Quiz 5 - Review

1. What is ecology?

What is a population, what properties do populations have that individuals do not, and what can these tell us about populations (e.g. different patterns of distribution)?
Know the 2 models of population growth (exponential and logistic) that we discussed: for each, know the pattern of growth, recognize the equations, and know the meaning of each term (and the units of each term). Be able to tell how the models differ from one another.

4. How does population structure affect dynamics?

5. Know what information is contained in a life table and why this is relevant to population growth.

6. What are the common patterns of age-specific survival and reproduction (be able to draw and interpret graphs with respect to age-specific mortality)?

7. Be able to draw and interpret age-structure diagrams

8. What does it mean to say that a population is regulated? What must be true for a population to be regulated?

9. What are density density independent factors and what biological processes underlie them?

10. What are density independent factors and what processes underlie them?11. How would you manage a population for maximum sustainable yield, and why would you do it this way? How might you refine your management technique depending on the life history of the species?

12. How would you attempt to control the size and/or growth of a pest population and why would you do it this way?

13. What are the 4 classes of 2-species interactions and how are they alike and different?

14. What is predation and what kinds of effects is it expected to have on population dynamics?

15. What do Huffaker's mite experiments and moose and wolves on Isle Royale illustrate about the effects of predation on population growth rates of predators and prey?

16. What is competition and how does it affect population growth rates

17. What does Gause's work illustrate about the effects of competition on population growth rates?

18. What is the competitive exclusion principle

19. What is the niche concept and how is it useful in the study of competition?20. What did Connel's study, in which he removed each of 2 co-occurring species of barnacles, demonstrate? Remember that he got different results for the two species.21. Be able to interpret Connel's results in terms of the fundamental and the realized niche of each species.

Know the definitions of the following terms:

Per capita rate of increase population growth rate carrying capacity survivorship curve life history maximum sustainable yield competition (interspecific and intraspecific) competitive exclusion principle predation mutualism commensalism niche fundamental niche realized niche