

An Organism's Niche

- The unique role of a species within an ecosystem is a **niche**
 - An **ecosystem** is all of the organisms living in an area together with their physical environment
 - It includes their physical home, the environmental factors necessary for survival, and all interactions with other organisms
 - It is different than a **habitat** (where an organism lives)

Ways in Which Species Interact

- Interactions are categorized by how one population interacts with another
- These interactions depend on whether they harm or help one another
- Some interactions are direct, others are indirect
- This is still being studied to better understand its complexities

Competition

- A relationship in which different individuals or populations attempt to use the same limited resource
- Each individual can be harmed by the competition
- Can occur within or between species
- Ex. Fox and coyote compete for the same prey



Competition

Indirect Competition

- Some species may never come in contact with each other and still compete
- Ex. One type of insect during the day and another at night

Adaptations

- Some species reduce competition with each other by adjusting their niche
- This is called *niche restriction*

Predation

- An organism that feeds on another organism
- The organism that is fed upon is called the **prey**
- Ex. Coyote and deer
- Many species have evolved some mechanisms to avoid or defend against predators



Predation in action...



Parasitism

- An organism that lives on another organism and feeds on the other organism is a **parasite**
- The organism that provides the nourishment is the **host**
- Ex. Ticks, fleas, tapeworms, sea-lice



Mutualism

- A close relationship between two species in which each species provides a benefit to the other
- Ex. Humans and certain types of bacteria in the intestines
 - Humans are better able to digest food and bacteria have a place to live



Commensalism

- A relationship in which one species benefits and the other species is neither harmed nor helped
- Ex. Sharks and remoras
 - Sharks are unharmed and fish are able to eat what the shark doesn't



Symbiosis and Coevolution

- A relationship in which two organisms live in close association is called **symbiosis**
 - Symbiosis is often used to describe at least one species benefiting from another
 - Over time, the species may **coevolve**
 - They develop adaptations that reduce the harm or improve the benefit of the relationship

