

MOUNT SAINT MARY COLLEGE
NEWBURGH, NEW YORK 12550

OBJECTIVES FOR CHAPTER 9

For the exam on this material you should be able to:

1. Discuss each of the terms below. Where appropriate you should be able to state an ecological example. Diagrams are permitted if you feel they enhance your discussion.

population	small scale	regular distribution
distribution	large scale	clumped distribution
abundance	random distribution	pheromones

2. Answer the essay questions listed below in as much detail as possible.
 1. What confines *Encelia farinosa* to upland slopes in the Mojave Desert? Why is it uncommon along desert washes, where it would have access to much more water? What allows *E. frutescens* to persist along desert washes while *E. farinosa* cannot?
 2. Spruce trees, members of the genus *Picea*, occur throughout the boreal forest and on mountains farther south. For example, spruce grow in the Rocky Mountains south from the heart of the boreal forest all the way to the deserts of the southern United States and Mexico. How do you think they would be distributed in the mountains that rise from the southern deserts? In particular, how do altitude and aspect affect their distributions in the southern part of their range? Would spruce populations be broken up into small local populations or in the southern or northern part of the range? Why?
 3. What kinds of interactions within an animal population lead to clumped situations? What kinds of interactions foster a regular distribution? What kinds of interactions would you expect to find within an animal population distributed in a random pattern?
 4. How might the structure of the environment, for example, the distributions of different soil types and soil moisture, affect the patterns of distribution in plant populations? How should interactions among plants affect their distributions?
 5. Outline Rabinowitz's classification of rarity, which she based on size of geographic range, breadth of habitat tolerance, and population size. In her scheme, which combination of attributes makes a species least vulnerable to extinction? Which combination makes a species most vulnerable? Give an example for each.

6. Can the analyses of Damuth and by Peters and Wassenberg be combined with that of Rabinowitz to make predictions about the relationship of animal size to its relative rarity? What two attributes of rarity, as defined by Rabinowitz, are not included in the analyses of Damuth and by Petters and Wassenberg?

7. Suppose you have photoidentified 30 humpback whales around the island of Oahu in one cruise around the island. Two weeks later you return to the same area and photograph all the whales you encounter. On the second trip you photograph a total of 50 whales, of which 10 were photographed previously. Use the Lincoln-Peterson index with the Bailey correction to estimate the number of humpback whales around Oahu during you study.