Competition & Species Diversity

Today's topics:

• Competition and the Niche
• Resource Partitioning
• Species diversity
• Island Biogeography
• Food webs

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Realized niche: The actual species' use of resources (as constrained by interactions with other species)

Fundamental niche: Its potential resource space.

Resource partitioning

Character Displacement

Predator/Prey interactions
Tropical habitats support much larger numbers of species than do temperate and polar regions.

Global Patterns of Diversity

Imagine a newly formed island some distance from the mainland...

What will determine the rate of arrival of new species?

Species richness will be a balance between immigration and extinction.

Which of these communities is more diverse?

Community 1
A: 25%  B: 25%  C: 25%  D: 25%

Community 2
A: 80%  B: 5%  C: 5%  D: 10%
Example: Plants on the Galapagos Islands

The role of Disturbance

Plant Succession

Log (Island Area)

Number of species

Log (# Species)

Log intensity of disturbance

Area (hectares)

Number of taxa