

Answers to Concept Review Questions

Chapter 1

Concept 1.1 Review Answers

1. The level of organization studied by an ecologist largely determines the types of questions addressed as well as the design of studies used to answer those questions.
2. Studies aimed at one level of organization often need to assess influences deriving from many other levels. For example, predators and parasites may have significant influence on zebra population size and variation in the physical environment, especially precipitation, will likely affect the availability of forage for the zebras, and therefore, their reproductive condition and general health.

Concept 1.2 Review Answers

1. Both studies focused on the use of space by warblers. The two studies contrasted sharply, however, in their spatial scales. While MacArthur focused on the use of microhabitats within a forest, studies of the American redstart spanned the distance from the Caribbean to northeastern North America.
2. Nadkarni's research focused on the distribution of nutrients in forests; nutrient distribution and flux is one of the major areas of interest to ecosystem ecologists. A community ecologist working in a forest canopies might be interested in understanding how canopy structure influences the number and kinds of bird species living in a forest. A population ecologist might study the distribution of a particular species of epiphytic plant in a forest canopy.
3. Examples of basic questions addressed by Margaret Davis and her colleagues: How did the composition of the tree community in the Appalachian Mountains change over the past 12,000 years? When did the species now living in the study area first colonize the surroundings?

Answers to Critiquing the Evidence

Critiquing the Evidence 1

1. New research tools increase the capacity of researchers to obtain information about ecological systems, which increases their capacity to test hypotheses.

Critiquing the Evidence 2

1. No, since both sample means are estimates of the population mean based on a random sample of the larger population, the two sample means are unlikely to be the same.
2. Yes, since larger sample sizes generally produce a better estimate of a population mean.

Answers to Concept Review Questions

Chapter 1

Concept 1.1 Review Answers

1. The level of organization studied by an ecologist largely determines the types of questions addressed as well as the design of studies used to answer those questions.
2. Studies aimed at one level of organization often need to assess influences deriving from many other levels. For example, predators and parasites may have significant influence on zebra population size and variation in the physical environment, especially precipitation, will likely affect the availability of forage for the zebras, and therefore, their reproductive condition and general health.

Concept 1.2 Review Answers

1. Both studies focused on the use of space by warblers. The two studies contrasted sharply, however, in their spatial scales. While MacArthur focused on the use of microhabitats within a forest, studies of the American redstart spanned the distance from the Caribbean to northeastern North America.
2. Nadkarni's research focused on the distribution of nutrients in forests; nutrient distribution and flux is one of the major areas of interest to ecosystem ecologists. A community ecologist working in a forest canopies might be interested in understanding how canopy structure influences the number and kinds of bird species living in a forest. A population ecologist might study the distribution of a particular species of epiphytic plant in a forest canopy.
3. Examples of basic questions addressed by Margaret Davis and her colleagues: How did the composition of the tree community in the Appalachian Mountains change over the past 12,000 years? When did the species now living in the study area first colonize the surroundings?