Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

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

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

3.1

(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

(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

3.2

(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

(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

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