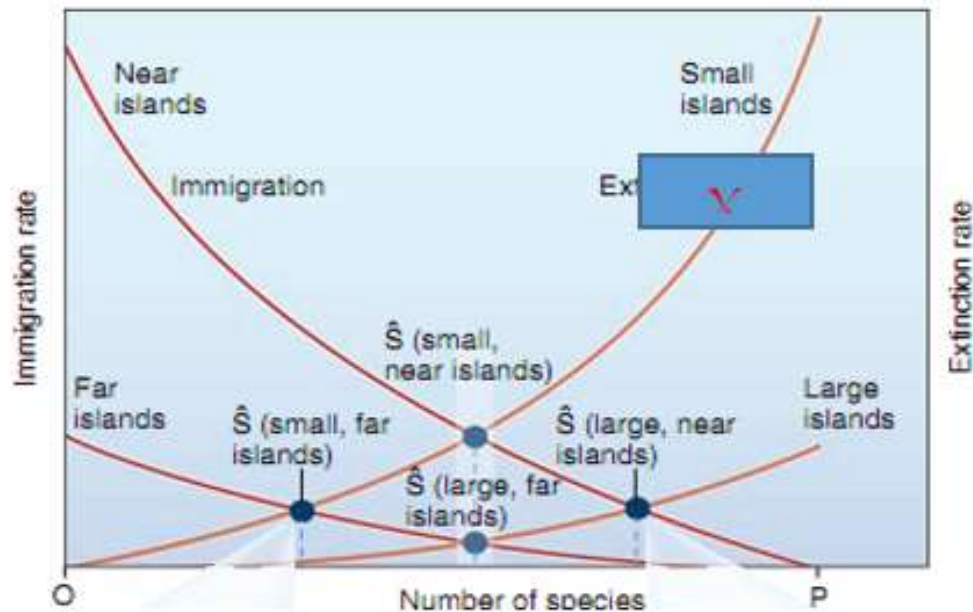


Important Questions on Ecological Principles



1. Community ecology is concerned with:
 - A. the convergence of ecology and evolution
 - B. how an organism's behaviour affects its survival and reproduction.
 - C. How organisms adapt physiologically to their surroundings
 - D. Factors affecting the number of species in a given area
2. The main elements of global change are:
 - A. Habitat destruction
 - B. Introduced species
 - C. Direct exploitation
 - D. All of the above
3. The term evolutionary ecology defines
 - A. How organisms have evolved to adapt to their environment through interactions with individuals, populations, and other species.
 - B. Focuses on how the behavior of an individual organism contributes to its survival and reproductive success, which in turn affects the abundance of a population.
 - C. Investigates how organisms are physiologically adapted to their environment and how the environment impacts the distribution of species.
 - D. None of the above.
4. Which is not a variation of the species-time hypothesis?
 - A. Resident species in the Tropics have not yet evolved forms to exploit similar temperate habitats
 - B. Tropical species have not migrated back to temperate areas following glaciation
 - C. Evolution is faster in the Tropics than in temperate areas
 - D. Rates of disturbance are lower in temperate than in tropical areas.
5. Which of the following hypotheses proposes a stepwise decline in community function with decreasing species richness?
 - A. Linear
 - B. Idiosyncratic
 - C. Keystone
 - D. Rivet
6. Which mechanism most often prevents invasive plant species from invading native communities?
 - A. Competition from native plants
 - B. Suppression from native herbivores
 - C. Effects of the soil fungal community
 - D. A and B
7. 'Z' represents the following in the MacArthur-Wilson hypothesis of island biogeography:
 - A. The number of species
 - B. A constant measuring number of species per unit area
 - C. A constant measuring slope
 - D. The intercept

8.



What is 'X' marked in above graph?

- A. Immigration
 - B. Extinction
 - C. Migration
 - D. None of these
9. Find out the incorrect statement regarding marine oil spills?
- A. Oil spills is the release of a liquid petroleum hydrocarbon into the environment.
 - B. Crude oil released from spill forms emulsions with sea water known as mousse.
 - C. No remedial measures can be taken after oil spills.
 - D. None of the above.
10. Given below are some statements about phosphorous cycle–
- P. Principal stock of phosphorous occur in rocks and ocean sediments.
 - Q. Weathering of rocks gradually adds phosphorous to soil.
 - R. This cycle may be described as open cycle because of general tendency for mineral phosphorous to be carried from land to oceans.
- Which statement(s) is correct?
- A. P, Q, R
 - B. Only P
 - C. Q and R
 - D. only Q

Answers

- | | | | | | | |
|------|------|-------|------|------|------|------|
| 1. D | 2. D | 3. A | 4. D | 5. D | 6. D | 7. C |
| 8. B | 9. C | 10. A | | | | |

Solutions

Solution 1:

Community ecology focuses on what influences the number of species in a given area and how populations of species interact to build functional communities.

Solution 2:

The main elements of global change are habitat destruction, introduced species, pollution, and direct exploitation.

Solution 3:

Evolutionary ecology, behavioural ecology, and physiological ecology are the three primary subdisciplines of organismal ecology. The first part looks at how creatures have evolved to adapt to their surroundings through interactions with other individuals, communities, and species.

Solution 4:

The species-time hypothesis suggests that temperate areas are less species-rich because they have had less time to recover after the ice ages than have tropical areas, which were relatively unaffected.

Solution 5:

Paul and Ann Ehrlich (1981) proposed an alternative called the Rivet hypothesis. In this model, species are like the rivets on an airplane. Some species play a small but critical role in keeping the plane, the community, airborne, while other species do not. Thus, community services decline with decreased species richness in a stepwise fashion.

Solution 6:

Species richness affects community resistance to invasion by introduced species. The study of Knops and coworkers, many other experiments have addressed the role of biotic resistance in limiting invasions of introduced plants at small spatial scales. While many studies have investigated the importance of species richness in reducing invasion, others have examined whether the mechanism is via competition from native plants, suppression by native herbivores, or the effects of the soil fungal community, either mycorrhizae or pathogens, that prevent invasion.

Solution 7:

$$S = cA^z$$

If species richness on habitat islands increases with area, extinction should result as area declines. To some extent, this depends on the value of z , the slope of the relationship between species richness and area.

where S = number of species, and c and z are both constants. In this relationship, z values are often taken to represent the slope of the relationship between species richness and area.

Solution 8:

Small islands far from the mainland have fewest species. An increase in distance, from near to far, lowers the immigration rate; an increase in island area, from small to large, lowers the extinction rate. The intersection of the immigration and extinction curves yields the equilibrium number of species.

Solution 9:

The oil spills pollutes the marine ecosystem but there are remedial measures adopted for cleanup the ocean including chemical control and bioremediation therefore the incorrect statement is C. Both A and B are true statements.

Solution 10:

All statements are correct. Principal stock of phosphorous occur in rocks and ocean sediments. Weathering of rocks gradually adds phosphorous to soil. This cycle may be described as open cycle because of general tendency for mineral phosphorous to be carried from land to oceans.



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