

# Carrying Capacity

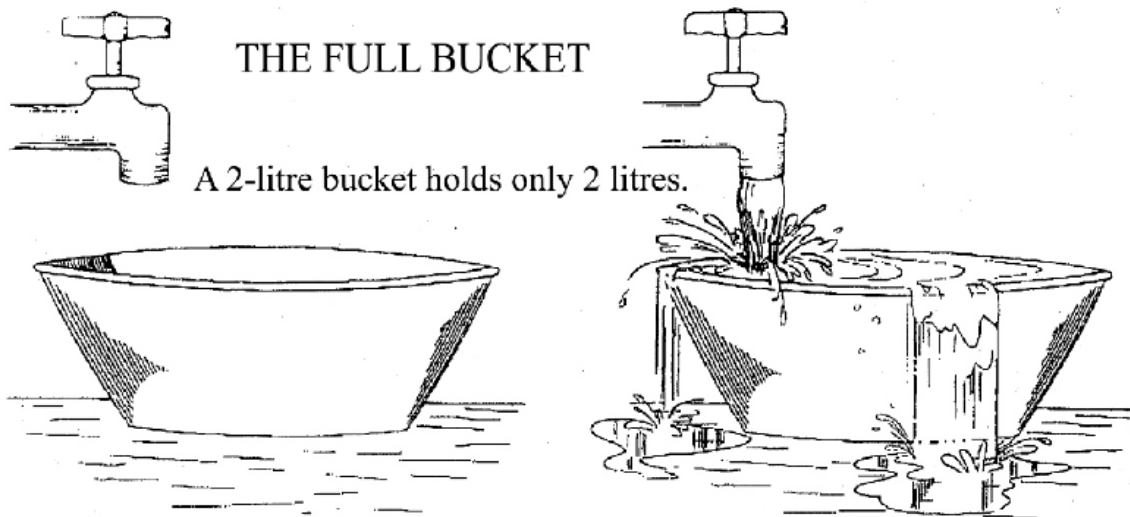
## Objective:

Be able to describe the carrying capacity of an ecosystem. Learn some definitions for carrying capacity

## Key Terms:

- Ecosystem: a system of interacting organisms and their non-living environment
- Equilibrium: stable, balanced or unchanging system
- Fluctuate: to rise and fall as if in waves

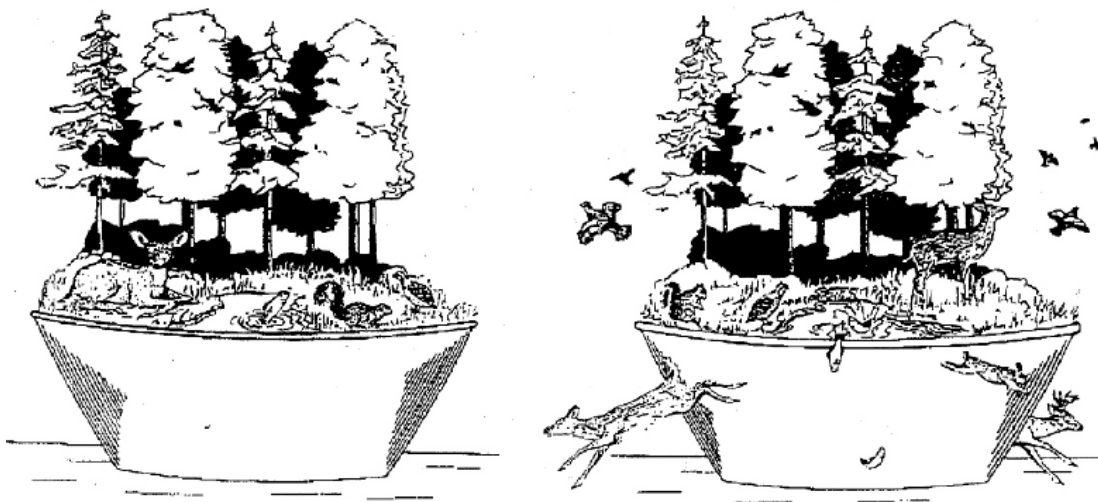
**Task:** Look at the carrying capacity picture below. Think on your own definition for carrying capacity. What factors do you think carrying capacity depends on?



LIKewise:

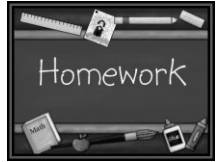
A given area of land or water supports only the number of animals whose needs for food, water, cover and living space are supplied.

Surplus fish and wildlife from breeding populations or stocking disappear or die.



THIS IS CALLED CARRYING CAPACITY.

## Reading:



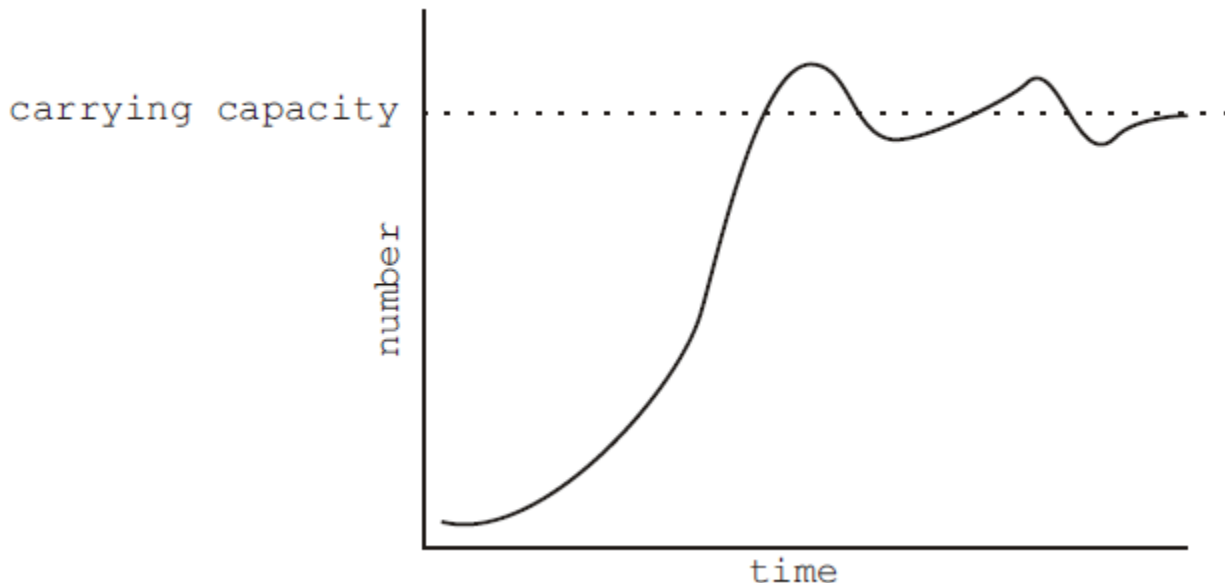
Carrying capacity is typically expressed as the number of animals of a certain type which can be supported in an ecosystem. Carrying capacity may be seen as an equilibrium or balance. However, the carrying capacity for many species is always changing due to various factors.

### The carrying capacity of an ecosystem depends on three factors:

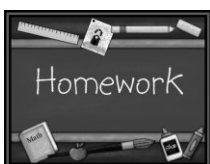
- 1) the amount of resources available in the ecosystem
- 2) the size of the population
- 3) the amount of resources each individual is consuming

Carrying capacity can also have a broader meaning. It can be defined as the number of living things (plants and animals) any area of land or water can support at any one time. Different organisms will have different carrying capacities in the same area. Thus, the carrying capacity of an ecosystem affects everything that lives in it.

The populations of most living things tend to fluctuate naturally around a certain level. That level is the carrying capacity. The following is a graph of a population at the carrying capacity of its ecosystem.



Overpopulation occurs when a population of a species exceeds the carrying capacity of its ecological niche. Overpopulation is a function of the number of individuals compared to the relevant resources, such as the water and essential nutrients they need to survive. For example, it can result from an increase in births, a decline in mortality rates, an increase in immigration, or an unsustainable biome and depletion of resources.



Please turn your homework page for sample graphs on carrying capacity: #4 and #5