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

2.3

they have few young, with long gaps, so populations recover slowly from losses; they need large areas of habitat, which are easily lost or split; they are valuable to hunters (horn), so they are targeted

2.4

they have few natural predators or diseases there, and breed fast; they spread over a large area and compete with native animals for food; their skin is toxic, so native predators such as quolls and snakes that eat them die

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

3.3

(a) a forest with many layers and species is replaced by one crop: habitat loss and lower habitat diversity; remaining forest is fragmented, and pesticides, fires and roads harm species nearby

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(b) award up to [4]: for: certified growers must not clear primary forest or peat, and must protect high-conservation-value areas; buyers can choose certified oil, giving a market reward; against: checking is weak in some places, and certified farms may still have been cleared in the past; demand pushes clearing elsewhere; conclusion: helps, but needs strong law, monitoring and lower demand too