

When do you observe nested subsets?

- Disturbance
 - A diverse area that has undergone rapid change in habitat.
- Strong environmental filtering
 - Areas with high gamma diversity combined with strong filters (environmental variables) on what species occur locally.

When do you observe nested subsets?

- Limited dispersal – Regional pool is consistently constrained locally to just the best colonizers

Storage Effect

- Other mechanisms are theorized to allow for or increase species coexistence.
 - Stochasticity in the environment results in variability in r among species.
 - In some circumstances, "good" years are expected to disproportionately favor less abundant species.
 - In these cases, stochasticity has a stabilizing effect on coexistence.
- When this works
 - Strong interference comp.
 - Competitive lottery
 - Overlapping generations
 - High recruitment

Number of territories occupied following "good" species 2 recruitment	
Species 1	80 (10% decrease)
Species 2	19 (10% increase)
Total	99

Number of territories occupied following "bad" species 1 recruitment	
Species 1	80 (1% increase)
Species 2	9 (10% decrease)
Total	89

COMMUNITY ECOLOGY, Figure 14.1

Evolutionary Community Ecology

- We have discussed various ways populations can evolve in response to the biotic and abiotic environment
 - Character displacement
 - Evolution of predator/prey systems (optimal foraging)
 - Life history evolution
 - Various trade offs

COMMUNITY ECOLOGY, Figure 15.1

Guppy Evolution

- *Poecilia reticulata* evolutionary response to predation
 - Early maturation
 - Higher fecundity, greater energy allocation to reproduction
 - Greater food selectivity (preference for invertebrate food, less algae)



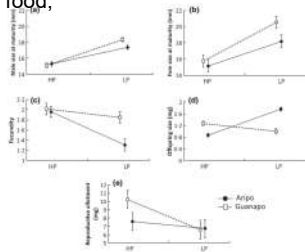
Functional Ecology

Diet quality and prey selectivity correlate with life histories and predation regime in Trinidadian guppies

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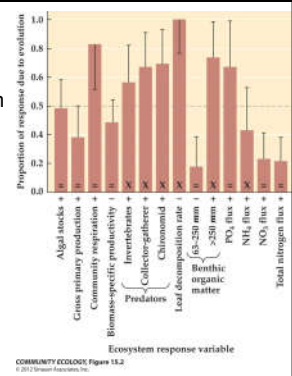
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Fig. 1. Differences in life-history traits between high (HP) and low (LP) predation guppies from the Arripo Island synthesis and Chagropo versus Caychiki rivers. Values represent the estimated marginal means calculated by the general linear model as explained in the text. Bars represent ± 1 SE.



Ecosystem Effects

- Evolution of guppy traits has ecosystem effects.
- In mesocosm trials, guppies from high predation populations:
 - Trophic cascade
 - Larger standing stock of algae
 - Lower invertebrate biomass
 - Lower decomposition rate
 - Greater NH_4 excretion (higher protein diet)



COMMUNITY ECOLOGY: Figure 13.2
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