

Conservation of biodiversity · supported focus

Supported focus · SL

## Supported scope

- Supported SL focus. First assessment 2025; current subject brief acquired; full Biology guide not acquired. Remaining guide, assessment and practical requirements retain their recorded holds.
- State model conditions and distinguish fictional data from measurements.

# Ess Biodiversity · 1.1

## Reasoning

A site with many individuals can still be dominated by one species. Abundance, richness and evenness describe different features of biodiversity. Start with a prediction. State the quantities or features you would compare, then decide what evidence could distinguish two explanations.

## Ess Biodiversity · 2.1

### Reasoning

Species richness counts species. Evenness concerns relative abundance. Conservation can protect habitats, populations or genetic diversity; a management judgement must state the conservation goal. species richness: The number of species recorded; evenness: How evenly individuals are distributed among species.

## Ess Biodiversity · 3.1

### Reasoning

Compare surveys with similar area, effort, season and identification rules. A diversity index is meaningful only with its formula and conventions specified. Habitat fragmentation can affect movement and gene flow even when total area changes little. Use non-destructive field sampling approved by the school. Identify organisms with a suitable key and record uncertain identifications rather than inventing species. Combine ecological evidence with stakeholder perspectives on land use.

## Ess Biodiversity · 4.1

### Reasoning

State the known values and their units. Choose the relation because its assumptions fit this case, then rearrange before substitution. Known: site A has counts 8, 1 and 1; site B has 4, 3 and 3. Both have richness 3 and total abundance 10. The most abundant species occupies 80% in A and 40% in B. B is more even under these counts.

## Ess Biodiversity · 4.2

### Reasoning

A survey records 6, 5, 3 and 2 individuals in four species. Find species richness. Use the same sequence: known quantities  $\rightarrow$  model  $\rightarrow$  relation  $\rightarrow$  substitution  $\rightarrow$  unit and interpretation.

## Ess Biodiversity · 5.1

### Reasoning

An index cannot by itself explain the cause of a difference. A newly recorded species may reflect improved observation rather than a recent ecological arrival. Return to the original observation. Explain what the result supports, which conditions it assumes, and one way to test a competing explanation.

## Ess Biodiversity · 5.2

### Reasoning

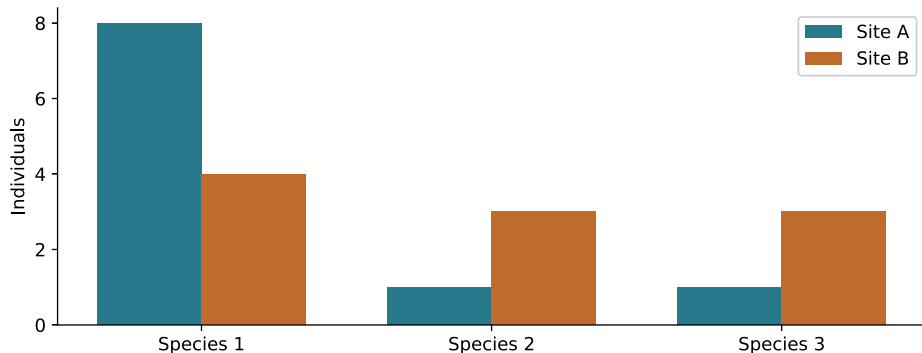
A larger total number of individuals always means greater species richness. This claim is false: An index cannot by itself explain the cause of a difference. A newly recorded species may reflect improved observation rather than a recent ecological arrival.

## Ess Biodiversity · 5.3

### Reasoning

Biodiversity, conservation and sampling evidence: Compare surveys with similar area, effort, season and identification rules. A diversity index is meaningful only with its formula and conventions specified. Habitat fragmentation can affect movement and gene flow even when total area changes little.

## Ess Biodiversity · diagram



- Original teaching diagram: Biodiversity, conservation and sampling evidence
- Use the labels and the stated model together.

## Ess Biodiversity · original transfer

### Your turn

Site A has counts 9,1,0; B has 4,3,3. Compare richness and dominance. Explain one sampling limitation.

## Ess Biodiversity · transfer reasoning

### Method and interpretation

A richness2, B richness3; largest shares90% and40%. B is more even in these samples. Comparable effort and detection matter; a zero observation does not prove absence.

## Check yourself

- Explain evenness using the stated model.
- Explain species richness using the stated model.
- Change one value in the original transfer; explain which assumption still matters.