

Ecology Notes

Population: a group of individuals of a single species living in a specific area at one time. Characteristics include distribution (locations, often limited by environment/climate), abundance (number of individuals), age distribution, birth and death rates, immigration (coming), emigration (leaving).

Types of Distributions

- Regular/even – usually aggressive to one another. E.g a plant in California that's flower releases chemicals to inhibit the growth of other plants therefore distance between each plant is maximised and uniform
- Random. Rare. E.g random dispersal of dandelion seed by the wind
- Clumped – hive/packs – social species or drawn to same resources. Aggregated

Population growth: it grows exponentially until it reaches **carrying capacity (k)** – the number of individuals the environment can provide resources for. **R = per capita rate of increase** – the speed of reproduction.

Organisms take one of two **reproduction strategies:**

- **R selection** – high rate of reproduction. Characteristics include; small offspring in large numbers, unpredictable environmental, low parental care and therefore low chances of survival. So called because they have the max per capita rate of increase (R). usually overshoot carrying capacity then experience a die off.
- **K section** – low rate of reproduction. Characteristics include: larger offspring, fewer of them, higher parental care therefore higher chance of survival. Predictable environments. So called because they respect carrying capacity (k)

Fecundity: reproductive rate defined by factors such as egg number and size. Large offspring – small number of them. Small offspring – large number of them.

Population density usually declines with increasing organism size. **Commonness** is defined by range, tolerance, and population size. Commonness/rarity comes in three levels:

- **Rarity 1** – extensive range, broad habitat tolerance, but small local populations
- **Rarity 2** – extensive range, narrow habitat tolerance, large local populations
- **Rarity 3** – the worst in all three elements - restricted range, narrow habitat tolerance, small local population

Populations that are least threatened by extinction have extensive geographical ranges, broad habitat tolerances and large local populations.

Meta populations are made up of sub populations living in patches of habitat connected by an exchange of individuals.