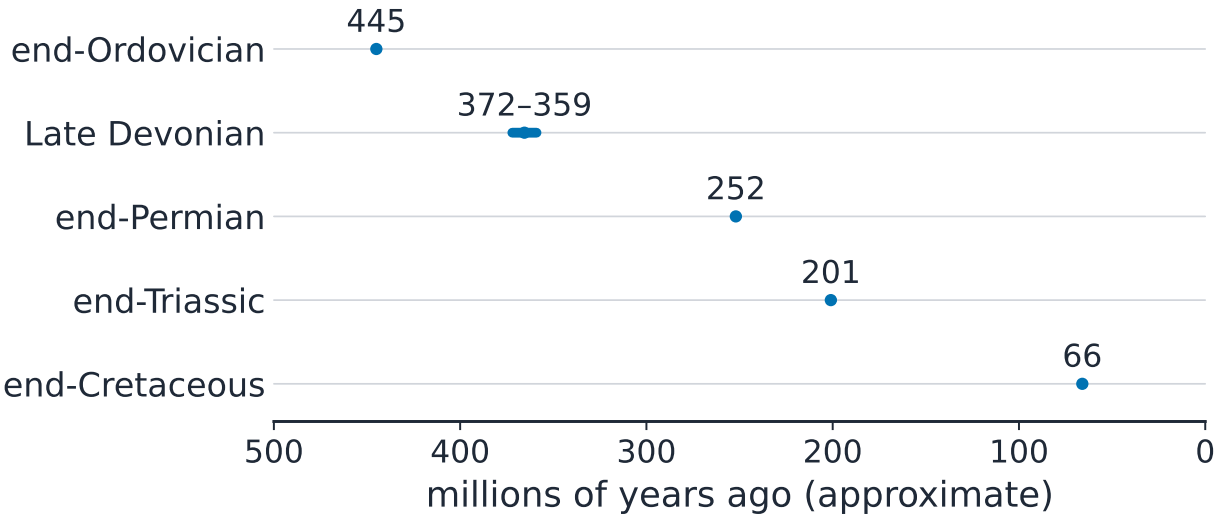
Exercise walk-through

3.3
Conservation and regeneration

International Baccalaureate · IB Diploma · Environmental Systems and Societies · HL

AHL: Extinction intervals



> Different events and fossil records do not justify one uniform percentage-loss census.

Agreements and the area target

CITES and CBD

Trade regulation differs from habitat management.

CBD: conservation, sustainable use and genetic-resource benefit sharing.

Target 3 by 2030

At least 30% terrestrial/inland water and 30% marine/coastal areas.

Effective, connected, representative and equitable conservation; respect rights.

AHL: Tourism receipts and costs

1. **Given.** Invented 8000 visits at 20 currency units; operating costs 110000.
2. **Gross receipts.** $8000 \times 20 = 160000$.
3. **Remaining before omitted costs.** $160000 - 110000 = 50000$.

Decision

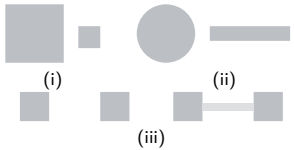
Trace actual conservation funding and local benefits; gross revenue is not profit.

Exercises 2.1·2.2

2.1 State **two** reasons for conserving biodiversity, one economic and one ethical. [2]



2.2 Use the principles of reserve design to choose the better reserve in each pair, with a reason: (i) one 100 km^2 reserve or one 10 km^2 reserve; (ii) a round reserve or a long thin one of the same area; (iii) two reserves with or without a corridor. [3]



Exercises 2.1·2.2

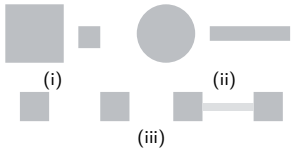
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2.1

economic: e.g. pollination of crops, tourism income, new medicines; ethical: e.g. every species has a right to exist / duty to future generations

2.2 Use the principles of reserve design to choose the better reserve in each pair, with a reason: (i) one 100 km^2 reserve or one 10 km^2 reserve; (ii) a round reserve or a long thin one of the same area; (iii) two reserves with or without a corridor. [3]



2.2

(i) 100 km^2: larger populations and more habitats; (ii) round: less edge for the same area; (iii) with a corridor: animals can move, find mates and recolonize

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Exercises 2.3·2.4

2.3 Explain why wolves in Yellowstone are called a keystone species. [3]



2.4 Distinguish between restoration and rewilding, with **one** example of each. [3]



Exercises 2.3·2.4

2.3 Explain why wolves in Yellowstone are called a keystone species. [3]



2.3

few wolves have a large effect on the whole ecosystem; they reduce elk numbers and change where elk graze; so trees and shrubs by rivers can recover, which helps beavers, birds and riverbanks: a trophic cascade

2.4 Distinguish between restoration and rewilding, with **one** example of each. [3]



2.4

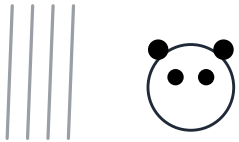
restoration repairs a damaged ecosystem towards a target state, e.g. replanting mangroves on a coast; rewilding brings back natural processes and missing species, then lets nature manage itself, e.g. reintroducing beavers or wolves; rewilding has a less fixed target and less human management

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Exercise 3.1 (a)

3.1 The giant panda was moved from Endangered to Vulnerable on the IUCN Red List in 2016.

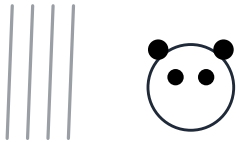
(a) Identify **one** species-based and **one** habitat-based measure that may have helped. [2]



Exercise 3.1 (a)

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(a) Identify **one** species-based and **one** habitat-based measure that may have helped. [2]



(a) species-based: captive breeding and release / bans on hunting and trade; habitat-based: a network of nature reserves and replanting of bamboo forest

Exercise 3.1 (b)

3.1 The giant panda was moved from Endangered to Vulnerable on the IUCN Red List in 2016.

(b) Explain why the panda is used as a flagship species. [2]

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(b) Explain why the panda is used as a flagship species. [2]

(b) it is popular and appealing, so it attracts public attention and money; protecting its forest habitat also protects many other species there

Exercise 3.2

3.2 A government plans a new marine protected area (MPA) where fishing is banned.

Evaluate the use of an MPA to conserve a coral reef. [5]



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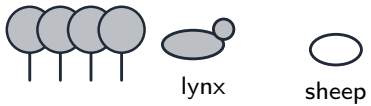
3.2

award up to [5]: strengths: fish and reef species recover inside the zone; larger fish spill over into fished areas, so catches nearby can rise; protects the whole community, not one species; limitations: cannot stop warming or acidification; fishing communities lose access, so the MPA needs their support and enforcement; conclusion for the case, e.g. effective if well enforced and linked to local incomes such as tourism

Exercise 3.3 (a)

3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

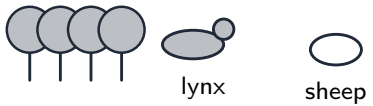
(a) Suggest **two** ecological benefits of the reintroduction. [2]



Exercise 3.3 (a)

3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

(a) Suggest **two** ecological benefits of the reintroduction. [2]



(a) any two: controls deer numbers, so young trees can regrow; restores a missing top predator and natural food webs; increases biodiversity

Exercise 3.3 (b)

3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

(b) Discuss the arguments of **two** groups of stakeholders. [4]

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3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

(b) Discuss the arguments of **two** groups of stakeholders. [4]

(b) e.g. conservationists: restores a native species and a natural process; brings eco-tourism; farmers: fear losses of sheep and want compensation; others: hunters lose deer

Exercise 3.3 (c)

3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

(c) State **two** factors that would make the reintroduction more likely to succeed. [2]

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3.3 A charity wants to bring lynx back to a forest region where they were hunted to extinction 300 years ago.

(c) State **two** factors that would make the reintroduction more likely to succeed. [2]

(c) any two: a large enough area of connected habitat with prey; enough animals released for genetic diversity; support from local people; monitoring after release