

Exercise walk-through

Natural Disruptions to Ecosystems ■ 2.5

eXercise

You must be able to

- give examples of natural disruptions (fire, flood, volcano, drought)
- distinguish periodic, episodic, and random events
- explain both harmful and beneficial effects

Method — Types of natural disruption

- **Periodic** — regular, predictable (seasonal flooding).
- **Episodic** — occasional, irregular (a fire every few decades).
- **Random** — unpredictable (a volcanic eruption).

Method — Harmful and beneficial

Disruptions can harm an ecosystem (killing organisms) but also **benefit** it: fire clears dead material and releases nutrients; floods deposit fertile sediment.

Method — A worked example

A wildfire kills many plants (harm) but also clears the canopy, returns nutrients to the soil, and triggers some seeds to germinate (benefit) — so some ecosystems depend on periodic fire.

Method — Recovery

Ecosystems often recover through **succession** after a disruption. High biodiversity speeds recovery.

Practice 2.1 ■ 2 marks

Give two examples of natural disruptions.

Solution 2.1

Worked steps

Any two: fire, flood, volcanic eruption, drought, storm **B1** **B1**.

Practice 2.2 ■ 1 mark

Classify seasonal flooding (periodic, episodic, or random).

Solution 2.2

Method: Types of natural disruption

Worked steps

Periodic **B1**.

Practice 2.3 ■ 1 mark

State one beneficial effect of a wildfire.

Solution 2.3

Worked steps

Any one: clears dead material, releases nutrients, triggers germination **B1**.

Exam-style 3.1 ■ 1 mark

A volcanic eruption is an example of a

A periodic disruption

B random disruption

C human disruption

D gradual change

Solution 3.1

Method: Types of natural disruption

A periodic disruption

B random disruption 

C human disruption

D gradual change

Worked steps

B — a random disruption.

Exam-style 3.2 ■ 2 marks

A forest experiences a wildfire.

- (a) State one harmful and one beneficial effect.
- (b) Explain why some ecosystems depend on periodic fire.

Solution 3.2

Method: A worked example

Worked steps

(a) Harmful: kills plants/animals; beneficial: releases nutrients / clears the canopy **M1 A1**. (b) Some plants need fire to release seeds or clear competitors, and periodic fire recycles nutrients, so those ecosystems are adapted to it **M1 A1**.

Exam-style 3.3 ■ 2 marks

Explain how an ecosystem recovers after a natural disruption.

Solution 3.3

Worked steps

Through ecological succession — pioneer species recolonize, and the community rebuilds over time; high biodiversity speeds this recovery **M1** **A1**.