

Exercise walk-through

Biodiversity ■ 8.6

eXercise

You must be able to

- explain why **biodiversity** 生物多样性 makes ecosystems resilient
- link diversity to stability and ecosystem services
- describe threats to biodiversity

Method — Diversity builds resilience

An ecosystem with **high biodiversity** has more species filling more roles, so it is more **resilient** — better able to recover from disturbances (disease, weather).

Method — Why diversity helps

If one species is lost, others can fill a similar role, keeping the ecosystem functioning. Low-diversity systems are more easily disrupted by a single loss.

Method — Ecosystem services

Diverse ecosystems provide **services**: clean water, pollination, climate regulation, and food. Losing species can reduce these services.

Method — Threats

Biodiversity is reduced by **habitat loss**, **pollution**, **invasive species**, **overharvesting**, and **climate change**.

Practice 2.1 ■ 1 mark

Why is a high-biodiversity ecosystem more resilient?

Solution 2.1

Method: Diversity builds resilience

Worked steps

More species fill more roles, so it can recover better from disturbances **B1**.

Practice 2.2 ■ 1 mark

Give one ecosystem service provided by diverse ecosystems.

Solution 2.2

Method: Ecosystem services

Worked steps

Any one: clean water, pollination, climate regulation, food **B1**.

Practice 2.3 ■ 1 mark

State one threat to biodiversity.

Solution 2.3

Worked steps

Any one: habitat loss, pollution, invasive species, overharvesting, climate change
B1.

Exam-style 3.1 ■ 1 mark

An ecosystem with high biodiversity is generally

- A** less stable
- B** more resilient to disturbance
- C** unable to recover
- D** identical to a monoculture

Solution 3.1

Method: Diversity builds resilience

- A less stable
- B more resilient to disturbance
- C unable to recover
- D identical to a monoculture



Worked steps

B — more resilient to disturbance.

Exam-style 3.2 ■ 2 marks

A disease removes one species from an ecosystem.

- (a) Explain why a diverse ecosystem is more likely to keep functioning.
- (b) State one human activity that reduces biodiversity.

Solution 3.2

Method: Diversity builds resilience

Worked steps

(a) In a diverse ecosystem, other species can fill the lost species' role, so the ecosystem keeps functioning **M1** **A1**. (b) Any one: habitat destruction, pollution, overharvesting **B1**.

Exam-style 3.3 ■ 2 marks

Explain how the loss of biodiversity could reduce the ecosystem services humans rely on.

Solution 3.3

Method: Ecosystem services

Worked steps

Many services (pollination, water purification, food) depend on particular species; losing them removes those functions, reducing the services people rely on **M1** **A1**.