

ENV 115 – Environmental Science
Chapter 4 Review Topics

1. Know the case study of the golden toads of Monteverde.
2. What is biological evolution?
3. What is natural selection?
4. What observations did Darwin and Wallace make that led them to develop the idea of natural selection?
5. How is genetic variation important to evolution?
6. Define Adaptive traits and mutations.
7. What evidence is there for natural selection in nature?
8. What is artificial selection and why is it strong evidence for natural selection?
9. Define biodiversity.
10. What is speciation? Specifically, what is allopatric speciation and how does it work?
11. How does the fossil record help us understand the processes of speciation, evolution and extinction?
12. What is extinction?
13. Why are some species more vulnerable to extinction than others?
14. What is a mass extinction? How many have we had in earth's history? Why do some think we are in the midst of another mass extinction? What is causing it?
15. What is ecology?
16. Define habitat, niche, habitat selection, specialist and generalist.
17. Be able to describe the following population characteristics and why they are important.
 - a. Population size
 - b. Population density
 - c. Population distribution
 - i. Random
 - ii. Uniform
 - iii. Clumped
 - d. Age structure
 - e. Sex ratio
 - f. Growth rate
 - i. Natality
 - ii. Mortality
 - iii. Immigration
 - iv. Emigration
18. Be able to identify the graphs of the following types of growth
 - a. Exponential growth
 - b. Logistic growth
 - c. Oscillating growth
19. What is a carrying capacity? Does it always stay the same? Why or why not?
20. What are some examples of limiting factors?
21. What is biotic potential? How is it related to growth rates?
22. Distinguish between K and r-selected species. Be able to give some examples.