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Class #17: Anti-predator behavior

Study questions: Scott ch 7, the additional reading and the video.

1. Distinguish between primary and secondary defense strategies of prey animals. Give an example of each.

2. What is "counter shading" and why would cephalopods need a counter-shading reflex? Describe this behavior.

3. Many predators develop search images by perceptual learning. Octopus and squid species can counter this ability. What do they do? How is this related to mimicry as an evolutionary strategy? Give examples of Batesian and Mullerian mimicry.

4. Some ground-nesting birds make nests that are on relatively open ground, making them fairly conspicuous. What advantage does this have? What can they do to protect their nest from an approaching fox or polecat? Give examples.

5. How can a chick caught in the jaws of a predator sometimes avoid death? Describe two FAPs of such a chick (include both the stimuli and the responses). Do any mammals have such responses?

6. What are two major benefits of group foraging by birds? In analyzing group foraging, what costs must be weighed against these benefits?

7. Describe mobbing behavior by birds, including its functions. What examples of mobbing behavior have we already encountered in class readings and discussions?

8. Besides running away, what strategies do some species employ when they are detected by a predator and are attacked – other than the method in Q#5? (Some strategies are not described by G. Scott in his ch 7.)

9. Describe both altruistic and selfish purposes of alarm calls. Could both kinds of motives have evolved by natural selection?

10. Why is it important for redshanks, a wading bird that feeds on large worms, to have evolved two distinct anti-predator behaviors?

11. Describe "stotting" behavior by Thompson's gazelles. This strange behavior has led scientists to suggest various hypotheses to explain it. Which is supported by quantitative observations?

12. Describe adaptive reasons for the Syrian hamster's being a "twilight animal" – neither day-active nor night-active, but active during the dim light of dusk.

13. In a laboratory setting, it is much easier to test a hamster's visual orienting responses during the daylight hours, but not in the final two hours of light. This may seem counter-intuitive, since it is not the hamster's most active period. Explain how it nevertheless makes good sense, from the standpoint of the hamster's adaptations.

14. In the video "Great Escapes", we see a bobcat attacking a prairie chicken but failing to kill it. The cat appears to be playing with the bird. Explain this behavior in terms of the dynamics of fixed action patterns as described by K. Lorenz.

15. Describe the innate escape reaction of the kangaroo rat to an attacking rattlesnake.

16. Are the instincts of antipredator behaviors really "fixed action patterns" as defined by Konrad Lorenz and other ethologists, or are they really better characterized as reflexes?

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