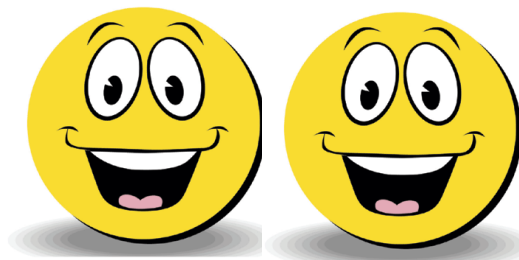
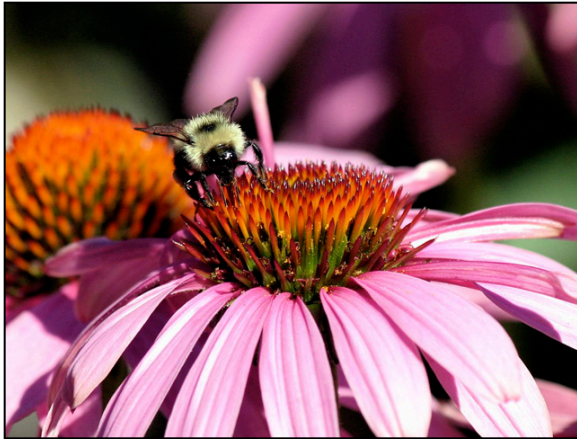


Interactions Between Living Things

Mutualism



- Organisms interact and both organisms benefit.



Bees help flowers pollinate while getting food.

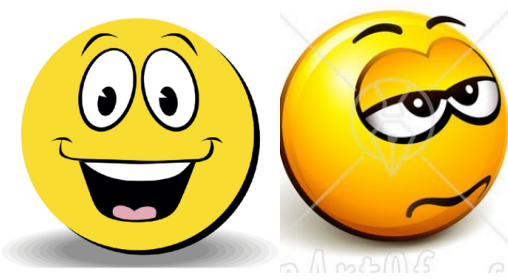


Bird (Plover) gets food while the croc's teeth are cleaned from parasites.



Ants eat Aphids (small black bugs) that attach to plants. Ants get food while the plant is protected.

Commensalism



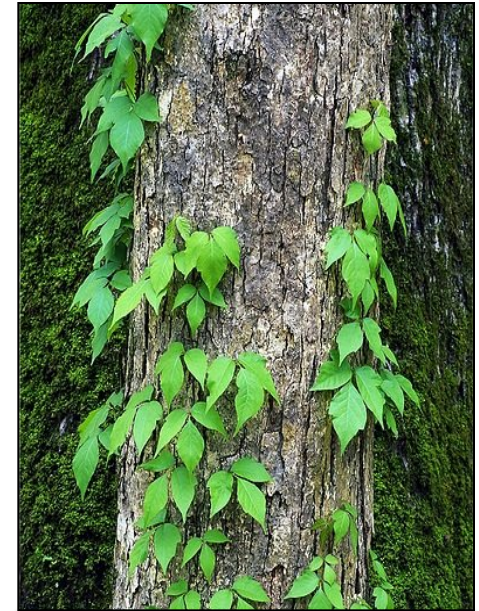
- Organisms interact and **one** organism **benefits** while the **other** is **unaffected**.



Some desert flowers use cactus spines for protection.



Clownfish seek shelter in the stinging tentacles of sea anemones.



Vines hang off trees (for support) allowing them to reach the sunlight faster.

Parasitism



- Organisms interact and **one** organism **benefits** while the **other** is **harmed**.

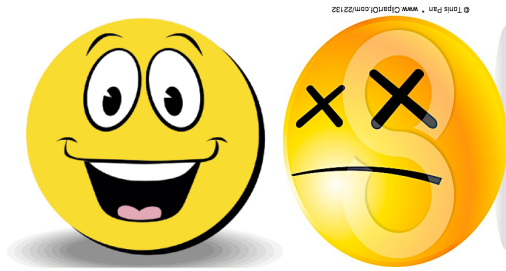


Mosquitoes can harm the 'host' by their annoying bites, and as a carrier of disease.



Insects lay their eggs in the stocks of golden rod. As the larvae grow the plant is deformed.

Predatism



- One organism (predator) hunts another organism (prey) for food. **One benefits while the other is killed.**





Don't worry...no animals were harmed in the filming of this video.

Competition



- Organisms **compete for resources** (i.e., food, water, mate, space, shelter), and **both are potentially harmed**.
- PRO = controls population sizes within an ecosystem



Trees and flowers compete for water, nutrients, and sunlight. Tallest or fastest growing usually wins.



Penguins competing for nesting space on a beach.

Competition



- Organisms **compete for resources** (i.e., food, water, mate, space, shelter), and **both are potentially harmed**.
- CON = either organism can be injured, waste of energy



Some organisms compete for a mate.



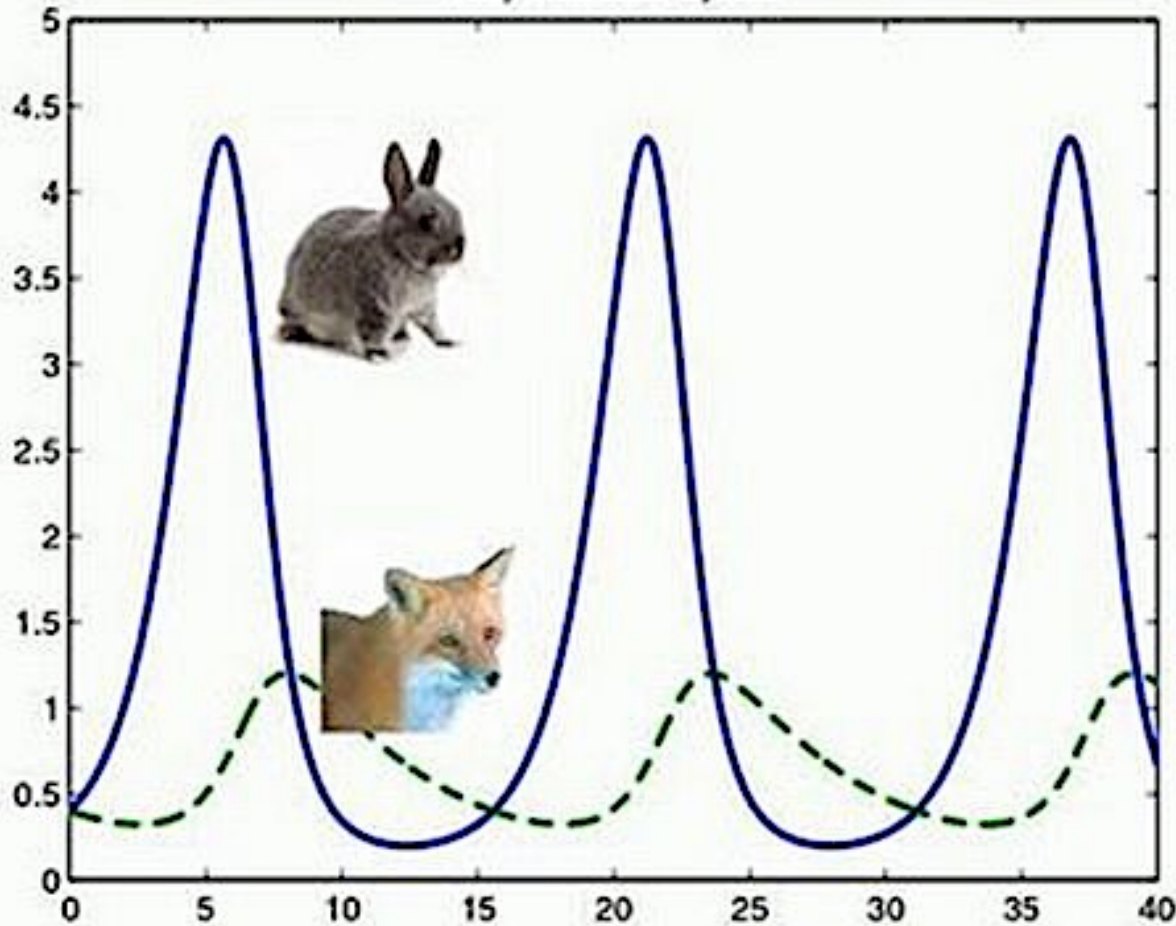
Competing for food is common among animals.



Some organisms compete for dominance (power) within their population.

Predator-Prey Cycle

Prey-Predator Cycles

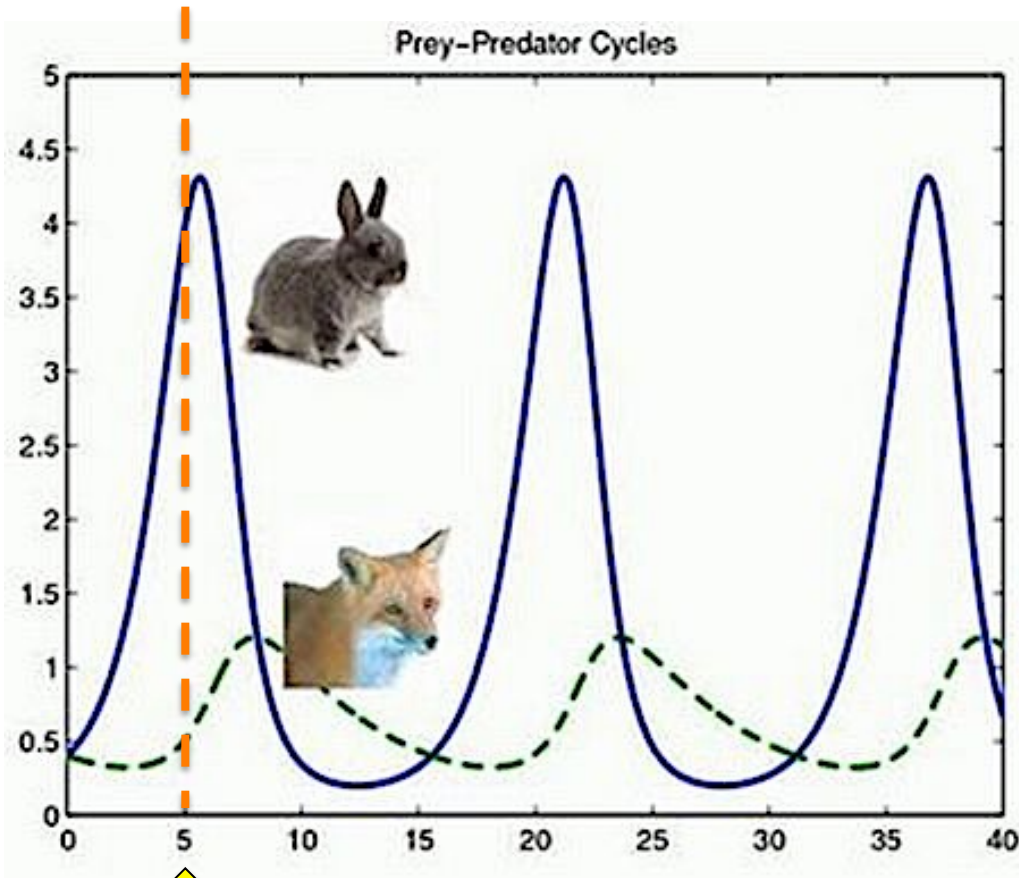


There is a very close relationship between the population of prey and population of predators.

It is a cycle showing as a double wave pattern.

What trends do you notice?

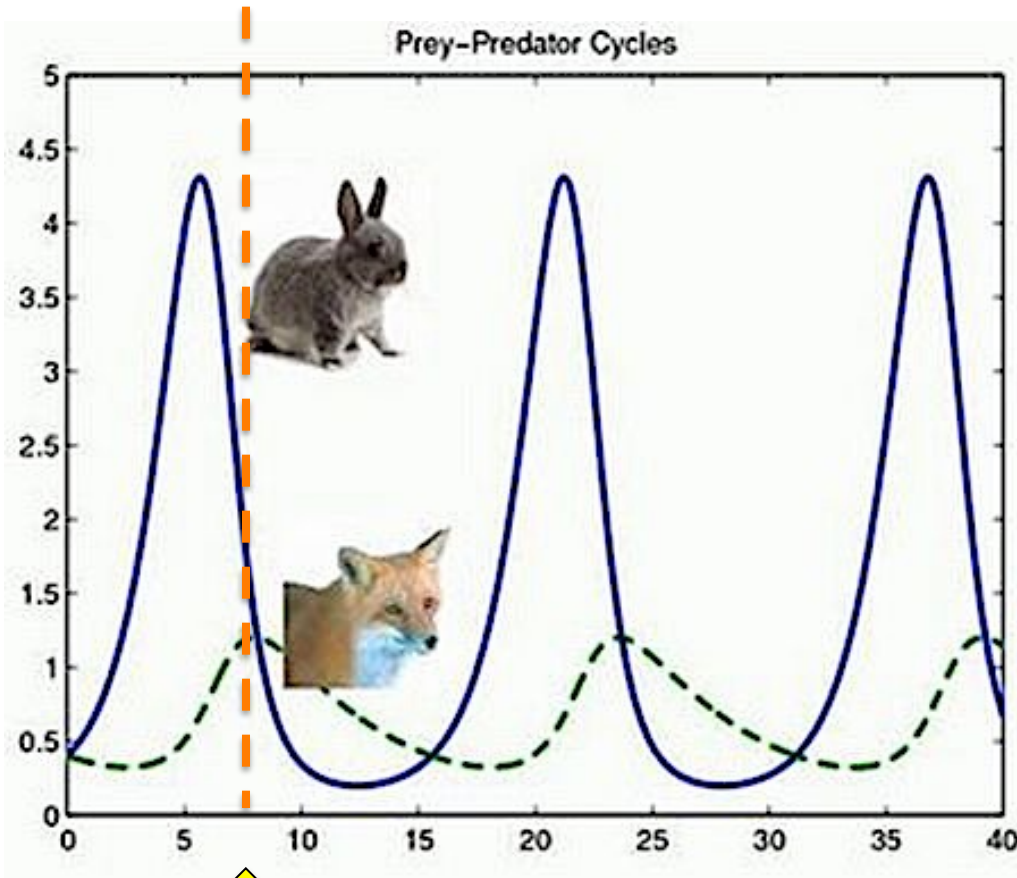
Predator-Prey Cycle



What pattern do you notice at year 5?

High prey population. With lots of food and little competition between predators, predator population increases.

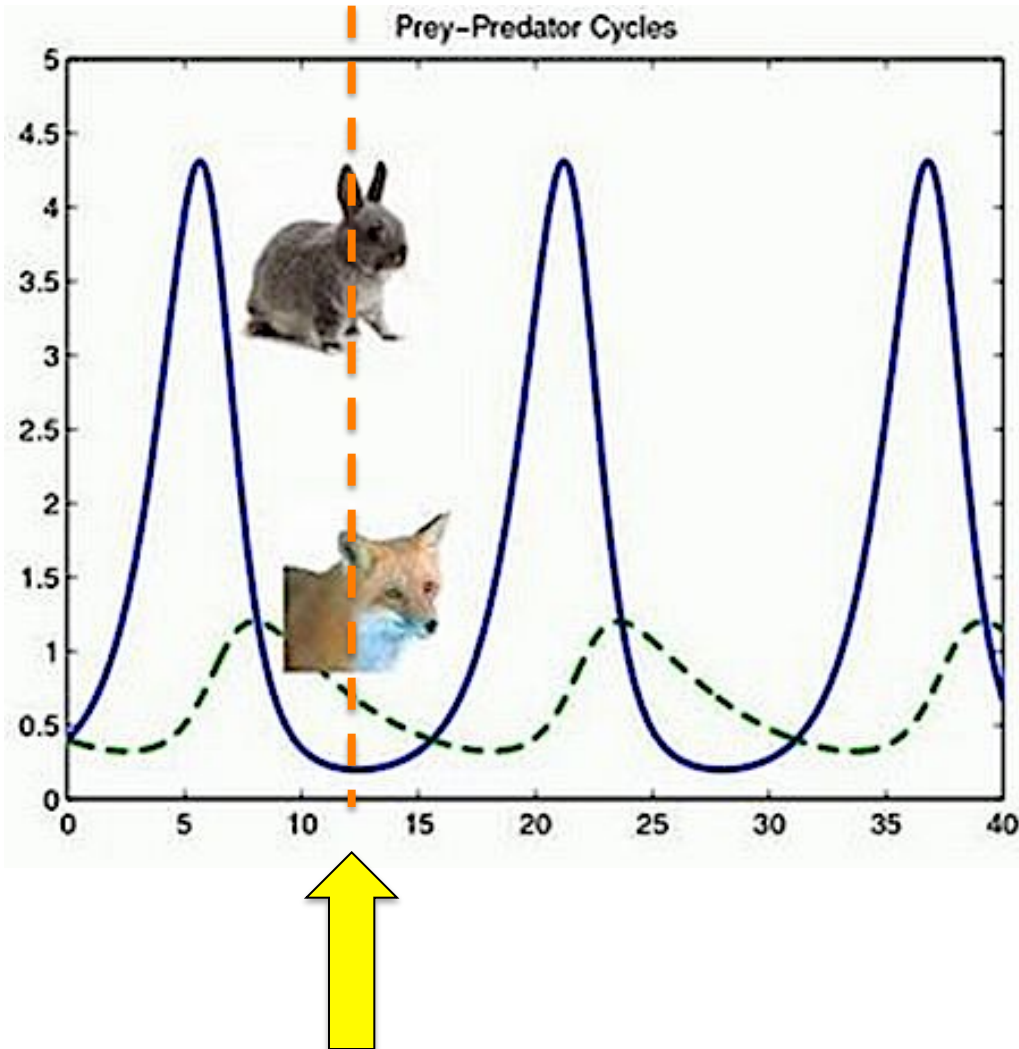
Predator-Prey Cycle



What pattern do you notice at year 8?

High predator population. Large number of prey hunted will decrease prey population.

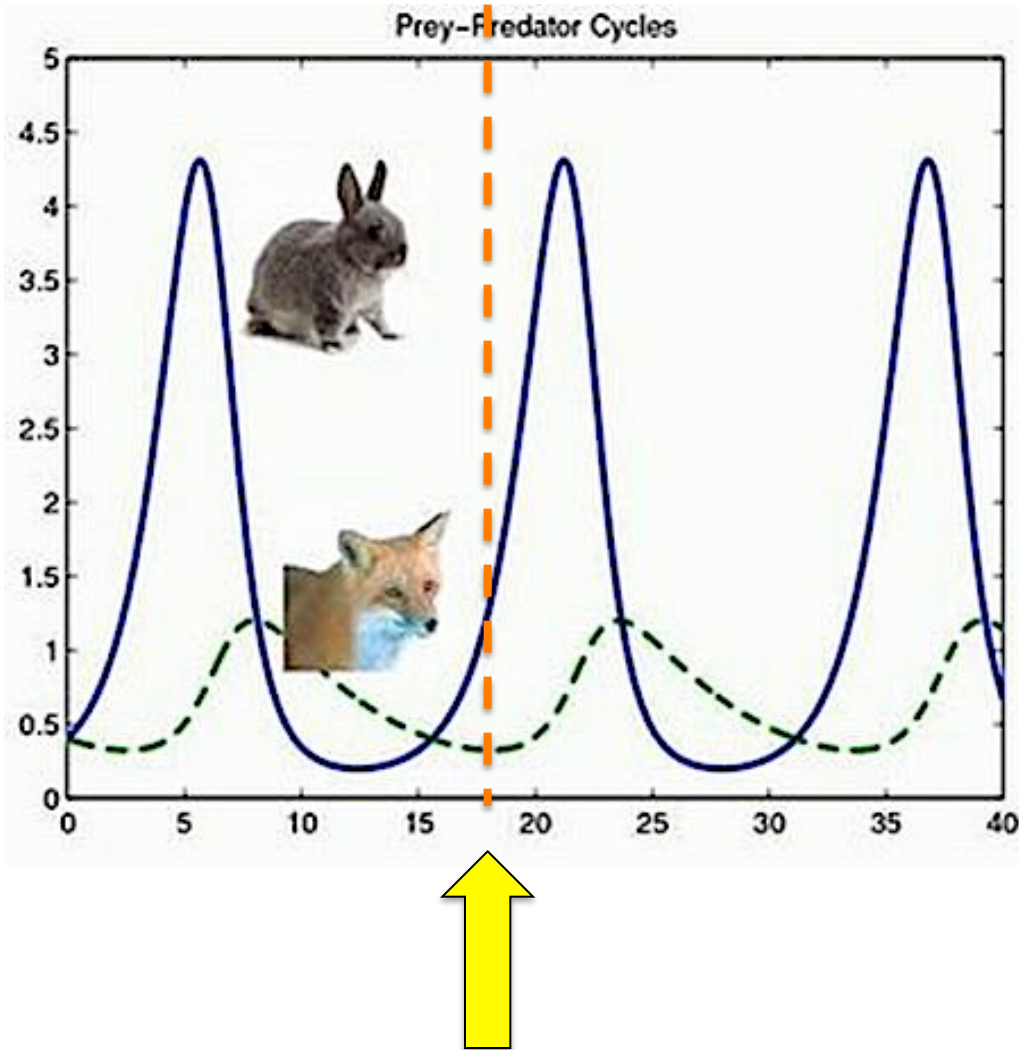
Predator-Prey Cycle



What pattern do you notice at year 12?

Low predator population. With less food and more predator competition, the predator population will decrease.

Predator-Prey Cycle



What pattern do you notice at year 17?

When the predator population gets low enough, it allows the prey population to grow again. The predator-prey relationship will cycle itself as a double-wave pattern.

Wile E. Coyote vs. Roadrunner
(*Predator*) (*Prey*)



Competition With Humans











- Humans are part of an ecosystem and interact not only with each other, but also with the environment.
- Humans tend to change the ecosystem to meet their needs.
- Example: cut down trees for homes and farmland, use fertilizers and pesticides to control other organism.
- Humans tend to create pollution that further impacts the environment.

Much of this land was once forest. Now it is houses.



Competition With Humans

What are some ways that humans and the environment compete? What is outcome?

SITUATION	HUMANS	ENVIRONMENT
Cut down trees for homes and farmland.	 <p>Make shelter.</p>	  <p>Habitat loss.</p>
Use fertilizers and pesticides to control organisms.	 <p>Crops for food.</p>	 <p>Destroy organisms.</p>
Burn fossil fuels for energy.	 <p>Create energy for use.</p>	  <p>Global warming.</p>
Build homes on flood plains because of flat land.	 <p>Flood damages homes.</p>	 <p>Water runoff goes to lowest point on land.</p>