

that helps an organism survive and reproduce in its environment. Sometimes adaptations are gained during the organism's lifetime.

Structure and/OR Components of Ecology:

The ecosystem involves the circulation transformation and accumulation of energy and matter through medium of living things and their activities. Environment, plants and animals keep modifying and changing each other as a result of reaction among themselves. This leads to development of an ecosystem. From the structural point of view it is of two types—

1. Abiotic Component
2. Biotic Component

1. Abiotic component: The non living environment of an ecosystem is called Abiotic component.

These include air, water, soil, basic element and compounds of the environment.

a) Lithosphere: Various land forms provide a variety of habitat for plants and animals. Soil provide nutrient, rocks and mineral include in these stage

2. Hydrosphere: Oceanic water is a source area for water through rain (water cycle) provides life to all forms of life i.e., plants, animals

3. Atmosphere: It provides a variety of gases necessary for animals and plants on the surface of earth.

Abiotic portion generally these functions part:

i) Physical factors: Such as temperature, humidity, precipitation, light producing effect on organism.

ii) Inorganic substances: Water, carbon, Nitrogen, Sulphur, phosphorus etc. - all of which involved in biogeochemical cycle. The amount of non-living components, C, P, N etc are present at any given time is known as standing state or standing quantity.

iii) Organic compounds: They are proteins, carbohydrates, fats, synthesised by the living organism in an ecosystem and returned to the ecosystem as their waste, dead remains etc.

2. Biotic component: The living organisms of an ecosystem together comprise the biotic component.

It is mainly divided into ~~two~~ ^{three} components:

- i) Plant system (Autotrophic components)
- ii) Microbes system (Chemoautotroph components)
- iii) Heterotrophic component (Animal system)

So biotic components can be described as following heads:

A. Producer ^(Autotroph): Organism capable of synthesising their own food from non-living simple ~~inorganic~~ inorganic compounds are called producer or autotrophs.

They are of two types:

a) Photoautotroph: Green plant, some protist (Euglena), certain bacteria (Sulphure bacteria). They possess green pigment called chlorophyll by help of synthesising simple organic compound with utilization of CO_2 , H_2O and minerals in presence of sunlight.

The process is called photosynthesis. From the basic material (glucose), the plants then form complex organic compounds such as starch, protein and lipids. The producer utilize organic compounds

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for produces energy to operate metabolic process.
The oxygen evolved as byproduct in photosynthesis and is used in respiration.



b) Chemoautotroph: Some bacteria such as colourless sulphur bacteria, nitrifying bacteria capture energy released during some inorganic chemical reactions and prepare organic food with its help. They are known as chemoautotroph and process is chemosynthesis.

B. Consumer (Heteromorph): Consumer are organisms that eat or devour other organisms. They are also called heterotroph (hetero = other, trophic = nourishment) which means that they are dependent on other organisms for food. The consumer are subdivided into following—

a) Primary consumers: Consumer are the first order. They are organisms which eat the producers. They are called herbivores, eg: Deer, Insect.

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Elton named herbivores of ecosystem as 'key industry animals'. The herbivores serve as chief food source for carnivores.

b) Secondary consumer: These are carnivores and omnivores. Carnivores are flesh eating animals and omnivores are the animals that are adapted to consume herbivores as well as plants as their food. Eg: Secondary consumers are sparrow, crow, fox, dog, snakes etc.

c) Tertiary consumers: These are top carnivores which prey upon other carnivores, omnivores and herbivores. Lions, tigers are considered as tertiary or top consumers.

3. Decomposers/Reducers/Transformers: The decomposers are organism that break down the dead bodies of plants and animals and their waste products. They are also called saprotroph (sapro = rotten, troph = nourishment) or osmotrophs. They include bacteria, actinomycetes and fungi. In their feeding habit, the decomposers are saprotrophs or osmotrophs. Decomposers excrete digestive enzyme in the surrounding decaying organic

They convert the complex organic substance into simple and soluble compounds. A no. of minerals and raw materials are released during the process. The phenomenon is called mineralization. Some of the simple and soluble compounds are absorbed by the decomposers for their body building and energy liberation.

Function of Ecosystem:

The tendency of every ecosystem to persist insured by various function performed by structural component of ecosystem. eg: root absorb water and nutrient from soil, green leaves prepare food by photosynthesis. Herbivores feed on food produced by plant. Decomposers break down complex organic material into inorganic material. All these function is delicately balanced and control. Such as:

1. Energy flow:

1) From sun to producers

b) Producer to consumer

c) Consumer to decomposer.

2. Cyclic use of materials:

The chemical element comprise the abiotic component are circulate in ecosystem starting from nutrient soil to producers, producer to consumer, consumer to decomposer and then back to nutrient pool.

3. Eco regulation:

Biotic component and abiotic components are regulated by each other. Thus ecosystem is maintained.