

9.20

Classes #14-15: Communication

Study questions: Scott ch 5

A. Introduction, pp 93-96

1. Discuss with examples: adaptive and maladaptive effects of signals intended for communication.

B. Evolution and design of signals, pp 96-109

2. Most species of frog and toad communicate by auditory signals. However, one species of frog in Panama does not. How does the Panamanian golden frog communicate with its own kind, and why did this method evolve?
3. Explain why the courtship display of the male water mite *Neumania pupillator* probably evolved. It involves his creating vibrations that resemble those of a prey animal.
4. Why do female swordtail fish prefer males with a long tail extension? (See box on pp 99-100.) Try to give at least one example of the same kind of phenomenon in human behavior. (There are many.)
5. Why have a great many species evolved ritualized fighting behavior? The author, Graham Scott, has studied this in the birds called blue tits.
6. What are the distinct advantages of auditory communication in the case of whales, song birds, and marmoset monkeys? For each species, explain at least one advantage over visual communication.
7. What are two distinct functions of birdsong?
8. In what situation does communication by electrical signals have a clear advantage? It is used by African mormyrid fishes and South American gymnotid fishes.
9. Describe advantages and disadvantages of olfactory communication. Olfaction appears to have been of major importance in early mammalian evolution, and remains so for many mammals.

C. Alarm calls, pp 109-115.

10. What are two functions of alarm calls: one obvious, and the other not so obvious?
11. Why do some foraging birds sometimes emit a fake alarm call?
12. Explain how ground squirrels and vervet monkeys convey specific information about predators to other members of their species (conspecifics).

D. Individual recognition, pp 115-117

13. Describe at least two functions of individual recognition.
14. In what species other than humans may “names” for individuals be used?

Study questions: Monty Roberts on his observations of wild mustangs, and on his procedure he calls “join up”

15. Describe the leader of the group of mustangs observed by the thirteen-year-old Monty Roberts in Nevada.
16. What does it mean to call the horse an “into pressure” animal? Give examples.
17. At what time of the day/night were the observations of wild horses by Monty Roberts most successful?
18. What is the nature of the language called “Equus” by Roberts? What was the incident that first led him to begin to learn this language?
19. What is “join up” as the term is used by Roberts?

Brief outline with things to watch for in “Meerkats of the Kalahari” video:

The meerkat is a social mammal, a small mongoose, living in the Kalahari Desert in southern Africa. The video shows some of this species’ adaptations to life in this hot and arid habitat. It also shows

- some interesting inter-species interactions not involving predation,
- competition between groups of meerkats,
- communications within a group (auditory, tactile, and likely visual as well)
- various altruistic helping behaviors, and
- examples of teaching and learning behavior. Note the clearly suggested FAPs, involving:
 - foraging and feeding, and
 - avoidance and escape from aerial and ground predators, with some evident roles of communication and of learning.

Questions:

1. What inter-species interactions were indicated, not specifically involving predation?
2. Give at least two examples of communication among the meerkats.
3. Describe two examples of “altruistic” helping behaviors. For one of these, what evidence would support the conclusion that this behavior is a fixed action pattern?
4. Describe at least two behaviors that appear to be FAPs used in foraging by meerkats.
5. What is the major adaptation of this species to predators?

6. There are some inaccuracies in the portrayal of meerkat behavior in the video and the narration by George Page. Describe one, using reports in the literature (use Google Scholar).

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