

## Comments and Study questions for Dugatkin. Chapter 2. Natural Selection

Ethology and Behavioral Ecology  
Spring 2008

Most of this chapter should be review. Here are a few specific points. Note that for this chapter (except as noted below), I am interested in your getting some important general ideas about behavior. Anything in bold you should know as we will see these again; things that I have underlined only will be repeating topics this semester but you need not know them now.

1. Review natural selection in the pages up to 41.
2. We will discuss heritability in considerably more detail than does the book. **Know what quantitative trait loci (QTL) are (p 46).** We will use the concept all semester and in fact have already been using it, but not by name.
2. The guppy predation examples (pp 51 to 57) are particularly interesting and useful. Note the **life history trade-offs** made in high and low predation sites; moreover, also be familiar with the example of the **natural experiment** studied by Magurran.
3. Please carefully study the example of **brood parasitism** in wood ducks done by Paul Sherman and his collaborators. Notice that what is adaptive at one nest cavity density may not be at another. Think also about the practical implications of this -- wood ducks were and are endangered in some areas. What did all of this tell you about management?
4. Notice the important role of inbreeding in the evolution of **eusociality** in naked mole rats (pp 62-64).
5. What are coalitions and why is relatedness important in their formation, especially as size increases?
6. Please read the interview with Richard Alexander carefully. In particular, think about the charge that natural selection is a **tautology** (commonly raised by fundamentalist) and be sure that you know what a tautology is and that you understand Alexander's response (note read more about what a tautology is – the definition in the article may be too brief – and you should be able to tell the class why natural selection is viewed by some as a tautology). Also, what is meant by **proximate studies**? Also, please note what Alexander has to say about molecular biology and evolution and in particular **Dobzhansky's notion that inheritance is particulate but development is unitary. What does this mean?** Incidentally, the number of known human genes has dropped about 25% from the figure given in this interview.