What's a community?
- Individuals? Populations?
- **Interspecific** interactions are key
- Has **structure** determined by....

Common interactions between species

**Interaction**

- Competition (−/−)
- Predation (+/−) (includes parasitism)
- Mutualism (+/+)
- Commensalism (+/0)

Fig. 54.9

Basic needs and activities

- The niche

**Archipelago**

- Red-cockaded woodpecker
- Longleaf pine savanna

**Competition**

- Only occurs when...

**Gause's experiment**

![Graph showing competition between Paramecium and P. aurelia](image)

- Population density measured by volume
- In mixed population vs. separately

**Connell's experiment**

![Graph showing competitive exclusion principle in the field](image)

- What's the limiting resource?

**Archipelago**

- Niches
  - Fundamental
  - Realized

Fig. 54.3
Resource partitioning

- Besides C.E., a species can evolve to use resources differently.

Dominican Republic

Mutualism

- Beltian bodies

Predation and evolution

- Venemous green plant snake
- Nonvenemous hammoth lana

Communities and feeding

- Trophic structure: feeding relationships between organisms

A more complete story

- Antarctic marine food web

Does the identity of the species in a food web matter?

- Keystone species have an impact greater than their numbers suggest
Communities over time
- Stable equilibrium or non-equilibrium?
- The impacts of disturbance

(a) Soon after fire  (b) One year after fire

Ecological succession
- Primary vs. secondary succession...examples?

Fig. 54.21  Fig. 54.22

(b) Spruce stage  (c) Alder stage

Describing species diversity
- Species richness and evenness
- Which community is more diverse?

Relative abundances:

A: 25%  B: 25%  C: 25%  D: 25%

A: 80%  B: 5%  C: 5%  D: 10%

Fig. 54.11

Biodiversity vs. area
- Species-area curve; why?

Birds on several Malaysian islands

Fig. 54.27

Island biogeography theory (1)
Two important underlying processes according to MacArthur and Wilson (1967)

Fig. 54.28

Island biogeography (2)
- Adding area back in the equation

(b) Effect of island size  (c) Effect of distance from mainland