

Week 9 Species Interactions and Community Structure

Learning Goal: Understand how interactions among species drive the structure of ecological communities in space and time, and how energy is a currency that governs community structure.

After finishing the pre-class assignments you should be able to:

- Differentiate between fundamental and realized niche
- Classify the types of interspecific interactions between species
- Differentiate between competitive exclusion and resource partitioning
- Recognize the diversity of consumer-resource interactions and their effects on populations
- Explain how biotic factors determine the distinction between fundamental and realized niches
- Describe a climax community and how they are the result of disturbance and succession
- Explain energy flow in food webs and how this gives rise to biomass pyramids
- Recognize the causes and impacts of inefficient energy transfer
- Explain how diversity can affect primary productivity

After meeting this week students will be able to:

- Recognize the diversity of consumer-resource interactions and their effects on populations.
- Articulate how interspecific competition can lead to coexistence and/or competitive exclusion, and predict how competition influences species distributions.
- Predict the effects of interspecific interactions on the abundance for species involved in the interaction
- Explain how biotic factors determine the distinction between fundamental and realized niches.
- Discuss the importance of competition, predation, and symbiotic relationships (i.e., mutualism, commensalism, parasitism) in structuring natural communities.
- Explain how evolution drives ecological interactions (i.e., intraspecific competition, consumer-resource interactions and arms races, symbiotic relationships and coevolution, etc.).
- Draw a food chain and identify how energy is transferred between each level
- Define functional redundancy in the context of an ecosystem
- Predict the effects of redundancy on an ecosystem responding to change
- Justify how the loss of species may impact ecosystems