

Name _____ Date _____ Period _____

HONORS BIOLOGY – PROBLEM SET

CHAPTER 34: THE BIOSPHERE

CHAPTER 37: COMMUNITIES AND ECOSYSTEMS

1. What characteristics of the tropical rain forest make it the most diverse place on Earth? [1 point]
2. Why are food chains limited to four or five trophic levels? In other words, why is it impossible for food chains to go on and on forever? BE SPECIFIC! [2 points]
3. An ecologist studying desert plants performed the following experiment. She staked out two identical plots that included a few sagebrush plants and numerous small annual wildflowers. She found the same five wildflower species in similar numbers in both plots. Then she enclosed one of the plots with a fence to keep out kangaroo rats, the most common herbivores in the area. After two years, four species of wildflowers were no longer present in the fenced plot, but one wildflower species had increased dramatically. The control plot had not changed significantly. Interpret the results of this experiment. Include a discussion of the following terms: [4 points]
 - a. competition
 - b. predation
 - c. fundamental niche
 - d. realized niche
4. Imagine an aquatic food chain: plankton → small fish → large fish → birds. Describe how the community would be affected by each of the following situations: [2 points]
 - a. A virus kills off most of the small fish.
 - b. DDT, a pesticide, is found in the water at 0.000003 ppm.

5. Interpret the meaning of the graph of the right. The graph shows the various trophic levels from a fictitious bluegrass field in Michigan. [1 point]

