

Competition and the Niche

READINGS Tues and Thurs LECTURES:

- Competition** Smith/Smith Chapter 14, 242-263 + Lauer&Spacie (zebra mussels) & Byers readings
- Predation** Smith/Smith Chapter 15 all + Turchin paper on lemmings

Today:

Resource (exploitative) and interference competition
Lotka-Volterra equations
experimental evidence for competition
the concept of niche
field evidence of competition

Density-dependent population regulation

Allelopathy (a form of interference competition)

In song sparrows, reproductive success declines

with increasing population density

- Fewer fledged young per female
- Lower juvenile survivorship over the winter

$$\frac{dN_1}{dt} = r_1 N_1 \left(\frac{K_1 - N_1 - \alpha_{12} N_2}{K_1} \right)$$

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