

2.5 Natural Disruptions to Ecosystems

Name: _____ Class: _____ Date: _____ **Total: 11 marks**

KEY WORDS periodic 周期性 • random 随机 • episodic 偶发性 • biodiversity 生物多样性
• ecological succession 生态演替

Objective

Build the skills to answer exam questions on **natural disruptions to ecosystems**.

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

1 Worked examples

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.

■ Types of natural disruption

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

■ 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.

■ 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.

■ Recovery

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

2 Practice

Now apply the methods above.

2.1 Give two examples of natural disruptions. [2]

2.2 Classify seasonal flooding (periodic, episodic, or random). [1]

2.3 State one beneficial effect of a wildfire. [1]

3 Exam-style questions

3.1 A volcanic eruption is an example of a [1]

- **A** periodic disruption
- **B** random disruption
- **C** human disruption
- **D** gradual change

3.2 A forest experiences a wildfire.

(a) State one harmful and one beneficial effect. [2]

(b) Explain why some ecosystems depend on periodic fire. [2]

3.3 Explain how an ecosystem recovers after a natural disruption.

[2]

Solutions

2.1 Any two: fire, flood, volcanic eruption, drought, storm.

2.2 Periodic.

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

3.1 B — a random disruption.

3.2 (a) Harmful: kills plants/animals; beneficial: releases nutrients / clears the canopy.

(b) Some plants need fire to release seeds or clear competitors, and periodic fire recycles nutrients, so those ecosystems are adapted to it.

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