

The Scope of Ecology

1. Define ecology. Identify the two features of organisms studied by ecologists.
2. Describe the relationship between ecology and evolutionary biology.
3. Distinguish between abiotic and biotic components of the environment.
4. Distinguish among organismal ecology, population ecology, community ecology, ecosystem ecology, and landscape ecology.
5. Clarify the difference between ecology and environmentalism.

Interactions Between Organisms and the Environment Affect the Distribution of Species

6. Define biogeography.
7. Describe the questions that might be asked in a study addressing the limits of the geographic distribution of a particular species.
8. Describe the problems caused by introduced species and illustrate with a specific example.
9. Explain how habitat selection may limit distribution of a species within its range of suitable habitats.
10. Describe, with examples, how biotic and abiotic factors may affect the distribution of organisms.
11. List the four abiotic factors that are the most important components of climate.
12. Distinguish between macroclimate and microclimate patterns.
13. Provide an example of a microclimate.
14. Explain, with examples, how a body of water and a mountain range might affect regional climatic conditions.
15. Describe how an ecologist might predict the effect of global warming on distribution of a tree species.
16. Name three ways in which marine biomes affect the biosphere.

Aquatic and Terrestrial Biomes

17. Describe the characteristics of the major aquatic biomes: lakes, wetlands, streams, rivers, estuaries, intertidal biomes, oceanic pelagic biomes, coral reefs, and marine benthic biomes.
18. Define the following characteristics of lakes: seasonal turnover, thermal stratification, thermocline, photic zone.
19. Explain why the following statement is false: "All communities on Earth are based on primary producers that capture light energy by photosynthesis."
20. Describe the characteristics of the major terrestrial biomes: tropical forest, desert, savanna, chaparral, temperate grassland, coniferous forest, temperate broadleaf forest, and tundra.
21. Give an example of a biome characterized by periodic disturbance.