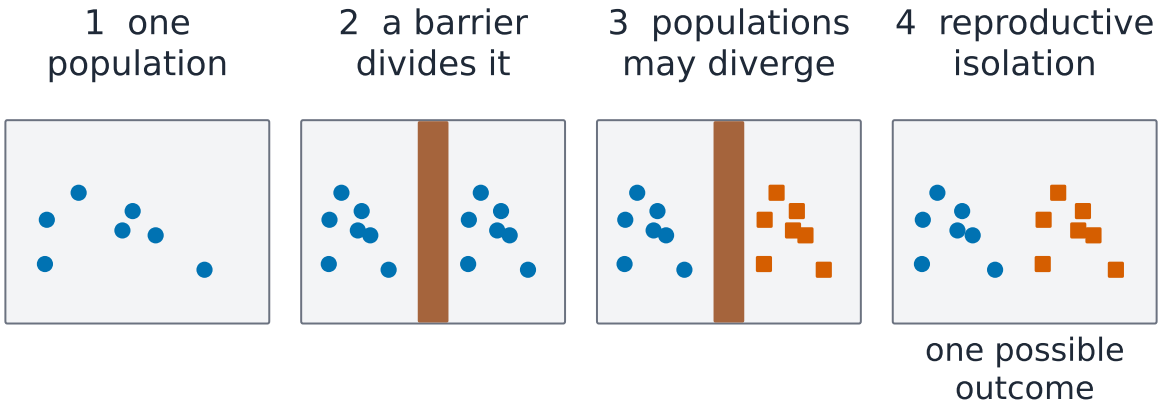
Exercise walk-through

3.2
Human impact on biodiversity

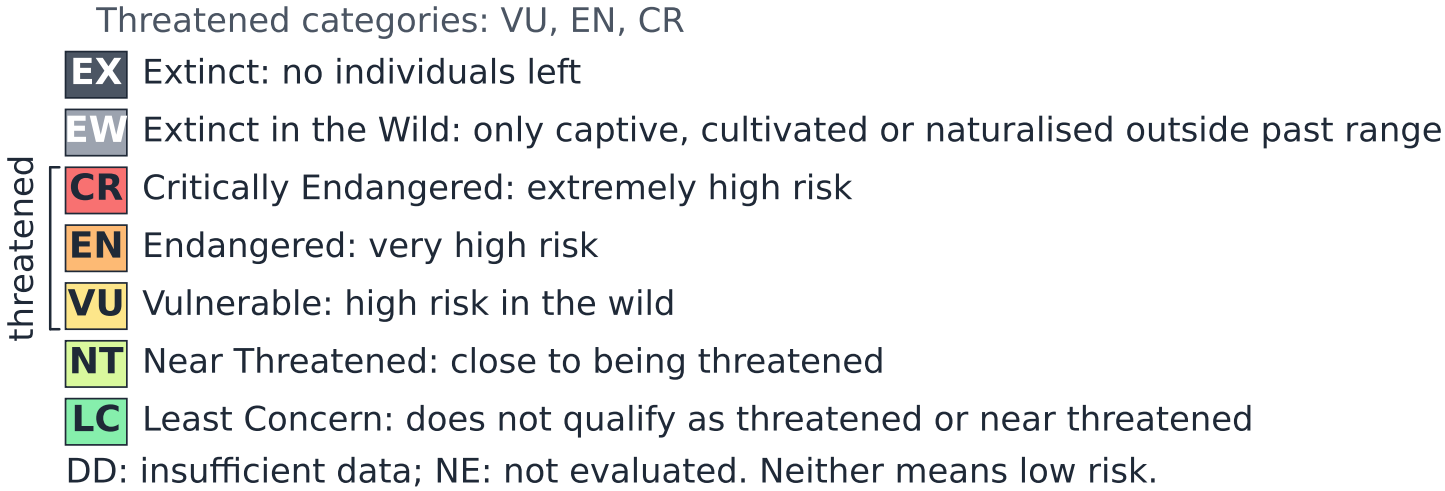
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Speciation



- A barrier can reduce gene flow; divergence may follow through selection, mutation and drift.
- Reproductive isolation requires evidence; geographical separation alone is not a guarantee.

The IUCN Red List



> DD and Not Evaluated do not establish low risk; listing alone does not protect habitat.

Designing protected areas

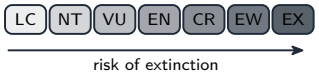


Size/shape pairs have equal total area; corridor adds area.
Dark green: interior under an assigned edge-depth model; trade-offs vary.

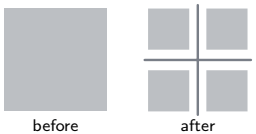
> Compare equal areas and stated threats: no geometry is universally best.

Exercises 2.1·2.2

2.1 State **two** criteria used by the IUCN to decide a species' Red List category. [2]

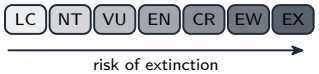


2.2 A forest of 100 km^2 is cut into four patches of 5 km^2 by roads and farms. Explain **three** effects on the species living there. [3]



Exercises 2.1·2.2

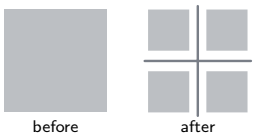
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2.1

any two: population size; rate of population decline; geographic range; degree of fragmentation; quantitative probability of extinction

2.2 A forest of 100 km^2 is cut into four patches of 5 km^2 by roads and farms. Explain **three** effects on the species living there. [3]



2.2

populations in each patch are small, so inbreeding and chance events make local extinction likely; a larger share of each patch is edge, with more light, wind, predators and invasive species; animals cannot move between patches to find food or mates, and species needing a large area are lost

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Exercise 3.1 (a)

3.1 Coral reefs cover less than 1% of the ocean floor but hold about a quarter of marine species.

(a) Explain how rising sea temperatures cause coral bleaching. [2]



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(a) Explain how rising sea temperatures cause coral bleaching. [2]



(a) corals live in mutualism with algae that give them food and colour; high temperature makes the coral expel the algae, so it turns white and may starve

Exercise 3.1 (b)

3.1 Coral reefs cover less than 1% of the ocean floor but hold about a quarter of marine species.

(b) Describe **two** other human threats to coral reefs. [2]

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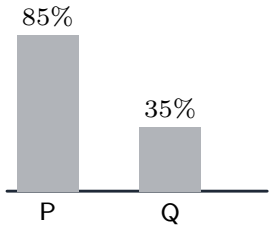
(b) any two: ocean acidification makes skeletons harder to build; overfishing removes grazers that keep algae down; nutrient and sediment runoff; destructive fishing with dynamite or poison; tourism damage

Exercise 3.2 (a)

3.2 The table shows Red List data for two species.

	species P	**species Q**
decline over 10 years	85%	35%
range	one island, 40 km^2	three countries

(a) Suggest which species would be placed in the higher category, with **two** reasons. [3]

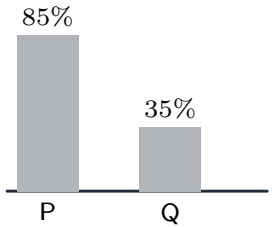


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(a) species P: its population fell much faster, 85% against 35%; its range is tiny and in one place, so one event could wipe it out

Exercise 3.2 (b)

3.2 The table shows Red List data for two species.

	species P	**species Q**
decline over 10 years	85%	35%
range	one island, 40 km^2	three countries

(b) Suggest **two** human causes that could explain species P's decline. [2]

Exercise 3.2 (b)

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	species P	**species Q**
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range	one island, 40 km^2	three countries

(b) Suggest **two** human causes that could explain species P's decline. [2]

(b) any two linked to an island: habitat cleared for farming or tourism; an invasive predator such as rats or cats; hunting or collection; pollution