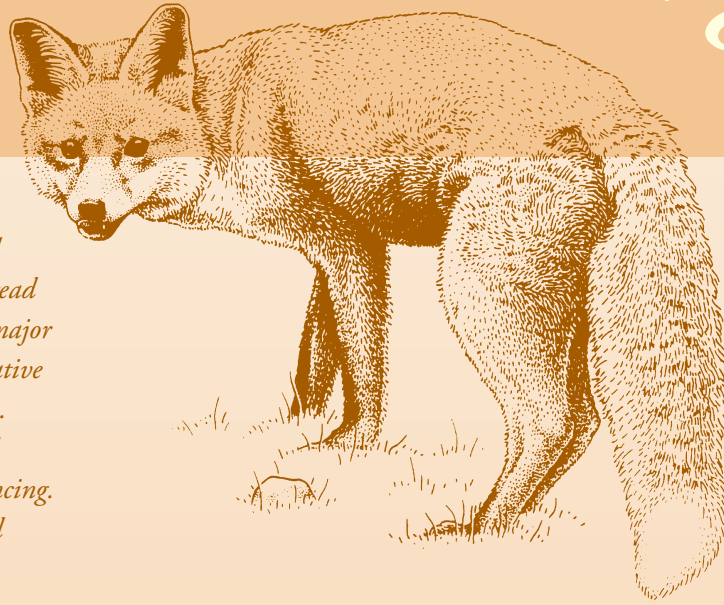


# European red fox (*Vulpes vulpes*)



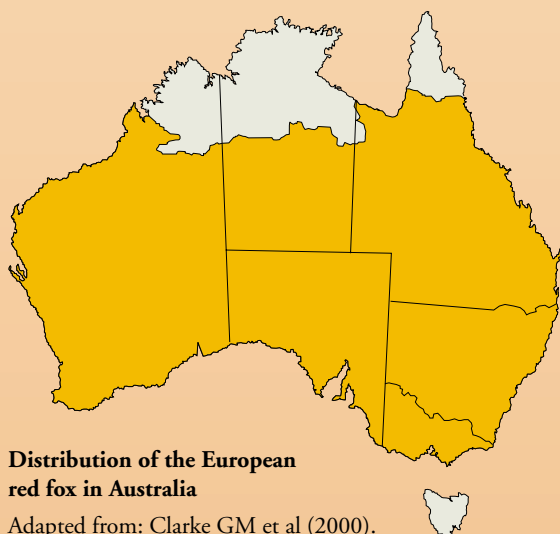
Since they were introduced for recreational hunting in the mid-1800s, foxes have spread across most of Australia. They have played a major role in the decline of a number of species of native animals and they also prey on newborn lambs. Control of foxes relies heavily on conventional techniques such as shooting, poisoning and fencing. In the future, a combination of biological and conventional control methods may be able to reduce the damage foxes cause.

## History

The European red fox was deliberately introduced to Australia for recreational hunting in 1855 and fox populations became established in the wild in the early 1870s. Within 100 years the fox had spread across most of Australia, though it currently does not occur in the tropical north and some off-shore islands remain fox free. In 2001, evidence began to emerge suggesting that foxes had been introduced into Tasmania, which was previously fox free.

## Ecology

The fox survives in many different habitats, including urban, alpine and arid areas. Outside urban areas, it appears to be most abundant in lightly wooded areas that are typically found in agricultural landscapes offering a wide variety of shelter and food.



**Distribution of the European red fox in Australia**

Adapted from: Clarke GM et al (2000). *Environmental Pest Species in Australia*. Internal report, Department of the Environment and Heritage, Canberra.

During the day, the fox sleeps in dens, logs and other shelter — it is mainly active at night.

The fox eats almost anything, scavenging and preying on whatever is available. Its main food source is small animals, but it also eats insects and fruit, particularly in summer when preferred prey is less abundant.

Both males and females are sexually mature at the age of one year. Litters, averaging four cubs, are born during August and September, and emerge from the den in late spring. The cubs move away from the family territory in late summer or autumn.

Causes of fox mortality include shooting, trapping and predation by dingoes. Diseases such as mange and distemper may also be a significant cause of death in fox populations.

## Impact

The fox has played a major role in the decline of ground-nesting birds, small to medium sized mammals such as the greater bilby, and reptiles such as the green turtle. It is thought to have caused a severe reduction in populations of many other threatened species, including the bridled nail-tail wallaby and the night parrot.

The fox causes significant economic losses to farmers by preying on newborn lambs, goat kids and poultry.

The fox could also act as a carrier of rabies, should the disease accidentally be introduced into Australia. Rabies mostly affects members of the dog family, but can also be passed on to humans, livestock and native mammals.

## Control

In the past, bounties have been paid to remove foxes from the wild, but these have rarely been effective in reducing the damage caused by foxes. Similarly, hunting does not seem to have had a significant or lasting impact on fox numbers or the damage they cause.



Foxes are one of the most widely distributed feral animals in Australia and can be found in most habitats, except in the tropical regions of the far north. They prey on a wide variety of small animals. Photo: C Marks

Fencing and broadscale fox control with poison baits has been used successfully in Western Australia, allowing populations of some native mammals to begin to recover and return to former habitats. Similar control activities have been undertaken in eastern Australia. Such control can ease the pressure on populations of native animals, but it is expensive and must be maintained indefinitely.

Preventing the introduction of foxes to new areas, such as islands, is a high priority. Islands are often refuges for animals no longer found on the mainland.

The use of poison baits for fox control must take into account possible effects on non-target species. Burying baits reduces the likelihood of the baits being taken by native animals, and foxes can still find them.

Scientists are investigating ways to improve conventional fox control methods to make them more effective and humane, and less likely to harm non-target animals. New biological control techniques are also being investigated. These include a vaccine to prevent pregnancy.

Foxes are less common where dingos are present, and this may be another form of biological control. Researchers are looking at the interactions between foxes, dingos and feral cats; their findings could help in integrating fox and feral cat control.



Foxes can be poisoned using baited meat, or specially prepared baits like the one shown here. Baits are often buried to reduce the chance of them being taken by native animals. Photo: Animal Control Technologies Australia

## How the Australian Government is dealing with a national problem

Predation by the European red fox is listed as a key threatening process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). Under the EPBC Act, the Australian Government in consultation with the states and territories has developed the *Threat Abatement Plan for Predation by the European Red Fox*.

The threat abatement plan aims to reduce the impact of predation by foxes by:

- implementing fox control programs in specific areas of high conservation priority
- encouraging the development and use of innovative and humane control methods for managing foxes
- educating land managers to improve their knowledge of fox impacts, and to ensure skilled and effective participation in control activities
- collecting and disseminating information to improve our understanding of the ecology of foxes in Australia, their impacts and methods to control them.

Fox control programs need to be coordinated with other activities that may be taking place, including the on-ground protection of threatened plants and animals and control of other invasive species such as feral rabbits and feral cats. The plan provides a framework that enables the best use of the resources available for fox management. The Australian Government works with the states and territories to deal with this national problem.

More information about the *Threat Abatement Plan for Predation by the European Red Fox* can be found at <http://www.deh.gov.au/biodiversity/threatened/tap/foxes/index.html>

### Further reading:

Saunders G, Coman B, Kinnear J and Braysher M (1995). *Managing Vertebrate Pests: Foxes*. Australian Government Publishing Service, Canberra.

Illustration of European fox by Karina Hansen McInnes

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