

## 9.20

### Class #18: Mating and reproduction, introduction

#### *Study questions:*

1. In discussions of evolution, one hears the terms “natural selection” and “sexual selection.” Contrast these terms. Give examples of a behaviorally related trait that evolved by natural selection and one that evolved by sexual selection.
2. Give an example of the extreme differences in reproductive investment of males and females of some species.
3. Describe the very different ways in which an animal can maximize its reproductive output.
4. Mate choice by females appears to be based, in general, on one of two properties of the males, or on both of these. What are they? Give an example of how a female of a particular species bases her choice on one of these traits. Give an example also of selection based on the other trait.
5. Evolution by natural selection is often summarized as evolution by “survival of the fittest.” How is it, then, that in certain species of spiders (also in certain insects) the male is eaten by the female in the act of copulation?
6. Do a Google Scholar search for studies of such cannibalism. E.g., “praying mantis cannibalism.” Prepare a brief summary of results and interpretation.
7. What are the conditions that make it likely in a species that mate choice will be exercised by the males?
8. Give an example of how in some species different individual males adopt very different mating strategies.
9. Name and define the different mating systems. Why are there so many different ones? How is the answer expressed by Nick Davies based on his studies of the reproductive behavior of the dunnock, a small European songbird (the hedge sparrow)? (Note that all of the different mating systems have been seen in humans, some much more than others.)
10. Describe a situation that makes monogamy much more likely. Use an example with an explanation.

11. The physical guarding of his mate by a male can greatly reduce the chances of extra-pair copulations. What other methods of preventing fertilization by another male have been found in some species? Describe two.
12. Describe at least one means by which sperm competition could occur after mating.
13. What has DNA analysis revealed about female sandpipers who desert a first clutch of eggs and find another mate with whom she lays more eggs?
14. What is a lek? How can a male in a lek who never succeeds in mating with a female nevertheless “benefit” by his participation?

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