

## Ecology & wild Life Biology; ZooG-DSE-B-6-2-TH

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### Unit 2: Population : Dispersal & Dispersion.

#### Population Dispersal:

Movement of individuals into and out of the population is called population dispersal. It plays important role in the geographical distribution of organisms even to the areas previously unoccupied by the members of population.

Dispersal of organisms occurs for various reasons such as food, protection, prevention from overcrowding, action of wind and water, environmental factors, such as light, temperature, breeding behavior, physiological reasons or for interchange of genetic materials between the populations.

Population dispersal occurs in nature in the following three ways:

- (i) Emigration
- (ii) Immigration
- (iii) Migration.

(i) Emigration:

It is one way movement of individuals out of a population. This movement is permanent and causes spread of a species to new areas. Emigration under natural condition occurs when there is overcrowding in the population and is generally regarded as an adaptive behaviour that regulates the population on a particular site and prevents over-exploitation of the habitat. This type of dispersal offers new opportunity to the individuals of a population to interbreed with those of the other populations leading to more genetic heterozygosity and adaptability.

**(ii) Immigration:**

Immigration is one way movement of individuals into a population. It leads to rise in density of population. It may result in decreased mortality among the immigrants or decreased reproductive capacity of the individuals.

**(iii) Migration:**

Migration is two way mass movement of the entire population. It involves a periodic departure and return of the individuals of a population and occurs only in mobile organisms during un-favourable periods. It is shown by many birds, fishes and certain mammals. In most cases,

migration of population occurs for food, shelter or reproduction.

Through this type of movement the chances of utilization of resources in the habitats not previously occupied by any organism are great. However, during migration of population, mortality of numerous individuals may occur due to various ecological hazards, such as temperature fluctuation, scarcity of food, predation etc. Migration has certain benefits for populations as it enables wider dispersion of populations. It also avoids intraspecific competition for food, shelter, etc.

**Population Dispersion:** Yields helpful information about how species interact with each other. Researchers can learn more about populations by studying they way they are distributed or dispersed.

Population distribution describes how individuals of a species are spread out, whether they live in close proximity to each other or far apart, or clustered into groups.

**Uniform dispersion** refers to organisms that live in a specific territory. One example would be penguins. Penguins live in territories and within those territories the birds space themselves out relatively uniformly.

**Random dispersion** refers to the spread of individuals such as wind-dispersed seeds, which fall randomly after traveling

**Clustered or clumped dispersion** refers to a straight drop of seeds to the ground, rather than being carried, or to groups of animals living together, such as herds or schools. Schools of fish exhibit this manner of dispersion.

**Population distribution:** pattern of distribution (uniform, random, clumped)

