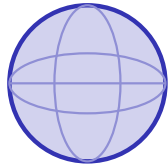


Human Influences on Ecosystems

IGCSE Biology ■ Topic 20

IGCSE Biology



Human Influences on Ecosystems

What we will cover

- 1 Increasing food supply
- 2 Habitat destruction
- 3 Water pollution
- 4 Plastics & climate change
- 5 Conservation

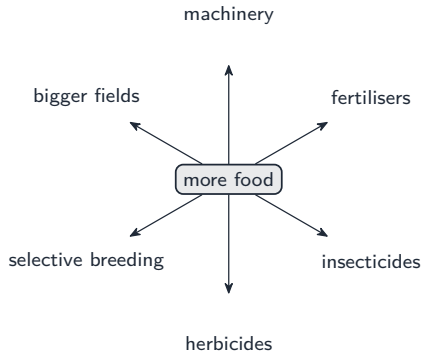


protect, do not clear

conservation

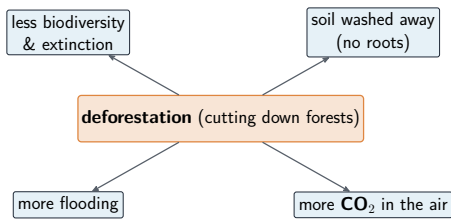
1 Pressures

Increasing food supply



- **agricultural machinery** to farm larger areas of land quickly.
- chemical **fertilisers** 化肥 to improve **yields** 产量.
- **insecticides** 杀虫剂 to kill insect pests.
- **herbicides** 除草剂 to kill **weeds** 杂草 that compete with the crops.

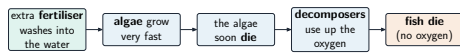
Habitat destruction



- clearing land for housing, crops and livestock.
- extracting natural **resources** 资源, such as by mining.
- **pollution** 污染 of fresh water and the sea.
- lower biodiversity and the **extinction** 灭绝 of species.

2 Pollution

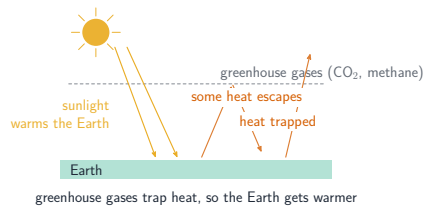
Water pollution: eutrophication



Plastic pollution is a major human impact on ecosystems.

Eutrophication: extra fertiliser makes algae bloom, then the water loses its oxygen and fish die

Plastics and climate change



Non-biodegradable 不可降解 plastics build up & harm wildlife.

Greenhouse gases 温室气体 (CO₂, methane 甲烷) trap heat, strengthening the **greenhouse effect** 温室效应 & driving climate change.

3

Conservation

Conservation

sustainable 可持续 use

quotas 配额, closed
seasons 禁渔期,
mesh sizes, replanting

saving species

protected areas, cap-
tive breeding 圈养繁殖,
seed banks 种子库

A very small population loses **genetic variation** 变异, making it harder to survive change.

4

Recap

Worked example – eutrophication

Fertiliser washes into a river and the fish die. Put the steps in order.

- Fertiliser **leaches** into the water, adding nitrate.
- Algae grow rapidly – an **algal bloom** 藻华 – and cover the surface.
- The bloom **blocks the light**, so the plants below die.
- **Decomposer bacteria** feed on the dead plants and multiply.
- They **respire aerobically**, using up the dissolved oxygen ⇒ **the fish suffocate**.

The fish die of **no oxygen**, not of poisoning. The bacteria – not the algae – take the oxygen. Get that order right and the marks follow.

Topic 20 – key takeaways

1 Food

machinery, chemicals, breeding;
monoculture risk

2 Deforestation

less biodiversity, soil loss, more
CO₂

3 Eutrophication

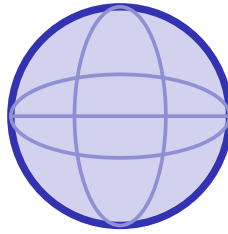
fertiliser → algae → no oxygen →
fish die

4 Conservation

quotas, captive breeding, seed
banks

Check yourself

- 1 Why is a monoculture risky?
- 2 Name one effect of deforestation.
- 3 What uses up the oxygen in eutrophication?
- 4 Name one way to save an endangered species.



Answers 1. one disease can destroy the whole crop 2. e.g. soil loss / more CO₂
3. decomposers 4. e.g. captive breeding