

Chapter 51

CHAPTER 51

BEHAVIORAL ECOLOGY

OBJECTIVES



Introduction to Behavior and Behavioral Ecology

1. Define behavior.
2. Distinguish between proximate and ultimate questions about behavior.
3. Explain how genes and the environment contribute to behavior. Explain what is unique about innate behavior.
4. Define fixed action patterns and give examples in fish and humans.
5. Explain how mayflies are threatened by an inappropriate response to an environmental stimulus.
6. Describe the evolutionary basis for behavioral ecology. Explain why these adaptations may result in suboptimal behavior.
7. Explain why it is useful to use evolutionary principles as a guide to behavioral research.
8. Explain the optimal foraging theory and illustrate it with examples.

Learning

9. Explain how learning, maturation, and habituation influence behavior.
10. Define imprinting and explain the importance of the sensitive period. Illustrate these concepts using examples from bird song.
11. Distinguish between classical conditioning and operant conditioning.
12. Define play and describe several possible adaptive advantages of this behavior.

Animal Cognition

13. Describe the ultimate bases of learning.
14. Describe and illustrate with examples kinesis, taxis, landmarks, cognitive maps, and migration.
15. Explain the problems of defining and studying consciousness.

Social Behavior and Sociobiology

16. Define sociobiology and describe the development of this field of behavior.
17. Define agonistic behavior, dominance hierarchy, and territories; give examples of

each.

18. Describe the typical circumstances associated with the defense of territories.
19. Describe the advantages of courtship.
20. Explain how parental investment influences the different mating behaviors of males and females.
21. Define and distinguish between monogamous and polygamous mating relationships and between polygyny and polyandry.
22. Describe how the certainty of paternity influences the development of mating systems.
23. Describe the various modes of communication.
24. Relate an animal's mode of communication to its lifestyle.
25. Explain how honeybees communicate information about the location of sources of food.
26. Discuss why altruistic behavior might evolve.
27. Relate the coefficient of relatedness to the concept of altruism.
28. Define Hamilton's rule and the concept of kin selection.
29. Define reciprocal altruism.
30. Describe the premise of sociobiology.