Predator Prey Relationships

Community Interactions

Symbiotic relationships are a type of community interaction, what other types of interactions are found within a community?

Community Interactions

- Competition is a **type of community interaction in which organisms within the same community attempt to use the same limited ecological resources.**

- Populations must divide the resources, therefore **competition determines the number and kinds of populations in a community** and **the niche each population occupies**.

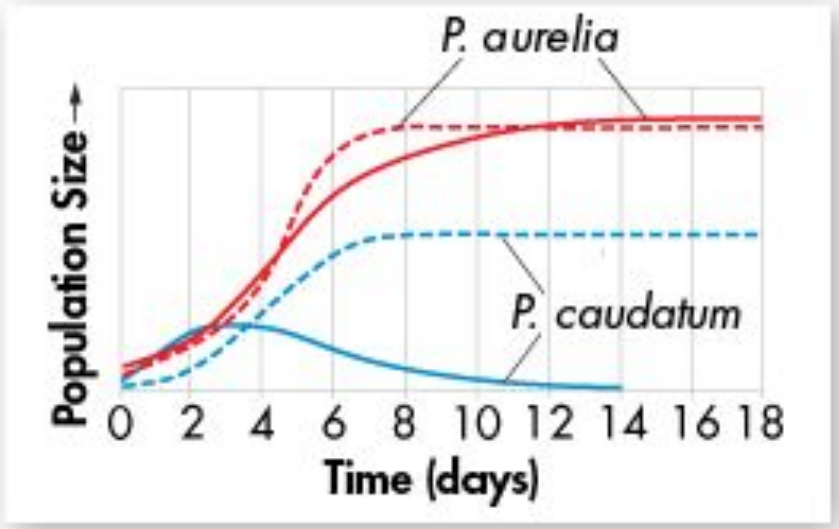
Competition

- In a forest, for example, plant roots **compete** for resources such as water and nutrients in the soil.

- Animals **compete** for resources such as food, mates, and places to live and raise their young.

Competition

- Direct competition between different populations almost always produces a **winner and a loser—and the losing population dies out**.



Dotted line = grown separate
Solid line = grown together

When grown together, which population was the winner? Which was the loser?

The Competitive Exclusion Principle

- The competitive exclusion principle states that **no two populations can occupy exactly the same niche in exactly the same habitat at exactly the same time.**

- If two populations attempt to occupy the same niche, **one population will be better at competing for limited resources and will eventually exclude the other population.**

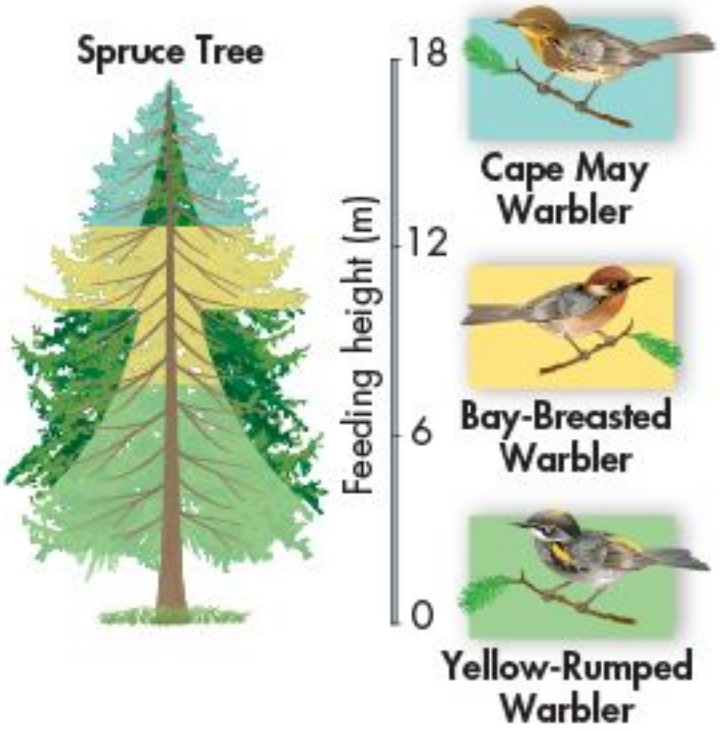
- As a result of competitive exclusion, **natural communities rarely have niches that overlap significantly.**

Dividing Resources

- Instead of competing for similar resources, **species usually divide them.**

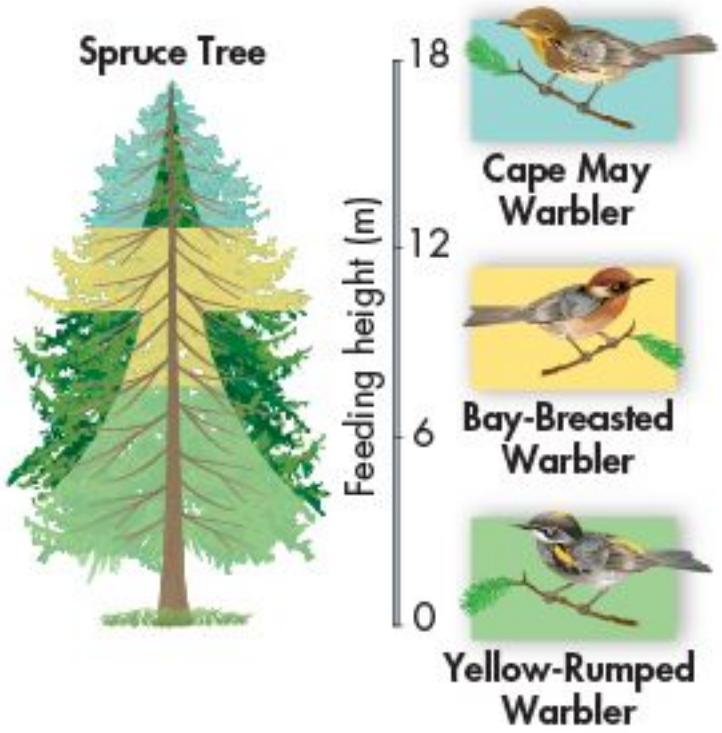
For example, the three species of North American warblers shown all live in the same trees and feed on insects.

But one species feeds on high branches; another feeds on low branches, and another feeds in the middle.



Dividing Resources

- The resources utilized by these populations are **similar yet different.**
- Therefore, each population has its own **niche** and **competition is minimized.**
- By causing populations to divide resources, competition helps determine the **number and kinds of populations** in a community and the **niche each population occupies.**



Predator-Prey Relationships

- If populations can not find their own niche, competition for resources leads to **predator-prey relationships** within the community.

- Predator = **the animal that captures and feeds on the other animal**

- Prey = **the animal that is eaten**

- Predators can **affect the size of prey populations** in a community and **determine the places prey can live and feed**.