

Basic concept of Ecology:

Shecht are four basic concept of ecology. They are - Holism, Ecosystem, Succession and Conservation.

5. Holism:

Ecology is basic division of biology explain pattern within and among organism, at each level of organisation. The hierarchical level is individual < population

< community < ecosystem < biome < biosphere. The term holism is derived from Greek word 'holos' means unity coined by Christian Smith in his book Holism and Evolution. This process is a deductive and creative principle operating from first to last in ecology. Smith defined as 'The tendency in nature to form wholes that are greater than the sum of the parts through creative evolution'.

The three ecological levels of organisation - population, community and ecosystem are distinct.

Population is a group of individual organisms of the same species in a given area at a particular time. Community refers to all organisms belonging to different species that interact in the same habitat. A community is made up of population.

Ecosystem is a natural unit composed of biotic and abiotic factors whose interactions leads to self-sustaining system. Biomass is the total dry weight of living organisms at a particular trophic level per unit area. eg total weight of maize crop per hectare. Carrying capacity is the maximum no. of organisms an area can comfortably support without depletion of available resources. Food chain and food webs are two biotic component. Food chain are arrangement of each level of trophic organization. Food chain combine with to form a complex called food web.

2. Ecosystem: An ecosystem is a large community of living organisms in a particular area. The living and physical components are linked together through nutrient cycles and energy flows. Ecosystem are of any size, but usually they are in particular places. On the basis of structure they are 2 types - Biotic and abiotic. Biotic components are living organisms.

(bacteria and fungi) that are present in an ecosystem form biotic components. Abiotic component is non-living factors on the physical envt. prevailing in an ecosystem form the abiotic component. They have strong influence on the site, distribution, behaviour and inter-relationship of organisms. Abiotic factors/components two types - Climatic factor (include rain, temperature, light) and Edaphic factor (include pH, soil)

On the basis of biotic component :  
Producer, Consumer and Decomposer. It function as - Energy is transferred from one trophic level to other form, photosynthesis by green plant

3. Succession: The process of development of new communities in an area is called ecological succession. This process results at times in some species becoming abundant or appearance of a new species. It is a directional and predictable, it increases structural complexity. It can defined as 'an orderly and progressive replacement of one community by another till the development is stable community in that area.'

4. Conservation: Conservation of ecology is a

necessity of life. It involve continuity as dynamic ecosystem. Species diversity and stability within the structural and functional fluxes. Species diversity increases the production efficiency of system.

Vegetation itself regulating the environment. Typical forest which has unique biomass and volume conserve most air, water, soil, fauna. Tree accumulates and lock up huge amount of carbon. Annuals and short term perennials continue to release carbon and all other nutrient to environment through decomposition. Conservation occupies importance in solution regarding global warming.

### Levels of Organization in ecology:

Ecology is a science that studies the interdependent, mutually reactive and interconnected relationship between the organisms and their physical environment on the one hand and among the organism on the other hand.

The main levels of organisation are

1. Individual
2. Population
3. Community
4. Ecosystem
5. Biome
6. Biosphere

1. Individual/Species : The organism is an individual living being that has the ability to act or function independently. It may be a plant, animal, bacteria, fungi etc.

2. Population : A population is a group of organisms usually of the same species, occupying a defined area during specific time. The main limiting factors for the growth of a population are abiotic and biotic.

3. Community : One term community or more appropriately 'biotic community' refers to the population of different kind of organisms living together and sharing the same habitat. The characteristic pattern of community determined by - Role played by various population, range of population, the type of

Area that is inhabited by population as members of community actively interact with their environment. The climate determines the environmental type. For eg climate of the area which determines whether a given area becomes desert or forest.

4. Ecosystem. An ecosystem is defined as a structural and functional unit of biosphere of community of living beings and the environment, both interacting and exchanging materials between them.

The ecosystem was coined by A.G. Tansley in 1935. An ecosystem is a