

## Community Structure (Part-I)

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Introduction :- All the living entities of an ecosystem form a single biotic component, the Community or biotic Community. All the organisms of a community live together, share same habitat, influence each other's life directly or indirectly and have reached a survival level within a given radiant energy. Thus, a community is any assemblage of populations of living organisms in a prescribed area of habitat. Thus, a community is claimed to have one or more of the following attributes -

- (1) Co-occurrence of species. (2) Recurrence of groups of the same species and
- (3) Homeostasis or self regulation. (Krebs' 1985)

Community is a larger unit than the populations and it achieves many characteristics that are not found in its constituents i.e. the organisms and the populations. Communities may have a wide range of sizes, ranging from a small patch of land or water body to a

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extensive forest. Minor Communities are greatly influenced by inputs from adjacent communities, while major communities are relatively independent and self-sufficient of their habitat. Communities differ from place to place and at the same place at different times.

The approach of botanists and zoologists to community studies is quite different. While the zoologist is mainly concerned with the functional relationships within a community, involving both the plants and animals, the botanist are generally concerned with community structure and the changes that undergo in time and space.

### Characteristics of a Community: —

Like a population, a community has a series of characteristics such as follows —

1. Species diversity: — Various species of plants and animals live in a community and exhibit species richness or species diversity: The study of species diversity is an essential component of community study. For animal communities, a study of age structure and growth pattern is important. While for plant communities, floristics, study of taxonomy, life forms such as herbs, shrubs, climbers, trees are important. Since seasonal changes occur in the appearance of plant structure and growth, periodicities and phenology are significant parameters.
2. Growth form and structure: — The type of community

is described by major categories of growth forms (e.g. trees, shrubs, herbs, mosses etc.). These different growth forms determine the stratification or vertical layering of the Community.

3. Dominance :- Among several species present in a Community, a few exert a major controlling influence by virtue of their size, numbers or activities. These are called as Ecological dominants or Dominant Species.

4. Relative Abundance :- Different populations in a Community exist in relative proportions and this idea is called as relative abundance.

5. Trophic Structure :- The feeding relations of the species i.e. who eats whom? will determine the flow of energy and materials from plants to herbivorous animals to Carnivorous animals.

### Classification of Communities

Communities have been classified by different ecologists from different views. In terms of the general growth, composition, shape etc. of vegetation, and organisms associated with them. Communities may be classified as forest, desert, grasslands, tundra and so on. Likewise, according to the amount of water in the habitat, communities may be divided as hydrophytic in predominantly aquatic habitats, mesophytic in moderately moist soils, and xerophytic in dry conditions. Communities growing in abundant conditions of light are called Heliophytes.

those growing in shade are called Sciophytes.  
 Clements (1916) recognized the fact that  
 plant Communities are not always the same  
 at any place and he classified the Commu-  
 nities on two parallel lines. : One is the  
 process of change which are called Serial  
Communities and the others are called Stable  
or Climax Communities.

Further, the global Community, is the entire  
 mass of life, comprising all the plants and  
 animals in the world. The global Commu-  
 nity is further divided into : Continental  
Communities and Oceanic Communities.

Since due to great variability in  
 climatic factors, an exhaustive study  
 in each vast area is practically impo-  
 ssible. Therefore, Communities are studied  
 as biotic province. A biotic province  
 can be defined as a considerable geo-  
 graphic area, over which the climate is  
 relatively uniform though often modified  
 by physiographic features. (Dixon 1952)

Since, biotic province is an abstract  
 community, so based on ecological  
 criteria, the associations are studied  
 as Concrete Communities. It can be  
 defined as specific area, which can  
 be observed directly and are an as-  
 semblage of plants or animals that  
 actually exist and from that an ecologi-  
 cal data can be collected. Lastly, a  
stand, is the largest concrete community  
 e.g. a particular forest, river, swamp  
 meadows etc. 'control' →