

Exercise walk-through

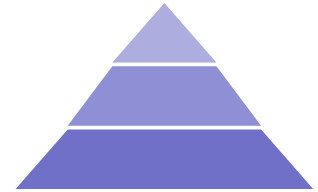
8.7

Disruptions in Ecosystems

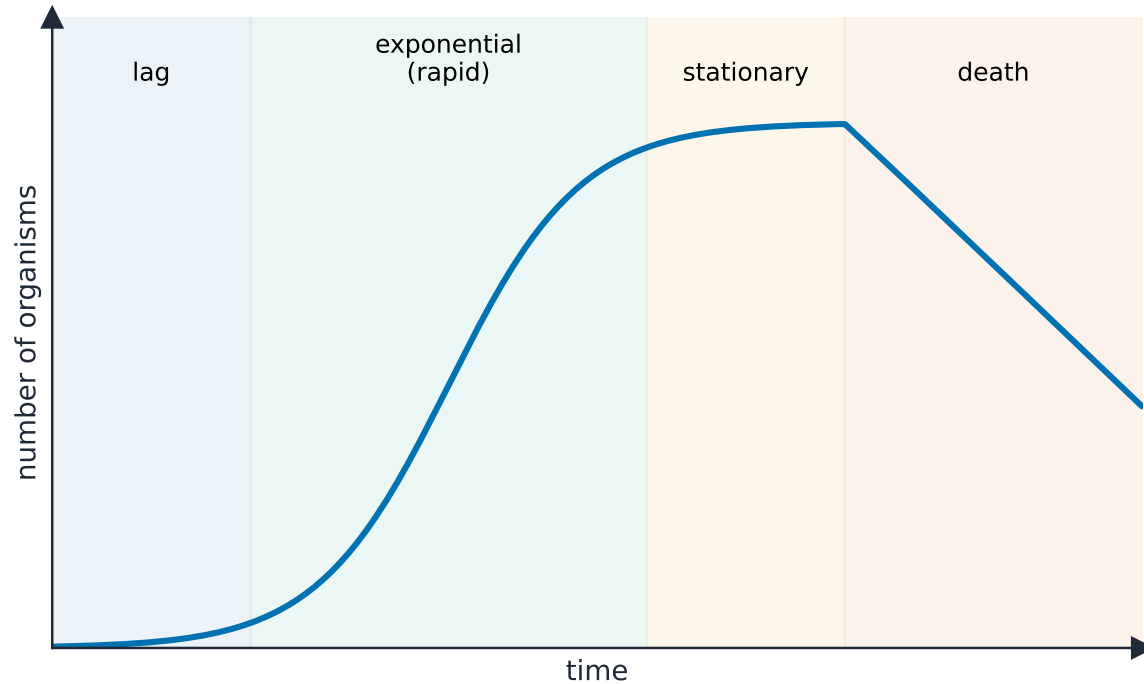
AP Biology

What we will cover

- 1 Responses to the environment
- 2 Energy flow
- 3 Population growth
- 4 Density factors
- 5 Community ecology
- 6 Biodiversity and disruptions



Population growth: lag



Population growth: lag, exponential, then levelling off at the carrying capacity

Biodiversity, resilience and succession

biodiversity

the variety of life at three levels – **genes, species and ecosystems**

why it matters

higher diversity generally makes a community more **re-silient** to disturbance

the mechanism

varied species can fill the roles that lost ones held

ecological succession

the ordered change in a community over time after a disturbance

primary succession

begins on **bare rock** with no soil – very slow

secondary succession

follows a disturbance that **leaves the soil**, so it is much faster

Resilience is the link between the two ideas: succession is how a community rebuilds, and diversity is what determines how well it does so.

Exercises 2.1-2.3

2.1 Why can an invasive species spread rapidly?

[1]

2.2 Give one human cause of ecosystem disruption.

[1]

2.3 What is a keystone species?

[1]

Exercises 2.1-2.3

2.1 Why can an invasive species spread rapidly? [1]

2.1

- It has no natural predators in the new area, so its population is not kept in check
-

2.2 Give one human cause of ecosystem disruption. [1]

2.2

- Any one: habitat destruction, pollution, climate change, overharvesting
-

2.3 What is a keystone species? [1]

2.3

- A species with an outsized role whose loss greatly affects the whole community

Exercise 3.1

3.1 An invasive species often thrives because it

[1]

☐

A has many local predators

B lacks natural predators in the new area

C cannot reproduce

D is a producer only

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A has many local predators

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3.1 B

- lacks natural predators in the new area

Exercise 3.2 (a)

3.2 An invasive predator is introduced to an island with defenseless native prey.

(a) Predict the effect on the native prey population.

[1]

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[1]

(a)

- The native prey population declines (may collapse)

Exercise 3.2 (b)

3.2 An invasive predator is introduced to an island with defenseless native prey.

(b) Explain how this could affect other species in the food web.

[2]

Exercise 3.2 (b)

3.2 An invasive predator is introduced to an island with defenseless native prey.

(b) Explain how this could affect other species in the food web. [2]

(b)

- Species that ate the prey lose their food, and species the prey controlled may increase
 - the change ripples through the food web

Exercise 3.3

3.3 Explain why removing a keystone species can disrupt an entire community. [2]

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3.3

- A keystone species has a large effect on many others (e.g. controlling prey numbers); removing it lets some populations explode and others crash, disrupting the whole community