

Exercise walk-through

Ecosystem Services ■ 2.2

eXercise

You must be able to

- classify **ecosystem services** 生态系统服务 (provisioning, regulating, supporting, cultural)
- give examples of each
- explain their value to humans

Method — Four types of ecosystem service

- **Provisioning** — products: food, water, timber, medicine.
- **Regulating** — control: climate regulation, water purification, pollination, flood control.
- **Supporting** — underlying processes: nutrient cycling, soil formation.
- **Cultural** — non-material: recreation, tourism, spiritual value.

Method — Classifying a service

Ask what the ecosystem provides. Clean water = **regulating** (purification) or **provisioning** (the water itself); nutrient cycling = **supporting**; a national park visit = **cultural**.

Method — Value to humans

Ecosystem services are worth trillions of dollars — replacing them artificially (e.g. water treatment for lost wetlands) is expensive, so protecting ecosystems is cost-effective.

Method — A worked example

Bees pollinating crops is a **regulating** service worth billions to agriculture; losing pollinators would raise food costs sharply.

Practice 2.1 ■ 2 marks

Name the four types of ecosystem service.

Solution 2.1

Method: Four types of ecosystem service

Worked steps

Provisioning, regulating, supporting, cultural **B1** **B1** *for two, for all four.*

Practice 2.2 ■ 1 mark

Classify “pollination of crops”.

Solution 2.2

Worked steps

Regulating **B1**.

Practice 2.3 ■ 1 mark

Give one provisioning service.

Solution 2.3

Worked steps

Any one: food, water, timber, medicine **B1**.

Exam-style 3.1 ■ 1 mark

Water purification by a wetland is which type of service?

A provisioning

B regulating

C supporting

D cultural

Solution 3.1

A provisioning

B regulating 

C supporting

D cultural

Worked steps

B — regulating.

Exam-style 3.2 ■ 3 marks

A forest provides timber, stores carbon, and is used for hiking.

- (a) Classify each of these three services.
- (b) Explain why ecosystem services have economic value.

Solution 3.2

Worked steps

(a) Timber = provisioning; carbon storage = regulating; hiking = cultural **B1 B1 B1**. (b) They provide things people would otherwise have to pay to produce or replace **B1**.

Exam-style 3.3 ■ 2 marks

Explain why protecting a wetland can be cheaper than replacing its services artificially.

Solution 3.3

Method: Value to humans

Worked steps

The wetland naturally purifies water for free; replacing it with a treatment plant costs money to build and run, so conserving it is cheaper **M1** **A1**.