

The European Rabbit

History

The European rabbit (*Oryctolagus cuniculus*) arrived in Australia on the First Fleet in 1788. These rabbits were domesticated around Sydney but did not spread. They were, however, successfully introduced to Tasmania. In 1859, Australia was given its worst Christmas present when 24 wild rabbits were released for hunting near Geelong. Over the succeeding forty years rabbits spread to Queensland, Western Australia and the Northern Territory.

Distribution

Rabbits are abundant in Australia and can be found almost everywhere, with the only exceptions being the wet tropics and dense coastal forests.

When myxomatosis was introduced in 1950 rabbit numbers dropped by as much as 95%, with greatest impact in the highest rainfall areas and least reduction in arid zones. Populations increased again to around half pre-1950 levels. The introduction of RHDV in 1995 again reduced rabbit numbers to very low levels, this time especially in arid zones and with least impact in the higher rainfall areas.



Environmental impacts

Economic damage by wild rabbits in Australia, including cost of control and production losses, has been estimated at around \$600 million annually. The accumulated damage to our environment over the last 100 years is incalculable but runs into billions of dollars.

Rabbits contribute to soil erosion by borrowing, removing vegetation and disturbing soil. In particular in the rangelands many plant species are threatened with extinction. Rabbits at very low densities can completely suppress regeneration of palatable plants. This situation leads to extinctions of many native plant and animal species, even of trees. In addition, rabbits compete with native animals and production animals for food and intensify predation by foxes and cats.

Myxomatosis and later calicivirus rescued many vulnerable plant populations from imminent extinction after about 90 years before myxomatosis came in and 40 years of high rabbit densities before calicivirus had its effect. The problem remains, however, in higher rainfall areas and may increase again in drier regions.

Reproduction

Rabbits can increase their populations very rapidly, because of the large size of their litters, the short gestation period and their early sexual maturity. Rabbits can breed from five months of age and a mature female rabbits can be continuously pregnant between six to eight months per year if the conditions are right. A single female can produce 30-40 young per year and it is quite common for rabbit populations to increase 8-10 fold in one breeding season.

What is more important is that the density of the population at the start of the breeding season defines the extent of the increase. When the initial population is small, the rate of increase is much lower, because predation and other mortality factors, such as disease and adverse weather, have proportionally a higher impact.

Control techniques

After the introduction of myxomatosis initially rabbit populations were much reduced, but by the late 1950s resistance was starting to build in rabbits and the virus was less effective. Rabbit numbers increased, but never to their former levels. Introductions of the European rabbit flea in 1985 and the Spanish rabbit flea in 1992 have aided the spread of myxomatosis.

Calicivirus (RCD, but also known as Rabbit Haemorrhagic Disease Virus (RHDV)) is still effective in rabbit populations. In 1989 Australia started to investigate the potential use of calicivirus disease for rabbit control. In 1995 the virus escaped from Wardang Island off South Australia. It swept across the Flinders Ranges through the arid zone killing large numbers of rabbits. In general it has been most effective in the arid and semi-arid areas, with a reduced effectiveness in wetter areas.

The breeding characteristics of the rabbit mean that the best time for rabbit control is when the population is small. Control techniques vary according to density, land type and land use. The use of conventional control techniques, including shooting, destruction of warrens, poisoning, fumigation and stock fencing, are still critical for rabbit control. In a search for more humane control techniques other research is focusing on the use of biotechnology in developing new control methods that limit the reproduction of rabbits.

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