

**Exercise 1**

Read the article about butterflies, and then answer the questions.

Butterflies

Butterflies are probably the most easily recognisable of the million or so known species of insects, mainly because of their often-colourful wings. As well as being beautiful, some butterflies have large spots on each wing, which look like the eyes of a bigger creature. These wing patterns can confuse animals that feed on butterflies. Scientists who study butterflies have so far identified around 17 500 types. These are split into six groups according to their physical characteristics and behaviour, with the largest two groups each containing around 5000 species.

The Queen Alexandra's Birdwing is the largest known butterfly, with wings that measure around 28 centimetres across. Although it faces few threats from other creatures due to its size, the destruction of its rainforest home and its appeal to collectors of rare insects have led to a rapid decline in numbers. It was once common, but currently appears as endangered on the Red List of Threatened Species – an international list that monitors the numbers of plant and animal species worldwide.

By contrast, numbers of the world's smallest butterfly, the Western Pygmy Blue, have grown in recent years. They are normally found in North and Central America, but populations have been discovered recently in Hawaii and Saudi Arabia. Scientists suggest that the main reason these butterflies survive in these areas is because they adapt well to different climates, rather than the fact that food is widely available. Despite their name, most of them are not blue at all, but brown: this plain colour makes them difficult to spot, which keeps them safe from hungry creatures hunting for a meal.

Many butterflies fly from place to place in search of warmer weather and food, but the species called Painted Lady travels the furthest of all. Every year it makes its way from Mexico to Canada, which is a huge distance. Butterflies can fly quite fast – a useful skill when trying to avoid becoming food for birds – but even so, the journey takes several months. You might assume, therefore, that Painted Ladies have the longest life of any butterfly, but actually, many are born and die along the route. Painted Ladies, together with several other species, store toxic chemicals in their bodies as another defence. These make the butterflies taste unpleasant, so animals whose diet consists of insects avoid them.

Butterflies mainly drink nectar, the sweet liquid produced by flowers. Some butterfly species, however, such as the Zebra Longwing and the Harvester, prefer some variety. As well as nectar, the former eat pollen, a powder produced by flowers, while the latter, strangely enough, consume mud, which appears to provide them with what they need to survive.



Question 3

Why do scientists think Western Pygmy Blue butterflies are spreading to new locations?

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