2 Biodiversity and ecosystem services – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
Biodiversity			
species richness			
Ecosystem services			
range of tolerance			
optimal range			

Recall

You already have a sense of nature's variety:

- Some places (like rainforests) have far more kinds of life than others (like deserts).
- Different animals and plants need different conditions to live.
- Nature gives us food, clean water, and clean air.

This sheet lines up how we describe and value that variety. Each idea has a short worked example.

New ideas

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1 Biodiversity

Biodiversity is the variety of life, measured at three levels:



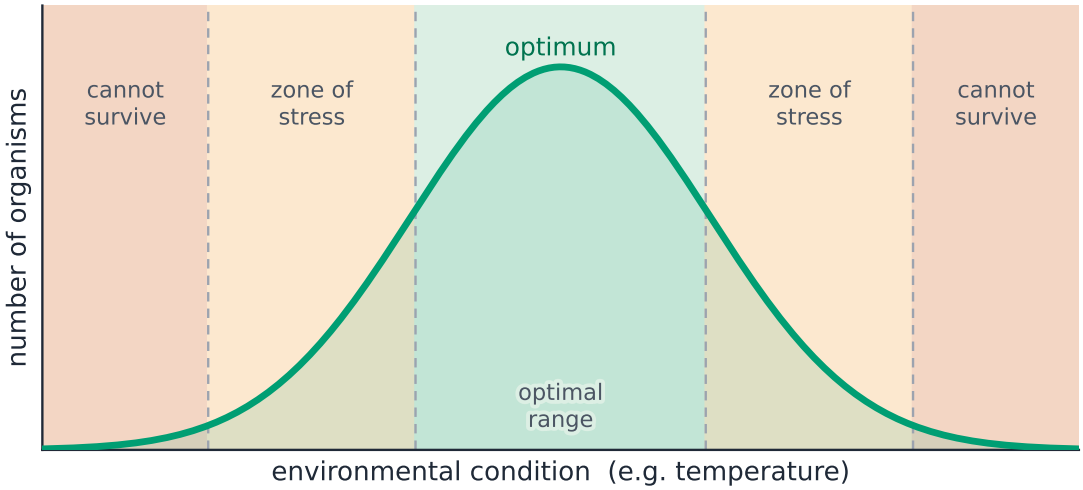
- **genetic** – variety of genes within a species,
- **species** – the number of different species (**species richness**),
- **habitat** – the variety of habitats in a region.

2 Ecosystem services

Ecosystem services are the free benefits nature gives people – food and water (provisioning), pollination and flood control (regulating), beauty and recreation (cultural), and nutrient cycling (supporting).

3 Range of tolerance

Every species has a **range of tolerance** – the span of conditions (temperature, pH, salinity) it can survive. Near the middle is an **optimal range** where it thrives; toward the edges it is stressed; beyond the limits it dies.



range of tolerance: optimum peak · outside = stress or death

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■ 4 Diversity and resilience

More species-rich ecosystems are more **resilient** – they recover from disruption more easily, because different species can fill roles when conditions change.

Watch out: specialist species (with narrow needs) are far more vulnerable than **generalists** (which cope with many conditions). When a habitat changes, specialists disappear first.

Practice

Try these in order. The methods are all above.

2.1 Name the three levels at which biodiversity is measured. [3]

2.2 Give one example each of a provisioning and a regulating ecosystem service. [2]

2.3 State what the "optimal range" of a species is. [1]

2.4 Explain why a species-rich ecosystem is usually more resilient. [2]

2.5 State whether a specialist or a generalist species is more at risk when its habitat changes, and why. [2]

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