HOMEWORK 02

The Beak of the Finch: Chapters 4-6

Answer each question in at least one paragraph (ca. 150-200 words). Refer to the syllabus (section "Written assignments") for formatting instructions.

1. Why could small variability in beak size make a big difference? What did the Grant team measure to illustrate the crucial importance of beak size? What role does seasonality play in the pattern they found?

2. Why can't two finches co-exist on the same island if they eat the same food in the same way? Who is David Lack and how did he figure this out? There are two other experiments mentioned in the book that illustrate this point. Briefly describe these experiments. Do you know the technical term for the principle? (term not mentioned in book, extra points for this)

3. Peter Boag was planning a straight-forward experiment as part of his thesis. What was he interested in testing? How did he plan on implementing his experiment? Describe the methods he was planning to use. Did he succeed? If not, why?

4. What effect did the 1977 drought have on Daphne Major and how did this affect the finches? Why were dead finches important? What was the beak size difference that made the difference between a finch that survived and one that died?

5. Natural selection is not by itself evolution. Why not? What is evolution? Explain this by using the finches and the event of the drought as an example.

6. John Endler did a series of experiments to show evolution in action using a different study system (=study organism). Describe his experiments: What was he testing and what did he find?

7. How did the drought affect the sex ratio of finches on the islands? Why might this be of importance? Explain Trevor Price's findings on the biology and behavior of the finches (plumage, territory, etc.).