Study Guide: Populations and Communities

* Introduction to Populations
  + What is a population?
    - Why is it important that we study them?
  + How can we determine the size of a population?
    - What are three ways of doing this?
  + Describe population density
  + What is dispersion?
    - What are the three different types of dispersion?
  + What does it mean to have a dynamic population?
    - How do dynamic populations change?
      * How do they get larger?
      * How do they get smaller?
* Population Profiles
  + How do evolution and populations overlap?
  + Describe a survivorship curve
    - What are the two axis for a survivorship curve?
  + What is an equation that is the basic to understanding the rate of population increase?
    - What do the variables stand for?
  + What are the two different types of growth?
    - Draw a graph of each of them
    - What scenarios are required for each of them to take place?
  + What is a limiting factor?
  + What is carrying capacity?
    - Is this a “hard cap” or is it a dynamic number?
  + Describe how predator and prey relationships are linked in closed systems
    - How do prey populations and predator populations relate
  + Describe density dependent factors
    - Give an example
  + Describe density independent factors
    - Give an example
  + What is the idea of sustainable resource management?
  + What is an ecological footprint?
* Human Population
  + What type of curve is humanity following?
  + What is our current population?
    - Is it increasing or decreasing?
    - Where is it increasing?
  + Describe some of the differences between developed countries and less developed counties
* Introduction to Communities
  + What are the six major types of relationships that species can have?
    - Draw a + and – chart for each one
    - Describe the basics of each one
  + What are some good adaptations that make good predators?
  + What are some good adaptations that make good prey?
  + What are some good adaptations that make good plants?
  + Describe the types of competition
    - Are they good for the organisms involved?
  + What happens if two organisms compete for the same resource?
  + What is a niche?
    - What is a realized niche?
    - What is a fundamental niche?
  + How does character displacement reduce competition?
  + How does resource partitioning reduce competition?
  + Describe the three types of symbiosis
    - Provide an example for each
  + Define the four/five basic types of organisms
    - Describe how they fit into a trophic pyramid
    - What is biomass?
* Patterns in Communities
  + What happened in Yellowstone national park in 1988?
    - What was the result 20+ years later?
  + What is a disturbance?
    - Describe a biotic disturbance
    - Describe an abiotic disturbance
  + What is ecological succession?
  + What are the stages to ecological succession?
  + What are the names of the organisms that come first in ecological succession?
* Patterns in Communities (cont.)
  + What are the organisms that come second in ecological succession?
  + What is the major factor that stops colonizers from taking over in primary succession?
  + What is a climax community?
  + Describe aquatic succession
  + What is the climax community of aquatic succession?
* What is a biogeochemical cycle?
  + What are the three different biogeochemical cycles we learned in the chapter?
    - Draw a carbon cycle
    - Draw a nitrogen cycle
    - Draw a phosphorous cycle
  + What is organic matter?
  + What is an abiotic reservoir?
  + What two equations are important to know for the carbon cycle?
    - How do they cycle carbon?
  + What is the main element in the air we breathe?
    - Can we use it in that form?
  + Where does nitrogen fixation happen?
    - What plants are really good at this process?
  + Describe the process of weathering or erosion
    - Why is it important?
  + How are humans affecting the carbon cycle?
  + How are humans affecting the nitrogen cycle?