Analytic characters Synthetic characters

- **Frequency** ⟶ Dispersion of species
  Note : - Frequency is an analytic character which show or indicate dispersion of species which is a synthetic character.
- **Diversity** ⟶ Relative abundance
- **Biomass** ⟶ Growth of plant
- **Cover** ⟶ Influence zone of species

SOME TERMINOLOGY

Ecotone - The transition zone is between two communities is called ecotone or tension zone. It has greater number of species & density or it is a transition zone between two communities where one type of community is modified into another type community is knows as ecotone.

Edge effect - Species which occur most abundantly and spend their time is ecotone is called edge species. The tendency to increase variety and density of some organism at the community border is known as edge effect.

Biological (phyto-climatic) spectrum - The ratio or percentage distribution of different life forms in any plant community is called biological spectrum

Biotic potential (Reproductive potential/or potential ability) → The term biotic potential was first used by **Chapmann.**

Under most favourable environmental conditions the maximum reproductive capacity of a species is known as biotic potential.

Vitality - Capacity of normal growth and reproduction for survival of a species. It depends upon weight of plant, stem height, root length, leaf number etc.

Ecological Niche - Word is given by Grinnell. It is the functional role of any species in a ecosystem or community. In other words it is a occupational address or profession of a species it means it is a functional position or status in an ecosystem.

Gause's competitive exclusion principle - This principle state that two closely related species competing for the same resources cannot co-exist indefinitely and the competitively inferior are will be eliminated eventually. This may be true if resources are limiting but not otherwise.

Ecological Equivalents - organism that occupy the same or similar ecological niche is different geographical regioins are known as Ecological equivalents.

e.g. Arctic fox and African Jackal, both are scavengers
Grazers of North America and Kangaroo's of Australia

Habitat : Physical area covered by any organism

Micro climate and Micro habit - Subdivisions of habitat is called microhabitat it is an immediate climate (real climate) of an organism which is different from the average climate or region.

e.g. Forest floor, burrow and surface of desert

Competitive release - A species whose distribution is restricted to a small geographical area because of the presence of a comparatively superior species.

Resource partitioning - If two species compete for the same resource, they could avoid competition by choosing, for instance different time for feeding or different foraging patterns

ECOSYSTEM

- **A.G. Tansley -** The term "ecosystem" First of all coined by A.G. Tansley.
  According to Tansley - Ecosystem is symbol of structure and function of nature.

- **E.P. Odum -** Father of ecosystem ecology.
  According to E.P. Odum - Ecosystem is the smallest structural and functional unit of nature or environment.

- **Karl Mobius -** Used term biocoenosis for ecosystem

- **Thienmann -** Used term biosystem for ecosystem

- **Sukhachov -** Used term biogeocoenosis for ecosystem

- **Misra -** Used term microcosm for ecosystem

- **Forbes -** Used term microcosm for ecosystem

Definition - Total living factor (biotic) and total non living factor (abiotic) of the environment present in a particular area is called ecosystem.

Note :

- The boundaries of ecosystem are indistinct and have a overlapping character over each other.
- Ecosystem is the smallest structural and functional unit of nature or environment. It is a self regulatory and self sustaining unit.
- Ecosystem may be large or small. Single drop of water may be an ecosystem.
- Ecosystem may be temporary or permanent.

TYPE OF ECOSYSTEM

(1) Natural Ecosystem **(2) Artificial Ecosystem**

(1) Natural Ecosystem -

(a) Terrestrial Ecosystem -
e.g. forest, grassland, tree, desert ecosystem

(b) Aquatic ecosystem -
Aquatic ecosystem is again of two type :
(i) Lentic ecosystem $\rightarrow$ stagnant fresh water, lake, pond, swamp.
(ii) Lotic - Running fresh water ecosystem e.g. river.

(2) Artificial Ecosystem - Man made e.g. cropland, Gardens etc.

On the basis of size types of ecosystem

(i) Mega ecosystem - Ocean/Sea (ii) Macro ecosystem - Forest
(iii) Micro ecosystem - Pond (iv) Nanoecosystem - Drop of water

COMPONENTS OF ECOSYSTEM

Every ecosystem is composed of two components-

(A) Biotic component **(B) Abiotic component**

BIOTIC COMPONENT

Formed by living things e.g. plants, animals, microbes

TYPES OF BIOTIC COMPONENTS

1. Producers -

All the autotrophs of ecosystem are called produces. They prepare their own food. The green plants are the main producers. In the process of photosynthesis, producers absorb solar energy and covert it into chemical energy so producers are also called **transducers** or **converters.**

Energy enters into the ecosystem through the producers. The **solar energy** is the only ultimate source of energy is ecosystem. This energy is available for the remaining living organisms.

Other e.–

♦**Chemoautotroph :** (iron bacteria, sulphur bacteria, nitrifying bacteria)

♦**quatic ecosystem :** Floating plants called **phytoplankton** are the major autorophs.

Phytoplankton may produce as mush food as produced by the larger shrubs and trees in unit area.

2. Consumer -

All the heterotrophs of the ecosystem are knows as consumers. They directly (herbivores) or indirectly (Carnivores) depends on the producers for food.

Types of consumer

(i) Macroconsumers **(ii) Microconsumer**

(i) Macro consumers (Phagotrophs or holozoic) -

(a) Primary consumer - Such living organisms which obtain food directly from producers or plants are known as primary consumers.

e.g. herbivores of ecosystem, cow, grazing cattle, Rabbit.

They are also known as **secondary produces** as they synthesize complex materials in the cells. by the digestion of food which is obtained from the plant.

(b) Secondary consumers or primary cornivores - Animals which feed upon primary consumers and obtain food. Those carnivores which kill and eat the herbivores, are called predator

e.g. Vulture, crow, fox

Note:

- The organism which completely depends on dead animals are not example of predators but they all are the **scavengers** or detrivores.
  All predators are carnivores but all carnivores are not predators.

(c) Top Consumers - Those animals which kill other animals and eat them, but they are not killed & eaten by other animal in the nature.

e.g. Lion, man, hawk, peacock

Note : Man and peacock are omnivores.

(ii) Micro Consumers/Decomposers or Saprotrophs/osmotrophs -

Those living organisms which decompose the dead body of producers and consumers are known as decomposes or reducers or transformers or osmotrophs.