

Exercise walk-through

K-Selected and r-Selected Species ■ 3.2

eXercise

You must be able to

- distinguish **r-selected** and **K-selected** 策略 species
- link each to a reproductive strategy
- predict which recovers faster from disturbance

Method — Two reproductive strategies

- **r-selected** — many small offspring, little parental care, fast maturity, short life (insects, weeds). Population grows fast (high r).
- **K-selected** — few large offspring, much parental care, slow maturity, long life (elephants, humans). Population stays near carrying capacity (K).

Method — Recovery from disturbance

r-selected species reproduce rapidly and recolonize quickly after a disturbance.

K-selected species recover slowly, so they are more vulnerable to overharvesting or habitat loss.

Method — A worked classification

A mouse (many young, short life) is **r-selected**; a whale (few young, long life, much care) is **K-selected**.

Method — Extinction risk

K-selected species with low reproduction are at **higher extinction risk** when their populations fall, because they cannot rebuild quickly.

Practice 2.1 ■ 1 mark

Do r-selected species have many or few offspring?

Solution 2.1

Method: Two reproductive strategies

Worked steps

Many **B1**.

Practice 2.2 ■ 1 mark

Give one example of a K-selected species.

Solution 2.2

Worked steps

Any one: elephant, whale, human **B1**.

Practice 2.3 ■ 1 mark

Which type recovers faster after a disturbance?

Solution 2.3

Method: Recovery from disturbance

Worked steps

r-selected **B1**.

Exam-style 3.1 ■ 1 mark

A K-selected species typically has

- A** many offspring and little care
- B** few offspring and much parental care
- C** a very short life
- D** rapid population growth

Solution 3.1

- A** many offspring and little care
- B** few offspring and much parental care 
- C** a very short life
- D** rapid population growth

Worked steps

B — few offspring and much parental care.

Exam-style 3.2 ■ 2 marks

An insect species and an elephant species live in the same area.

- (a) Classify each as r- or K-selected.
- (b) Explain which is more vulnerable to overharvesting.

Solution 3.2

Method: Recovery from disturbance

Worked steps

(a) Insect = r-selected; elephant = K-selected **B1 B1**. (b) The elephant (K-selected) — it reproduces slowly, so its population cannot recover quickly from overharvesting **M1 A1**.

Exam-style 3.3 ■ 2 marks

Explain why r-selected species are often the first to recolonize a disturbed area.

Solution 3.3

Method: Recovery from disturbance

Worked steps

They mature fast and produce many offspring, so they multiply and spread rapidly to fill the empty, disturbed habitat **M1** **A1**.