

Basic concept of population

A population is a group of individuals of a particular species occupying a particular area at a specific times.

Populations are characterised by different characteristic like dispersion (spread), density, sex ratio, birth rate, death rate etc. The population of a species generally arises as a result of
a) reproduction b) active transport of individuals or c) the passive transport by various agencies like wind, water etc. Under favourable condition the group of individual increases in number. However the environment is dynamic. Thus environment acts as a natural check on population.

The population has the following characteristics:

- i) Population size and density
- ii) Dispersion
- iii) Age structure
- iv) Birth rate (natality)
- v) Mortality (Death rate) and vi) Life tables.

Population density: -

Population density is the number of individuals per unit area or a volume. Density may be of 2 types viz. i) Crude density and ii) specific or ecological density.

- i) Crude density :- It is the density (number of or biomass) per unit of total space.
- ii) specific or ecological density :- It is the density (number or biomass) per unit of habitat space i.e. available area or volume that can be actually be colonised by the population.

This distinction is important because the organisms are rarely uniformly distributed in an area. For example the individuals of Cassia tora are found more crowded in shady patches, and few in other parts of same area. Thus density calculated in total area (shady as well as exposed) would be crude density and the density value for only shady area would be ecological density.

Often it is more important to know the change in population than to know its size at any moment. The 2 densities will differ in each case. In case of changing population, indices of relative abundance are useful.

Community characteristic : → A group of several species living together with mutual adjustment and beneficial interaction in a natural area is known as a community. In a community organisms share the same habitat growing in a uniform environment. The following are the characteristics of community : —

i) Species diversity — Each community is made up of different organisms like plants, animals, microbes etc. These organisms differ zoologically from each other.

ii) Growth form and structure — Community is described in terms of major growth forms as trees, shrubs, herbs etc. In each growth form as in trees there may be different kinds of plants like deciduous trees, evergreen trees, broad leaved trees etc. These different growth forms determine the structural pattern of a community.

iii) Dominance : — In each community only a few species determine the nature of community. These few species exert

a major controlling influence on the community. Such species are known as dominance.

iv) Succession: — Each community has its own developmental history i.e. succession. It develops as a result of a directional change in it with time.

v) Trophic structure: — (self sufficiency) Nutritionally each community exists as a self sufficient, perfectly balanced assemblage of organisms. ✓