

Exercise walk-through

8.2

Human Impacts on Ecosystems

AP Environmental Science

Eutrophication

Too many nutrients set off a chain that suffocates the water:

- nutrients run off → **algal bloom**
- algae die, bacteria decay → **hypoxic** dead zone

Cultural eutrophication : human phosphorus and nitrogen speed it up.



Algal bloom: nutrient run-off fuels hypoxia

Where solid waste actually goes

sanitary land-fills

buried in lined cells to limit **leachate** ; takes land and can still leak

incinerators

burning cuts the *volume* sharply but emits air pollutants and leaves toxic ash

composting

organic waste returned to soil – the cheapest diversion there is

e-waste

phones, computers, televisions – small in volume, but loaded with **toxic metals**

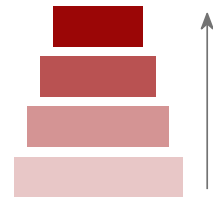
garbage patches

ocean-dumped plastic gathered by currents into vast floating fields far out at sea

The hierarchy is **reduce, reuse, recycle** – and reducing is best because waste you never make needs no disposal at all.

Check yourself

- 1 Is farm run-off a point or nonpoint source?
- 2 What uses up the oxygen in a eutrophic dead zone?
- 3 Who carries the highest biomagnified toxin dose?
- 4 Does a lower LD_{50} mean more or less toxic?



Answers 1. nonpoint 2. bacteria decomposing dead algae 3. top predators 4. more toxic

Exercises 2.1-2.3

2.1 What is habitat fragmentation?

[1]

2.2 Name two human impacts on ecosystems.

[2]

2.3 What is a wildlife corridor for?

[1]

Exercises 2.1-2.3

2.1 What is habitat fragmentation?

[1]

2.1

- Breaking a habitat into small, isolated pieces

2.2 Name two human impacts on ecosystems.

[2]

2.2

- Any two: habitat destruction, pollution, overexploitation, invasive species, climate change

2.3 What is a wildlife corridor for?

[1]

2.3

- To connect isolated habitat fragments so animals can move between them

Exercise 3.1

3.1 Habitat fragmentation increases extinction risk by

[1]

☐

A enlarging populations

B isolating small populations and limiting movement

C adding resources

D removing predators only

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3.1 B

- isolating small populations and limiting movement

Exercise 3.2 (a)

3.2 A new highway cuts a forest into isolated patches.

(a) Explain two effects on the wildlife.

[2]

Exercise 3.2 (a)

3.2 A new highway cuts a forest into isolated patches.

(a) Explain two effects on the wildlife.

[2]

(a)

- Any two: smaller isolated populations, reduced gene flow, higher extinction risk, blocked migration

Exercise 3.2 (b)

3.2 A new highway cuts a forest into isolated patches.

(b) Suggest one way to reduce the harm.

[1]

Exercise 3.2 (b)

3.2 A new highway cuts a forest into isolated patches.

(b) Suggest one way to reduce the harm.

[1]

(b)

- Build a wildlife corridor or crossing

Exercises 3.3-3.4

3.3 Explain how wildlife corridors help populations in fragmented habitats. [2]

3.4 A fictional reserve retains the same total wooded area but a fenced road splits it. Explain one consequence of fragmentation and propose a mitigation with one measurable check of its effectiveness. [4]

Exercises 3.3-3.4

3.3 Explain how wildlife corridors help populations in fragmented habitats. [2]

3.3

- Corridors let animals move between fragments, increasing gene flow and immigration and lowering extinction risk, effectively linking the patches into a larger habitat

3.4 A fictional reserve retains the same total wooded area but a fenced road splits it. Explain one consequence of fragmentation and propose a mitigation with one measurable check of its effectiveness. [4]

3.4

Reduced movement or gene flow between patches with a explained consequence such as reduced mate/resource access; a feasible connection or crossing design suited to the organism; compare a relevant measured outcome, such as verified crossings, over a stated period.