

Things in the book to skip

- Boxes about statistics

Chapter 12

- Learn From book
- There is a trade-off between the number and size of offspring
- When adult survival is lower, organisms:
 - begin reproducing at an earlier age
 - invest more of their energy budget into reproduction
- Life histories may be classified on the basis of population characteristics such as fecundity (m_x), survival (l_x), relative offspring size, and age at reproductive maturity

Competition

Chapter 13

Two-Species interactions

- How might the presence of one species affect another's abundance or fitness?
 - increase + (Facilitation)
 - decrease - (Antagonism)
 - have no effect 0 (Neutral)

Pairwise Interaction Types

Effect on X	Effect on Y	Type of Interaction
0	0	Neutralism
-	0	Amensalism

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+	+	Mutualism

Pairwise Interaction Types

Effect on X	Effect on Y	Type of Interaction
0	0	Neutralism
-	0	Amensalism
+	0	Commensalism
-	-	Competition
+	+	Mutualism
+	-	Predation or Parasitism

Your Muddy Points

- Self thinning (13)
- Intra vs. interspecific competition 3
- Competitive Exclusion Principle (2)
- Character Displacement (5)
- Mathematical models:
 - General (15)
 - Coefficients (7)
 - Isoclines (13)
- Niche (2)
- Examples (2)
- Other (1)

Self Thinning

- Confusing
- Interesting
- How does it work?
- How can there be more biomass but fewer trees?
- Which individuals will win?
- Some examples would help
- How constant is that slope? Does it equal dN/dt ?
- Do animals do this?

Acting out Self-Thinning

- ~10 volunteers to be 'seeds'



Intraspecific Competition in Animals (planthoppers)

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As the population density of the planthopper *Prokelisia marginata* was increased, the following was observed:

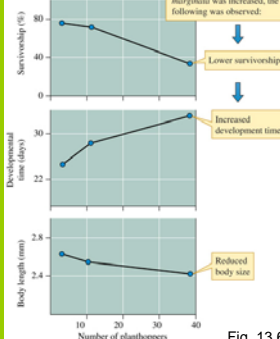


Fig. 13.6



Intra- vs Inter-Specific Competition

- How are they different and how are they the same?

Types of Competition

- General Definitions
 - Interactions that negatively affects both participants (- / -)
 - Use of a resource that reduces the availability of that resource to others
- Types of participants
 - Within species (INTRA-specific)
 - We used the Logistic model to understand this
 - Between species (INTER-specific)

Intra- vs. Inter-Specific Competition

- Similarities
 - Negative interaction via common use of limited resource
 - Interference
 - Exploitation

Mechanisms of Competition

- Interference

- Actively prevent competitor from using resource

- hummingbird territoriality



- Exploitation

- Use resource before competitor
- Deplete resource below levels profitable to competitor

- bumble bees



Intra- vs. Inter-Specific Competition

- Similarities

- Negative interaction via common use of limited resource
- Interference
- Exploitation

- Differences

- Participants may be very dissimilar
- Unequal effects are common 'amensalism' (because they are together, one species suffers, other is unaffected)
- Exclusion of one species may result