

Exercise walk-through

Conservation ■ 18.3

eXercise

You must be able to

- explain the causes of extinction and reasons to maintain biodiversity
- outline conservation methods (in-situ and ex-situ) and assisted reproduction
- explain the control of invasive species and the roles of IUCN and CITES

Method — Extinction and conserving species

Species become **extinct** through **climate change** 气候变化, competition (often from invasive species), hunting by humans, and habitat loss. We maintain biodiversity because species give food, medicines and materials, keep ecosystems stable, and have value in themselves.

- **in-situ** 就地: protected areas — national parks, marine parks.
- **ex-situ** 迁地: **zoos** 动物园, **botanic gardens** 植物园, **seed banks** 种子库, 'frozen zoos'.

Method — Extinction and conserving species

two ways to conserve a species

in-situ (in the wild)
national parks,
marine reserves

ex-situ (away
from the wild)
zoos, botanic gardens,
seed banks,
frozen zoos

Method — Extinction and conserving species



Conservation protects biodiversity at every level

Method — Assisted reproduction and invasive species

For rare mammals: **IVF** 体外受精, **embryo transfer** 胚胎移植, **surrogacy** 代孕.
Invasive species are controlled because they out-compete native species. **IUCN** lists how threatened each species is; **CITES** controls international trade in endangered species.

Practice 2.1 ■ 2 marks

State **two** causes of extinction.

Solution 2.1

Worked steps

any two: climate change; competition / invasive species; hunting by humans; habitat loss/degradation **B1** *each, max 2.*

Practice 2.2 ■ 2 marks

State the difference between in-situ and ex-situ conservation.

Solution 2.2

Method: Extinction and conserving species

Worked steps

in-situ — conserving a species in its natural habitat; ex-situ — keeping and breeding it away from the wild **B1** *each*.

Exam-style 3.1 ■ 1 mark

Which is an example of **ex-situ** conservation?

A a national park

B a marine reserve

C a seed bank

D a protected wetland

Solution 3.1

Method: Extinction and conserving species

- A a national park
- B a marine reserve
- C a seed bank
- D a protected wetland



Worked steps

C. A seed bank keeps species away from the wild — ex-situ.

Exam-style 3.2 ■ 1 mark

What is the role of CITES?

- A** to list how threatened each species is
- B** to control the international trade in endangered species
- C** to run IVF programmes
- D** to remove invasive species

Solution 3.2

- A** to list how threatened each species is
- B** to control the international trade in endangered species 
- C** to run IVF programmes
- D** to remove invasive species

Worked steps

- B.** CITES controls international trade in endangered species.

Exam-style 3.3 ■ 2 marks

- (a) Explain why invasive species are controlled in conservation.
- (b) Outline how a seed bank helps to conserve plant species.

Solution 3.3

Method: Extinction and conserving species

Worked steps

- (a) invasive species out-compete native species for resources **M1**, reducing native populations / biodiversity **A1**.
- (b) seeds are stored (frozen/dry) for the long term **B1**; they can be grown later to restore a species if it is lost from the wild **B1**.

Exam-style 3.4 ■ 2 marks

Explain **two** reasons why maintaining biodiversity is important.

Solution 3.4

Worked steps

any two reasons explained: species provide food/medicines/materials; they keep ecosystems stable; they have intrinsic value **B1** *each*.