

Exercise walk-through

Community Ecology ■ 8.5

eXercise

You must be able to

- describe **competition** 竞争, **predation** 捕食, and **symbiosis** 共生 (mutualism, commensalism, parasitism)
- give the $+/-$ effect on each partner
- identify an interaction from a description

Method — The main interactions

- **Competition** $(-/-)$ — both species are harmed as they use the same limited resource.
- **Predation** $(+/-)$ — the predator benefits, the prey is harmed.
- **Mutualism** $(+/+)$ — both benefit.
- **Commensalism** $(+/0)$ — one benefits, the other is unaffected.
- **Parasitism** $(+/-)$ — the parasite benefits, the host is harmed.

Method — Reading effects

Assign a +, −, or 0 to each partner. For example, a bee and a flower: bee gets nectar (+), flower gets pollinated (+) → **mutualism**.

Method — A worked identification

A tick feeding on a dog: tick benefits (+), dog harmed (−) → **parasitism**.

Method — Competitive exclusion

Two species competing for exactly the same niche cannot coexist indefinitely — one outcompetes the other (competitive exclusion).

Practice 2.1 ■ 1 mark

State the effect (+/−) on each partner in predation.

Solution 2.1

Worked steps

Predator +, prey – **B1**.

Practice 2.2 ■ 1 mark

Name the interaction where both species benefit.

Solution 2.2

Method: The main interactions

Worked steps

Mutualism **B1**.

Practice 2.3 ■ 1 mark

Classify a tick feeding on a dog.

Solution 2.3

Method: A worked identification

Worked steps

Parasitism **B1**.

Exam-style 3.1 ■ 1 mark

An interaction that benefits one species and harms the other is

A mutualism

B commensalism

C parasitism

D competition

Solution 3.1

Method: The main interactions

- A mutualism
- B commensalism
- C parasitism
- D competition



Worked steps

C — parasitism (or predation) benefits one and harms the other.

Exam-style 3.2 ■ 1 mark

A bird eats insects stirred up by a grazing buffalo; the buffalo is unaffected.

- (a) Name the interaction.
- (b) State the effect on each partner.

Solution 3.2

Worked steps

(a) Commensalism **B1**. (b) The bird benefits (+); the buffalo is unaffected (0)
M1 A1.

Exam-style 3.3 ■ 2 marks

Explain why two species competing for exactly the same resources cannot coexist indefinitely.

Solution 3.3

Method: Competitive exclusion

Worked steps

One species will use the shared resource slightly more efficiently and outcompete the other, which declines or is excluded (competitive exclusion) **M1** **A1**.