

11. Referring to the study of butterfly populations in Finland, what factors increased a population's likelihood of local extinction. ("Extirpation" is the term for a localized extinction.)

55.3 Population demography and dynamics

12. Define demography.

13. Name and explain two factors that affect population growth rates.

14. What is the general relationship between body size and generation time?

15. Define fecundity.

16. How does age structure of a population affect its growth rate?

55.4 Life history and the cost of reproduction

17. What is the cost of reproduction?

18. Under what types of conditions is the cost of reproduction low? High?

19. Describe the tradeoff in investment per offspring.

55.5 Environmental limits to population growth

20. What is the biotic potential of a population?

21. What is the carrying capacity?

22. Describe the logistic growth model.

23. What happens to the amount of resources available for an individual as the population approaches the carrying capacity?

55.6 Factors that regulate populations

24. Define density dependent and density independent factors that affect population size. Give examples.

25. Describe how the population cycle of snowshoe hares relates to food plants and predators.

26. Describe the difference between K-selected and r-selected species and give examples.

27. Use Table 56.3 to fill in the table below.

	r-selected	K-selected
age of first reproduction		
life span		
maturation time		
mortality rate		
number of offspring per reproductive episode		
number of reproductive episodes in lifetime		
parental care		
size of offspring or eggs		

55.7 Human population growth

28. Name at least two reasons why the human population has increased so rapidly in the last 300 years.

29. What is the estimated human population (as of 2010, when your text was published).

30. What is the annual growth rate of the human population?

Note: Given a population pyramid, be able to describe the growth rate of that population – whether the population is stable or will show future rapid growth.

31. How is the number of people in the human population distributed among industrialized vs. developing countries?

56.1 Biological communities: Species living together

32. What is a community?

33. Compare the individual concept of communities vs. the holistic concept of communities.

34. Notice our textbook talks about our very own Santa Catalina Mountains! (pg 1187)
Temperatures decrease and moisture increases as you go up the mountain in elevation. Are tree communities in the Santa Catalinas at different elevations a continuum, or discretely separated?

35. What is an ecotone?

56.2 The ecological niche concept

36. Define niche.

37. What is interspecific competition?

38. Define and compare fundamental niche and realized niche.

39. What is the principle of competitive exclusion?

40. Describe resource partitioning. Give the example of resource partitioning of warblers.

56.3 Predator-prey relationships

41. What is predation? How does predation affect evolution? What is the "evolutionary arms race"?

42. Give examples of morphological and chemical plant defenses against herbivores.

43. Describe coevolution. Give example of monarch butterflies and their host plants.

44. What are examples of animals that use chemical defenses?

45. Describe the warning (aposematic) coloration of monarch butterflies. Why are they toxic to many predators?

46. What is cryptic coloration?

47. Describe Batesian mimicry and give an example.

48. Describe Müllerian mimicry.

56.4 The many types of species interactions

Note: In everyday language, the term "symbiosis" usually means "mutually beneficial". In science, the term "symbiosis" is more general.

49. Describe symbiotic relationships (symbioses). Name three kinds of symbioses

50. Describe mutualism and give an example.

51. Describe parasitism. Give examples.

52. Describe commensalism and give an example.

53. What happens if a major predator is removed from an ecological community? Give examples of major predators (Note: major predators are often considered keystone species, defined in a later question).

(continued)

54. What is species richness?

55. What are keystone species?

56. Why are beavers considered to be keystone species?

56.5 Ecological succession, disturbance, and species richness

57. What is succession?

58. What type of disturbances can disrupt succession?

59. Describe the intermediate disturbance hypothesis.

Step 2: Multimedia Activity

Use the textbook publisher's website to complete the following activities. Don't worry that the numbering is different than the units in your text – these activities are from a previous version of the text.

24.1 – ESP – Population Characteristics

60. Describe four factors that increase or decrease a population's size.

24.4 – ESP – Size Regulation

61. Give three examples of density dependent factors and three examples of density independent factors that influence population size. (I disagree that pollution is density-independent – I think it's density-dependent)

62. What happens to a population if it exceeds its carrying capacity?

24.5 – ESP – Population Growth

63. Under what conditions do bacteria grow exponentially?

64. Logistical growth follows an "S" shaped curve. Population growth is _____ when the population is small. Population growth slows as the _____ is approached.

24.5 ESP – Human Population

65. Which continent has the highest percentage of population growth?

66. What determines the population growth rate?

25.1 ESP – Introduction to Communities

67. As one moves from temperate latitudes to tropical latitudes, what happens to the number of species in a given ecological community?

25.4 – ESP – Succession

68. Describe the difference between primary and secondary succession.

69. What are pioneer species? Give examples.

70. In secondary succession of a plowed field, describe the changes in plant communities over time.