Hard trees are used for furniture & building purpose
- Common species found here are frogs, lizards, rabbits, snakes, deer, bears etc.

d) Taiga or Boreal forest :-

- Such forest are found across East-west bound of North Europe, North Asia, North America where climate is cold.
- Here rainfall is in winter.
- Here common species found are birds like owl, eagles, animals like foxes, rabbits, deer, squirrels etc.

e) Temperate shrub forests :-

- Such forest are found in South Africa, South Australia, etc. California etc.
- Here rainfall is in winter. Rain is less & temperature is moderate.
- Common species found are reptiles, small & large mammals etc.

Desert ecosystem

- This occurs in regions with an annual rainfall of less than 25 cm.
- Due to high temperature, intense light & low water availability, flora and fauna are poorly developed.
- Temperature varies from very hot to very cold.
- cold deserts occurs in Ladakh region of Himalayas.
- producers are mainly shrubs, bushes, few trees and most famous cactus.
- Insects like Locusts a special type of grasshopper, beetle, bugs etc.
- Reptiles ~~like~~ includes here snakes & lizards.
- Birds observed are gila woodpecker, roadrunner, ostriches etc.
- Mammals are mainly burrowers.
- Camels are main animals in desert which are of two types
 - ① Dromedaries - one hump
 - ② Bactrian - two hump.

B] Aquatic Ecosystems -

There are two main types of 'aquatic ecosystem'

1) Fresh water :-

Only 0.8% of earth's surface is covered by fresh water.

a) Lentic Ecosystem -

- Standing water ecosystem are called Lentic ecosystem such as Lakes and ponds.
- It includes algae, rooted and floating leaved plants (Lotus), crabs, shrimps, clams etc.
- Amphibians like frogs, snakes, turtles are found.

b) Lotic Ecosystem -

- Flowing water ecosystem are known as Lotic Ecosystem with uniform direction.
- eg:- streams & rivers.
- Many species of fishes & insects, crabs, mollusks are found.

Overview of Food chain, Food web and Ecological

a) Marine Ecosystem :-

About 71% of earth's surface is covered by marine ecosystem. It is divided into

- a) Oceanic zone - shallow part of ocean.
- b) profundal zone - Deep water
- c) Benthic zone - This is bottom substrates.
- d) Intertidal zone - It is area between high & low tides
- e) estuaries - Area where fresh water dumps into ocean (creeks)
- f) salt marshes / wetlands - Here water is partially or completely shallow.
- g) Coral reefs - Also known as "Rainforest of sea"
(These are accumulation of $CaCO_3$ deposited by marine organism like corals & shellfish).

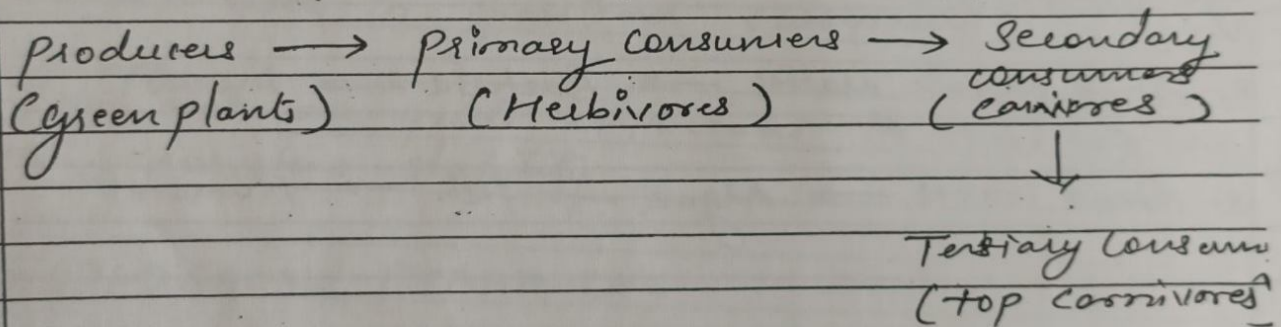
FOOD CHAIN :-

Definition :-

The transfer of food energy from the producers (plants) through a series of organisms (Herbivores & carnivores) successively with the repeated activities of eating and being eaten is known as food chain.

In an ecosystem, one organism is eaten by the second, who in turn is eaten by third and so on. This kind of feeding relationship is called food chain.

Example :-



Green plants → Frog → Snakes → Hawks.

There are two basic types of food chain

a) Grazing food chain :-

This food chain starts with green plants primary producers and goes to herbivores and carnivores.

eg:-

① phytoplanktons \rightarrow Zooplanktons \rightarrow Small fish
 \downarrow
Big fish

② Grass \rightarrow Rabbit \rightarrow fox \rightarrow Tiger.

b) Detritus food chain :-

Detritus food chain starts from dead organic matter, plants and animals.

Eg:- 1. Dead leaves \rightarrow Soil mites \rightarrow insects \rightarrow Birds.

2. Dead organic matter \rightarrow Bacteria \rightarrow insects

3. Dead leaves \rightarrow Algae \rightarrow fish \rightarrow Human.

FOOD WEB :-

- Food web is a network of food chain where different types of organism are connected at different trophic levels so that there are a number of options of eating and being eaten at each trophic level.

- A food web is the natural interconnection of food chain and generally a graphical representation.