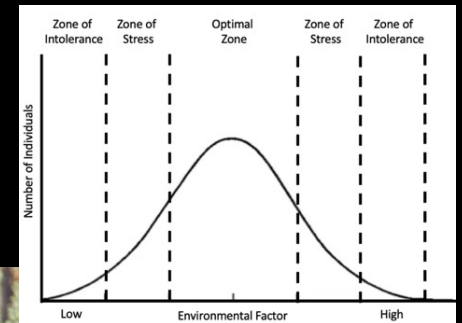


Biotic and Abiotic Population Influences

- Biotic and Abiotic Factors
- Limiting factors
- Tolerance
- Carrying Capacity
- Symbiosis
- Predator-Prey relationships
- Population Equation
- Exponential growth



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Biotic and Abiotic Factors

- _____
 - i.e. food, shelter, predators, etc.
- Abiotic factors are the never-living parts of an environment
 - i.e. temperature, precipitation, air quality, etc.



Limiting Factor

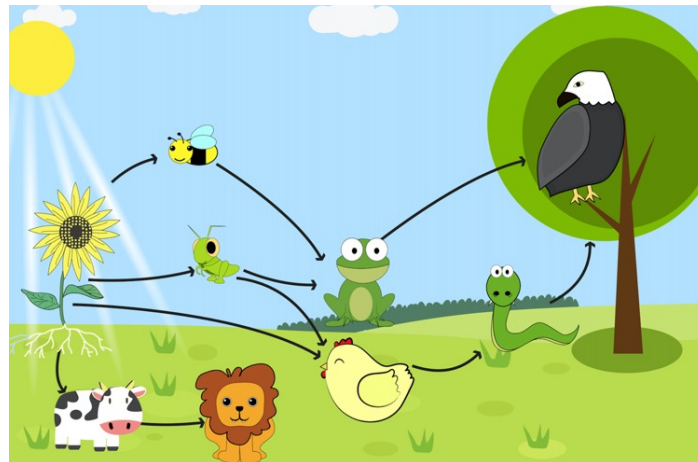
- Abiotic factors determine where a species can live (temperature, precipitation, etc.)
- Biotic factors determine the species' success (number of predators, available food, etc.)
- _____



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Limiting Factors

- _____



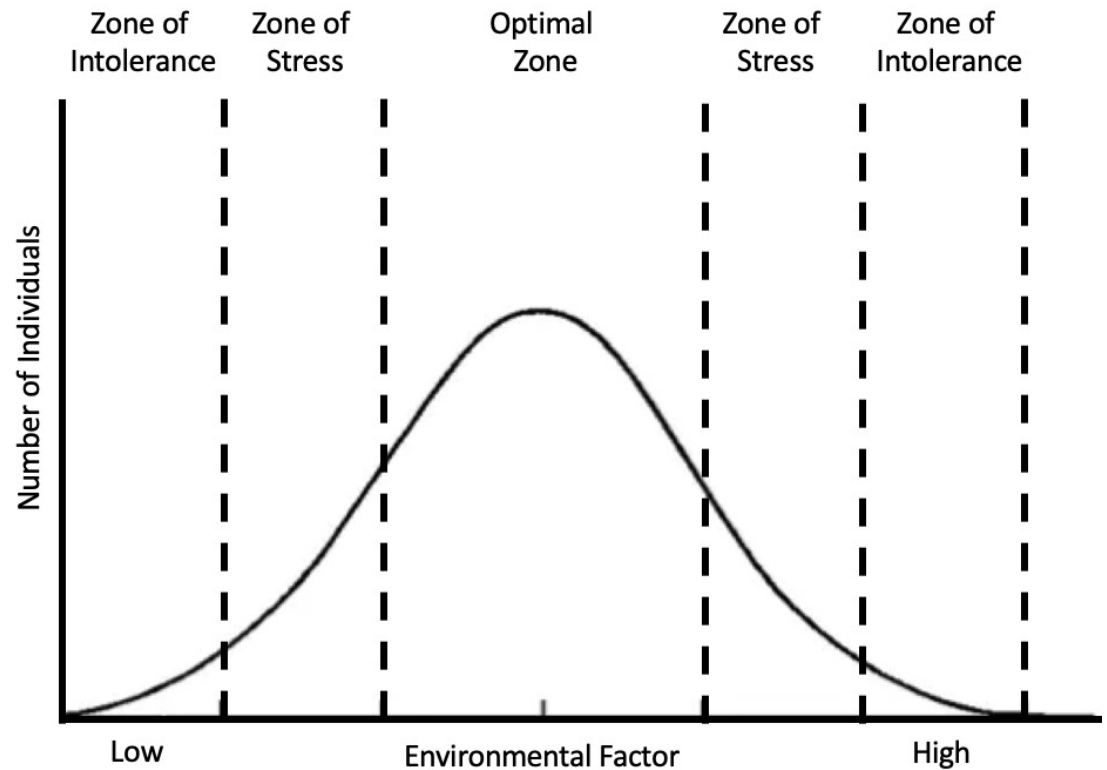
Example:

- lack of water and sun limits the growth of flowers
- less flowers = less food for grasshoppers → less grasshoppers
- less grasshoppers = less food for frogs → less frogs
- less frogs = less food for eagles → less eagles

Tolerance

-

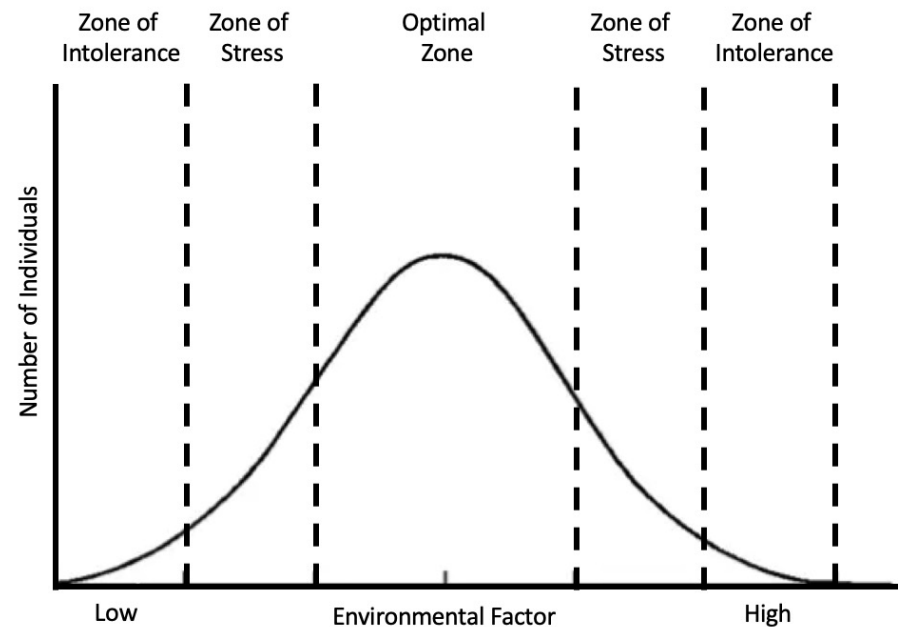
- Different species have different ranges of tolerance



Tolerance

- The range of tolerance are the conditions that the organism can continue to exist in

-



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Symbiosis

- How organisms live together in an ecosystem is called symbiosis
- There are 3 types of symbiosis:
 1. _____
 2. _____
 3. _____

Mutualism

- _____
- E.g. Clownfish and sea anemones. Clownfish are protected from predators by the stinging tentacles of the sea anemones and in return, ...



Parasitism

- _____
- Parasites usually don't kill their host (the animal they live on). It doesn't benefit them to harm the thing that benefits them
- Example – ticks on a dog
 - A tick is a parasite that feeds off the nutrients in the dog's blood. The dog doesn't get the nutrients, so it is harmed.



Commensalism

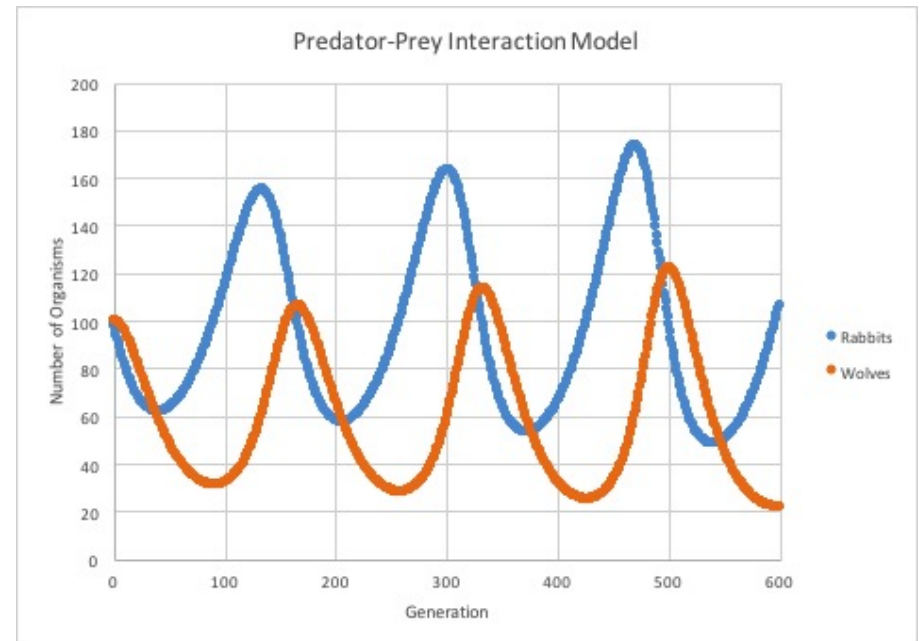
- _____
- E.g. Tigers and golden jackals. These jackals will attach themselves to a particular tiger, trailing it at a safe distance in order to feed on the big cat's kills.



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Predator – Prey Relationship

- In many cases, they act to regulate each other
- E.g. If there are more predators, the population of prey will decrease. _____



Population Factors

- How a population changes (increase or decrease)
- _____
- _____
- _____
- _____

Population Factors

The Population equation

New Population =

Exponential Growth

- Rapid, uncharacteristic growth which only occurs under certain circumstances for a short period of time
- Can be seen when an _____

Exponential Growth Example

In South Africa, elephants became protected after many years of hunting for their tusks. As a result, their population showed exponential growth in the 1960s and 70s.

