

## Chapter 14: POPULATION ECOLOGY: STUDY OF THE ABUNDANCE AND DYNAMICS OF SPECIES POPULATIONS

Read sections 14.1, 14.2 (read broadly, skim details of equations), 14.3, 14.7, 14.8

1. Why would organisms be distributed in a clumped distribution rather than a random distribution? Provide at least two examples.
2. What are 5 processes contributing to contagion in a population?
3. What are 5 advantages and disadvantages of being a member of a population?
4. Using simple graphs and equations illustrate the difference between geometric and logistic growth. Explain when and why each occurs.
5. Using a simple graph, show how most populations grow over a long period of time. Briefly describe at least 2 reasons that a simple logistic curve does not adequately explain the growth.
6. Be able to interpret a population age distribution diagram in terms of inferred mortality and birth rates.
7. Identify and discuss the 4 different types of survivorship curves.
8. What are the 4 principal factors that influence population size? Explain and provide an example of each factor.
9. New plants are recruited into a population in 4 main ways. What are the 4 types of recruitment?
10. Contrast density-independent vs. density-dependent population regulation. Provide examples of each.
11. What is the  $-3/2$  power law?
12. Why is population ecology an important component of forest management?

## Chapter 15 – Community Ecology

Read all sections

1. What are 6 ways you could characterize (describe) a plant community?
2. What are the 5 different structural layers of a community?
3. “Standing dead and downed trees are unsightly and should be removed from the forest”. Support or refute this statement.
4. Define “plant association”.
5. Contrast the plant association concept with the individualistic hypothesis of plant distribution. Who was the American ecologist who proposed the individualistic hypothesis?
6. What is symbiosis? Provide an example. What is antagonism? Provide an example.
7. In your own words, state the competitive exclusion principle. Provide an example of the principle at work.
8. Review the concept of ecological niche and identify 3 major components. How does the fundamental niche differ from the realized niche?
9. How is an understanding of plant communities important to forest management?
10. What are 3 dimensions involved in describing the structure of plant communities?