

APOLLO

Ecological niches

SL

Biology

First assessment 2025

4 questions | questions

25. What occurs during competitive exclusion between two species?

- I. They compete for the same resources so cannot coexist in the same niche.
 - II. Competing species are regulated by predators in the ecosystem.
 - III. Both species are restricted to a part of their fundamental niche.
- A. I and II only
 - B. I and III only
 - C. III only
 - D. I, II and III

Turn over

- 27.** The paradise tree (*Ailanthus altissima*) produces a chemical called ailanthone which inhibits the growth of other plants. What is this process?
- A. Allelopathy
 - B. Endemism
 - C. Mutualism
 - D. Herbivory

2. The distribution of native grasses in a temperate arid region of Mendoza, Argentina, was studied in six habitats (I to VI) at different altitudes. The table shows the presence (+) or absence (–) of the species in each habitat.

Species	Habitats	I	II	III	IV	V	VI
<i>Bromus araucanus</i>		–	–	–	–	–	+
<i>Bromus brevis</i>		–	–	–	+	+	+
<i>Bromus</i> sp.		–	–	–	–	+	+
<i>Cortaderia rudiusscula</i>		–	–	+	–	–	–
<i>Elymus erianthus</i>		–	–	+	+	+	–
<i>Elytrigia attenuata</i>		–	–	–	–	–	+
<i>Elytrigia mendocina</i>		–	–	–	–	–	+
<i>Festuca rubra</i>		–	–	–	–	–	+
<i>Koeleria mendocinensis</i>		–	–	–	–	–	+
<i>Melica andina</i>		–	–	–	–	+	+
<i>Piptochaetium napostaense</i>		–	–	+	+	+	+
<i>Poa lanuginosa</i>		–	–	–	–	+	+
<i>Poa resinulosa</i>		–	–	–	–	+	+
<i>Poa ligularis</i>		–	–	+	–	+	+
<i>Polypogon monspeliensis</i>		–	–	+	–	+	+
<i>Schismus barbatus</i>		–	–	–	–	+	–
<i>Stipa debilis</i>		–	–	+	–	+	–
<i>Stipa ichu</i>		+	–	+	+	+	+
<i>Stipa paramilloensis</i>		–	–	–	–	+	+
<i>Stipa plumosa</i>		–	+	+	+	+	–
<i>Stipa psittacorum</i>		–	–	+	–	+	–
<i>Stipa sanluisensis</i>		–	–	+	+	+	–
<i>Stipa scirpea</i>		–	–	+	–	+	+
<i>Stipa tenuis</i>		–	–	+	+	+	–
<i>Stipa tenuissima</i>		–	–	+	–	+	+
<i>Stipa vaginata</i>		–	–	+	+	+	+
Total species present		1	1	14	8	20	18

(This question continues on the following page)



(Question 2 continued)

- (a) Suggest **one** abiotic factor, other than altitude, that could be affecting the distribution of species in the different habitats. [1]

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- (b) Define habitat. [1]

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- (c) Explain how the number of organisms of each species could be determined experimentally. [3]

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25. The preferred temperature ranges for three species of trout that are found together in freshwater lakes in North America are shown.



Lake trout
(*Salvelinus namaycush*)
6–13 °C



Rainbow trout
(*Oncorhynchus mykiss*)
12–18 °C



Brown trout
(*Salmo trutta*)
11–23 °C

What can be deduced from this information?

- I. The niches for all three species overlap.
 - II. Brown trout have the most specialized niche.
 - III. Lake trout can avoid competition by living in colder water.
- A. I only
- B. II only
- C. I and III only
- D. I, II and III