

## 2.2 Ecosystem Services

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**Total: 11 marks**

### Objective

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Build the skills to answer exam questions on **ecosystem services**.

**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

### 1 Worked examples

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Study these first. Each one shows the method for a question type used later —follow the steps and you can do the Practice and Exam-style questions yourself.

#### ■ 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.

#### ■ 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**.

#### ■ 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.

#### ■ A worked example

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

## 2 Practice

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Now apply the methods above.

**2.1** Name the four types of ecosystem service. [2]

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**2.2** Classify "pollination of crops". [1]

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**2.3** Give one provisioning service. [1]

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## 3 Exam-style questions

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**3.1** Water purification by a wetland is which type of service? [1]

- **A** provisioning
- **B** regulating
- **C** supporting
- **D** cultural

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

(a) Classify each of these three services. [3]

(b) Explain why ecosystem services have economic value. [1]

**3.3** Explain why protecting a wetland can be cheaper than replacing its services artifi-

cially.

[2]

## 4 Go further

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You are now ready for the real exam questions on this subtopic:

- work through the **2.2 Ecosystem Services** lesson on the **Learn** page;
- read the **Ecosystem Services** section of the AP Environmental Science handout on the **Know** page.

## Solutions

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**2.1** Provisioning, regulating, supporting, cultural.

**2.2** Regulating.

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

**3.1 B** —regulating.

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

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