

ECOSYSTEM

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- What is Population ?
- A population is one species living in a specific area.
- For example, all foxes living in an area form a population.
- Another example, all roses growing in an area form another population.

WHAT IS COMMUNITY ?

- ⦿ A community is formed from all living populations found in an area.
- ⦿ All the foxes, roses, grass hoppers, snakes, hawks, deer and skunks living in one area each from their individual populations, but together make up a community

○ Living things in an ecosystem are called a Community.

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- The concept of ecosystem was first put forth by A.G. Tansley (1935). Ecosystem is the major ecological unit. It has both structure and function.
- The structure is related to diversity of species. The more complex is the structure the greater is the diversity of the species in the ecosystem.
- An organism is always in the state of perfect balance with the environment. The environment literally means the surrounding.

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- ⦿ The term ecosystem consists of two words
- ⦿ Eco----Environment
- ⦿ System–Interaction

Thus ecosystem refers to the things and conditions around this organism, which directly influence the life and development of the organism and their population.

- ⦿ According to E.P. ODUM, The ecosystem is the basic functional unit of organisms and their environment interacting with each other and with their own components
- ⦿ An ecosystem may be conceived and studied in the habitat of various sizes, e.g. one square meter of grassland, a pool, a large lake balanced aquarium and a certain area of river and ocean.

- All the ecosystem of earth are connected to one another e.g. river ecosystem with ecosystem of ocean.
- **Structure of ecosystem**
- The structure of an ecosystem is basically a description of the organism and physical features of the environment including the amount and distribution of nutrients in a particular habitat.

- ▶ It also provides information regarding the range of climatic conditions prevailing in the area.



- ▶ From the structural point of view, all ecosystem consist of the following basic components:
 - * A biotic component
 - * Biotic component

▶ **1. A biotic components:**

Ecological relationships are manifested in the physiochemical environment. A biotic component of the ecosystem includes basic inorganic elements and components such as soil, water, oxygen, calcium carbonates, phosphates and a variety of organic activities or death.

It also includes physical factors and ingredients as moisture, wind currents and solar radiation.

▶ 2. Biotic components

The biotic components include all living organisms present in the environmental system.

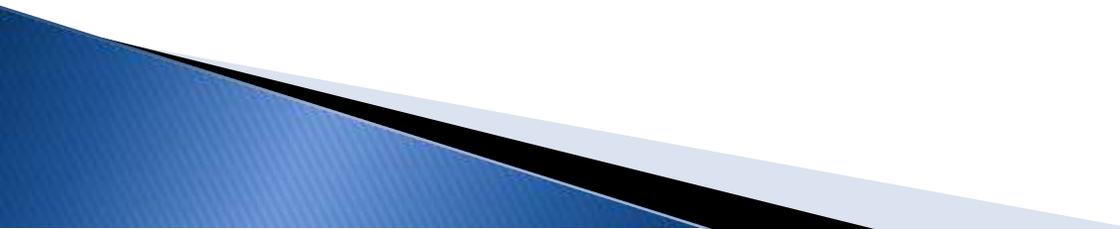
From nutrition point of view the biotic components can be grouped into two basic components.

- * **Autotrophic components**

- * **Heterotrophic components**

- ▶ Herbivores: Plant eaters
 - ▶ Carnivores : Secondary consumers and depend on herbivores.
 - ▶ Omnivores: eat everything, whatever is possible.
 - ▶ Scavengers: Dead material is eaten by them: Vulcher. (Vulchers are rare due to the pesticides.
 - ▶ Detrivores: Feed on parts of dead organisms.
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- ▶ **Decomposers:** Bacteria and fungi, which recycle organic matter and ecosystem by biodegradation and releasing the resulting simpler inorganic compounds or water where they are taken as nutrients by producers.

- ▶ 1. Autotrophic components (Primary Producers) : It includes all the green plants which fix the radiant energy of Sun and manufacture food from inorganic substance through photosynthesis.
 - ▶ 2. Heterotrophic components: It includes green bacteria, non green plants and all animals which take food from autotrophs. So biotic components of an ecosystem can be described under the following three heads.
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- ▶ SECONDARY PRODUCERS
 - ▶ CONSUMERS
 - ▶ DECOMPOSERS AND SEDUCERS
 - ▶ (A) Secondary Producers: photoheterotrophs, including most purple bacteria, produce energy from the light and use organic compounds to build structures. They consume little or none of the energy produced during photosynthesis.
 - ▶ They use radiant energy of sun in photosynthetic process.
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- ▶ (B) Consumers: Those living members of the ecosystem which consume the food synthesized by producers are called consumers.
- ▶ under this category are included all different kinds of animals that found in ecosystem.