

Unit -2

- **ECOSYSTEM** : According to A. G Transley using the term “ Ecosystem “ for the first time in 1935. A. G Transley defined ecosystem as a particular category of physical system, consisting of organisms & inorganic components in a relatively stable equilibrium open & of various sizes & kinds.
- **Types of ecosystem :**
 - 1.**Natural Ecosystem** : These are self regulating ecosystem which operate under natural conditions independently without any major interference of man. Example : Forest ecosystem, Grassland ecosystem etc.
 - 2.**Artificial Ecosystem** : These are developed & maintained artificially by man. Example : Aquarium
- **Structure of ecosystem :**
 - 1.**Biotic Components** : biotic components of the ecosystem includes various living organisms like plants, animals, fungi etc.
Producer : all the autotrophs of ecosystem are called producers.
Example : sulphur bacteria, nitrifying bacteria etc.
Consumer : all the heterotrophs of the ecosystem are known as consumers.
Primary consumer : cow, rabbit etc
secondary consumer : Dog, snake etc
Top consumer: Lion, Man etc
Decomposers: Bacteria, fungi etc
 - 2.**Abiotic Components** : The non living components of the ecosystem like light, temperature, wind, water etc are known as abiotic or physical components of ecosystem.

Function of ecosystem : The components of the ecosystem are seen to function as a unit when we consider the following aspects:

- A. Productivity : the rate of biomass production is called productivity.
- B. Decomposition
- C. Energy flow
- D. Nutrients cycling

Food chain: A sequence of organisms that feed on each other is known as a food chain. Example : Grazing food chain :
Grass → caterpillar → Lizard → snake

Food web: In an ecosystem various food chains are linked together and intersect each other to form a complex network called food web.

Population & community ecology : It seeks to understand the complex dynamics & spatial patterning of populations and of entire assemblages of multiple species across diverse environment & regions.

Ecological Succession : It is the gradual process by which ecosystems change and develop overtime. Nothing remains the same and habitats are constantly changing.

- Types of succession : 1.primary succession
- 2.secondary succession.

Forest ecosystem:

A.Abiotic components : water, carbon di oxide, oxygen, amino acid, light, humidity etc.

B. Biotic components :

1. producers : trees, grass, herbs etc.

2. consumer :

* primary consumer : ants, flies, spiders, elephant etc.

* secondary consumer : snakes, birds etc.

* Tertiary consumer : Lion, tiger etc.

3. Decomposer: fungi, coprinus, ganoderma etc.

Grassland ecosystem :

A. Abiotic components : c, H, o, N, P, water etc.

B. Biotic components :

1. Grass, fobs, shrubs etc.

2. Consumer : cow, sheep, rabbit etc.

3. Decomposer : Mucor, Rhizopus etc.

Desert ecosystem :

A. Abiotic component : air, water, soil etc.

Biotic components :

1. producers : grasses, shrubs etc.

2. consumer : Reptiles, insects etc.

3. Decomposers: fungi, thermophilic bacteria etc.

Acquatic ecosystem :

• Wetland ecosystem :

A. Abiotic component: water, carbon dioxide, oxygen, calcium etc.

B. Biotic components :

1. Producers: grass, sedges, algae etc.

2. consumer :

* primary consumer : ants, cow, fish etc.

* secondary consumer : bird, snakes, fishing cat etc.

* Tertiary consumer : tiger, snakes, crocodile etc.

3. Decomposer: worms, protozoa etc.

• pond ecosystem :

A. Abiotic component : water, oxygen, salts, calcium etc

B. Biotic component:

1. producer: floating algae (phytoplankton)

2. consumer :

* primary consumer : minute floating water flea, larvae of insects etc.

* secondary consumer : rotifers, small fish etc.

* Tertiary consumer : larger fish, duck, stork etc.

3. Decomposer: Bacteria, fungi etc.

Ecology : Ecology (from greek: Oikos, house or environment study of) is the branch of biology which studies the interactions among organisms and their environment. Object of study include interactions of organisms with each other and with abiotic components of their environment.