# Invasion of the cane toad

Native to Central and South America, cane toads were released in northern Queensland cane fields in 1935 to help control cane beetles which were eating and destroying the sugarcane plants. The cane toads were of little benefit to the farmers but as they spread beyond the cane fields, southwards into New South Wales and westwards towards Western Australia, they soon became pests themselves. Like many introduced species, cane toads have no natural predators in Australia, so there was little to stop their spread.

Source 1.49   The cane toad has become a serious pest in Queensland and the Northern Territory.

Animals such as snakes, goannas, freshwater crocodiles and quolls have eaten frogs for millions of years. They see cane toads as a new food source. However, the poisonous skin of the cane toad kills its attacker within minutes. This is devastating the local populations of these native animals.

AUSTRALIA: DISTRIBUTION OF CANE TOADS, 2012
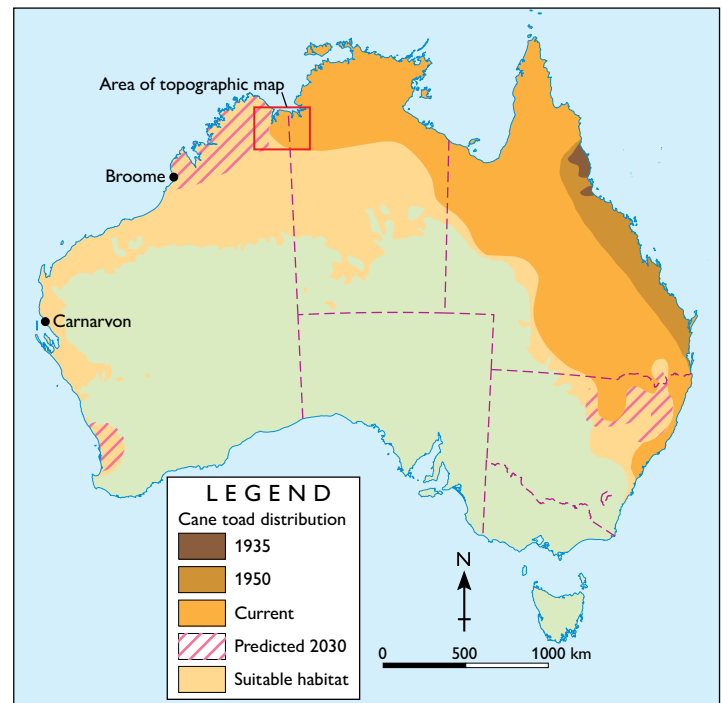
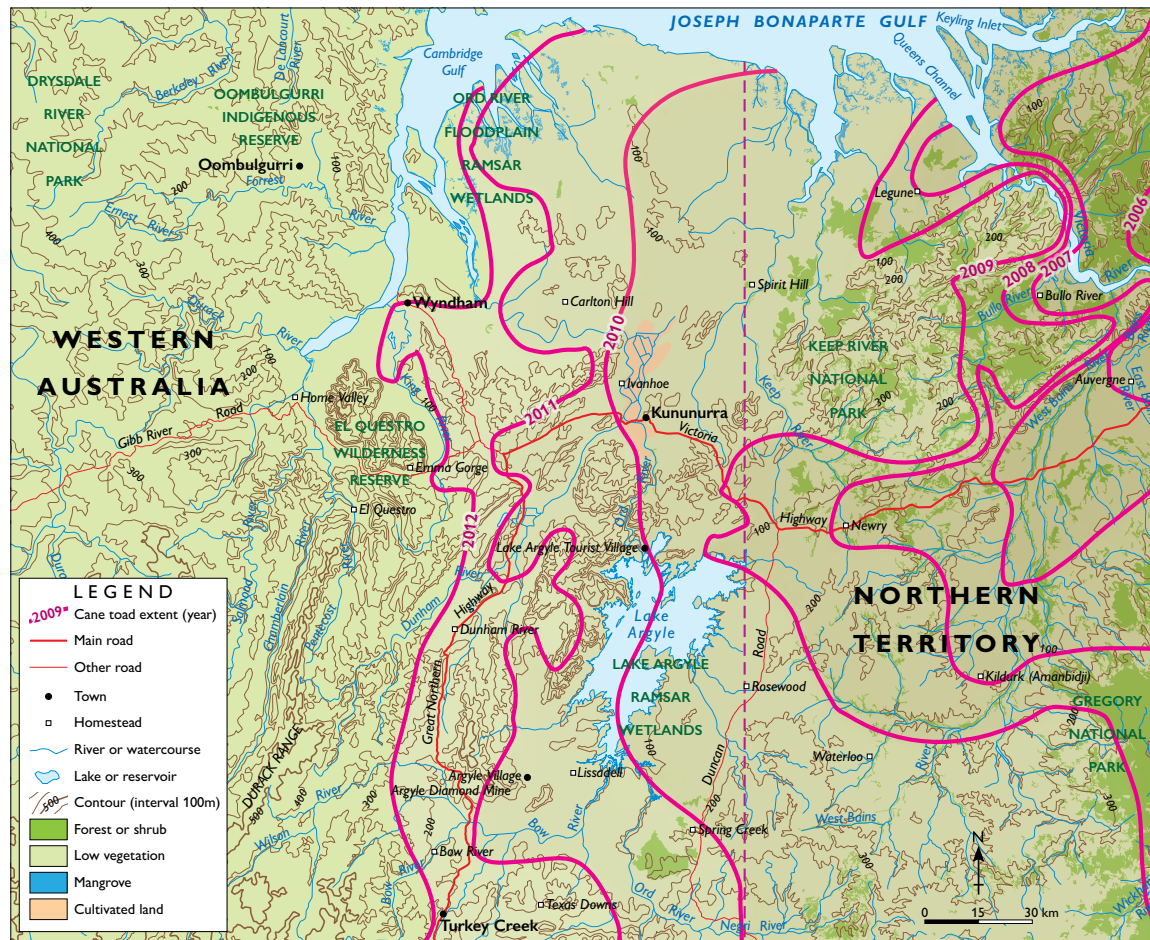**Source 1.50**   Source: Oxford University Press

skilldrill

Using a topographic map to explore environmental change

Because topographic maps show the shape of the land in great detail, they are one of the most useful tools used by geographers. By adding extra information, topographic maps can be used to show changes over time and the reasons for these changes. Source 1.51 has been drawn to show the expansion of the cane toad's territory every year from 2006 to 2012. The **contour lines** on the topographic map show the shape of the land over which the cane toads are spreading (including the heights of valleys, hills and ridges). Geographers use this information to measure and predict the rate and direction of the cane toad's spread. Follow these steps:

Step 1 Look closely at the lines and dates showing cane toad expansion to estimate in which direction the spread is moving.

Step 2 Are the lines becoming closer together or further apart from one year to the next? This will tell you if the rate of spread is increasing or decreasing.

Step 3 Select an area between two lines that shows a typical rate of spread. Use the line scale to estimate the distance between the lines in this place. This will give you a rate in

Source 1.51

Source: Oxford University Press

kilometres per year. Divide this by 52 to give you a rate per week. This could also be expressed as metres per week.

Step 4 Look at the contour lines and other features shown in the legend to identify any natural or built features that are affecting the pattern and rate of spread being shown on the map.

Apply the skill

Examine Source 1.51 carefully and complete the following tasks.

1 Using the steps provided, estimate the direction in which cane toads are spreading across northern Australia.

2 Calculate the rate of spread for the cane toad between 2011 and 2012.

3 Use the rate of spread you calculated, together with the line scales provided in Sources 1.50 and 1.51, to estimate the amount of time it will take cane toads to spread to the Western Australian towns of Broome and Carnarvon.

4 What natural features appear to be affecting the rate of spread of the cane toad?

Extend your understanding

Examine Source 1.50.

1 Estimate, in square kilometres, the size of the region currently inhabited by cane toads.

2 Estimate the size of the region cane toads are predicted to inhabit under current climate conditions.

3 How do you think climate change will affect the distribution of cane toads? Why do you think this is the case?

4 Kakadu National Park in the Northern Territory contains vast areas of protected wetlands and large numbers of unique plants and animals. Cane toads were first detected in the park in 2001 and since then have had a range of devastating impacts on this unique environment. Research these impacts and the efforts taken by park authorities to minimise them. Discuss the effectiveness of these methods with your classmates.