

*Assigned readings, 8th Edition pp. 18-24
7th Edition pp. 19-26, 1078-1097

Ecological Studies

Outline of Lecture 6

A. An example of ecological study

- **Experiment 1**
- **Experiment 2**
- **Experiment 3**

*** *The objective of Lecture 5*

B. Questions to answer from this lecture

- * **12 questions**

****The objective of this lecture is to discuss how the experimental method often works in practice (how observation leads to hypothesis testing) and how it often occurs in incremental steps.****

A. An example of ecological study

- **Experiment 1**
What is the effect on the aquatic insect (a caddisfly) *Helicopsyche borealis* on algae, and vice versa?
- **Experiment 2**
Validation of experiment 1 and establish underlying cause of the observed effect.
- **Experiment 3**
Validation of experiments 1 and 2 at larger scales.

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B. From this lecture, be able to answer the following questions:

1. Who is *Helicopsyche*?
2. What is benthos?

3. What is periphyton?
4. What are pilot or reconnaissance studies useful for? Why do we conduct them?

5. What are exclusion experiments?
6. How do we determine gross primary productivity / net primary productivity? Productivity is the rate of accumulation of biomass. What is the difference between gross and net?

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- 7. What are uncontrolled variables?
- 8. What are cage experiments? What problems do they have?

- 9. What is a food-supplementation experiment?
- 10. What influence can abiotic, density-independent factors have on biotic, density dependent factors?

- 11. What are the advantages and disadvantages of mesocosms?
- 12. How do field and laboratory experiments differ?

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13. What about interspecific interactions involving two or more species? What are the different types of effects on the species involved? (“+” = benefit, “-” = detriment, “0” = no effect)

Mutualism (+,+) (both organisms benefit)

Commensalism (+,0)

Neutralism (0,0)

Predation, Parasitism (-,+)

Competition (-,-)