AP BIOLOGY • EXERCISE SHEET

8.7 Disruptions in Ecosystems

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

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

You must be able to:

- describe how **invasive species** 入侵物种, **human activity**, and **natural events** disrupt ecosystems
- explain knock-on effects through food webs
- link disruptions to changes in populations and diversity

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.

Sources of disruption

- **Invasive species** —a non-native species with no natural predators can outcompete or prey on natives.
- **Human activity** —habitat destruction, pollution, and climate change.
- **Natural events** —fires, floods, and volcanic eruptions.

Knock-on effects

Because species are connected in **food webs**, removing or adding one species has **knock-on effects** on many others —a change ripples through the community.

A worked example

An invasive predator with no natural enemies multiplies and eats native prey; the prey decline, and species that depended on that prey are also affected.

Keystone species

Losing a **keystone species** (one with an outsized role, like a top predator) can collapse much of the community —its removal has effects far beyond its own numbers.

2 Practice

Now apply the methods above.

2.1 Why can an invasive species spread rapidly? [1]

2.2 Give one human cause of ecosystem disruption. [1]

2.3 What is a keystone species? [1]

3 Exam-style questions

3.1 An invasive species often thrives because it [1]

- **A** has many local predators
- **B** lacks natural predators in the new area
- **C** cannot reproduce
- **D** is a producer only

3.2 An invasive predator is introduced to an island with defenseless native prey.

(a) Predict the effect on the native prey population. [1]

(b) Explain how this could affect other species in the food web. [2]

3.3 Explain why removing a keystone species can disrupt an entire community. [2]

4 Go further

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

- work through the **8.7 Disruptions in Ecosystems** lesson on the **Learn** page;
- read the **Disruptions in Ecosystems** section of the AP Biology handout on the **Know** page.

Solutions

2.1 It has no natural predators in the new area, so its population is not kept in check.

2.2 Any one: habitat destruction, pollution, climate change, overharvesting.

2.3 A species with an outsized role whose loss greatly affects the whole community.

3.1 B —lacks natural predators in the new area.

3.2 (a) The native prey population declines (may collapse). (b) Species that ate the prey lose their food, and species the prey controlled may increase —the change ripples through the food web.

3.3 A keystone species has a large effect on many others (e.g. controlling prey numbers); removing it lets some populations explode and others crash, disrupting the whole community.