

## The Rabbit (*Oryctolagus cuniculus*)

### History

European feral rabbits were first introduced to New Zealand from England in 1777 by James Cook. Early settlers were eager to introduce rabbits for sport, food and fur, with deliberate introductions in the 1840's and 1850's.

Despite initial failures to colonise, rabbits soon became successfully established, particularly in the South Island. As an indication of escalating rabbit numbers, exports of rabbit skins increased from 33,000 a year to 16 million a year between 1873 and 1893. By the 1890's, rabbits had reached pest proportions in many areas.

### Lifecycle

Rabbits can multiply up to ten times their number in one year. The female can reproduce from three to four months of age, the gestation period is 28 days, and she may become pregnant again within 12 hours of giving birth.

A litter is usually of three to seven young, but litters of up to 14 have been recorded. The infant mortality rate is high; out of every hundred born, 10 may survive disease, predation and periods of wet weather to reach six months and one or two reach three years of age. However, enough young survive to enable rapid increases in rabbit populations.

### Habitat

Rabbit prone areas in Hawke's Bay centre around pumice soils, coastal sand dunes and river beds such as the Waipawa, Tukituki, Ngaruroro and Tutaekuri.



Rabbits prefer short, sparsely-composed grassland, especially with areas of bare earth. Over-grazing of pasture with horses or sheep helps create rabbit-prone conditions.

### What's the problem?

Rabbits compete directly with stock for grazing and reduce the amount of palatable pasture available to domestic stock. It has been estimated 10 rabbits eat as much pasture as one sheep. Over-grazing damages vegetation and leaves the soil exposed and vulnerable to erosion from wind and water. Rabbit burrowing also encourages tunnel erosion.

Rabbits are a menace to young pine and other timber trees. They damage horticultural crops such as commercially grown vegetables, as well as fruit trees in orchards. In urban areas they can damage small trees and shrubs, vegetable and flower gardens and newly cultivated lawns.

### Animal pest status

The rabbit is designated a regional control animal pest. Landowners are responsible for the control of rabbits on their land.

The control of rabbits is managed under the Regional Pest Management Strategy 2013-2018. The aim is to minimise any significant adverse effects of rabbits on economic wellbeing or the environment, by maintaining rabbit populations at or below Level 4 on the McLean Scale. Landowners support and assistance is needed to achieve this.

The control of rabbits is at the landowners expense and rabbit numbers must meet the rule described below, unless Hawke's Bay Regional Council has approved the control programme. Approved programmes may qualify for a subsidy under the Regional Council pest control incentive scheme.

If a landowner does not adhere to the rule or an approved management programme, under the Biosecurity Act 1993, Hawke's Bay Regional Council may carry out control work and recover those costs from the landowner.

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**RULE: Rabbit (*Oryctolagus cuniculus*)**

***Every land occupier, from mid- January to mid-August, maintain rabbit populations at or below level 4 of the McLean Scale over any part of their land. A breach of this rule is an offence under section 154 of the Biosecurity Act 1993.***

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## McLean Scale Infestation Level

No rabbits or sign seen	1
No rabbits seen, some sign noticeable	2
Odd rabbit seen, sign and some buck heaps showing up	3
Pockets of rabbits, sign and fresh burrows very noticeable	4
Infestation spreading out from heavy pockets	5
Infestation over whole area, and increasing	6
Infestation heavy, rabbits moving in droves, pasture damage, warrens	7
Infestation at high level through- out, severe pasture and vegetation damage	8
Infestation almost at peak	9
wide area or starve	10

For further information, refer to the Regional Pest Management Strategy or contact your Animal Pest Biosecurity Officer.

### *What you can do?*

#### Night Shooting

Rabbits are mainly active at night, so night- shooting using a spotlight is a good option in rural areas. A .22 calibre rim-fire rifle or a 12 gauge shotgun are the best firearms to use. Remember all the requirements of your firearms licence.

#### Poisoning

Some poison baits, such as Pindone pellets, are available for use without a special licence. Pindone is a slow-acting anti-coagulant, and will kill rabbits in seven to 10 days. All anti-coagulant pellets are coloured green and are dangerous if eaten. See the Environment Topic "Rabbit Control Using Pindone Rabbit Pellets" for more information.

For first aid and safe use of anti-coagulant pellets refer to the manufacturer's instructions

#### Burrow fumigation

Rabbits can be fumigated in their burrows by using Magtoxin tablets. Magtoxin produces hydrogen phosphide gas on contact with moisture and asphyxiates the rabbits. The procedure involves placing tablets inside the burrow and then sealing the entrance hole with dirt so the gas is confined to the burrow. See the Environment Topic "Use of Fumigants to Control Rabbits" for more information.

Hydrogen phosphide is dangerous if inhaled. For First Aid and safe use Magtoxin, refer to the manufacturer's instructions.

#### Exclusion fencing

The best way to protect specific crops is with a rabbit-proof netting fence. Mesh size should be 2.5-3.0 cm in diameter, and the fence should extend to at least 80cm above ground. It should be pegged down tightly, or buried about 20cm.

Cylinders of plastic netting, rabbit netting or plastic sheaths can protect valuable young trees and shrubs. Dynex plastic seedling and pole protectors are available from the Regional Council at cost.

## Habitat Manipulation

Remove logs, piles of stones and small scrubby plants to reduce habitat for rabbits.

Grazing programmes can also reduce rabbit habitat. Continually improving pasture quality will discourage rabbits. Refraining from grazing pasture heavily in summer, controlled sheep grazing and increased cattle grazing reduces rabbit habitat.

## Repellents

Repellent preparations are designed to make plants unpalatable to browsing possums, rabbits and hares. Repellents are generally applied as foliar sprays which have to be reapplied periodically to treat new growth within browsing range. There are a number of repellents available on the market, and egg based preparations appear to be the most effective. Alternatively there is a recipe available to make your own repellent. See the Environment Topic "Use of Repellents for Animal Pest Control" for more information.

## Rabbit Haemorrhagic Disease (RHD)

The biological control agent Rabbit Haemorrhagic Disease (RHD) was released in Hawke's Bay in 1997 and is now widespread. In many areas the virus has spread naturally after release by landowners. Early monitoring has shown rabbit densities cut by 75% in some areas.

Despite the promising signs of RHD on the majority of rabbit-prone land in the region, landowners should not be complacent about their obligation to control rabbits. The long-term viability of RHD is unknown, and it will be several years before it is possible to determine the full effects and lasting benefits of the disease. To get the maximum benefit from an RHD epidemic, the survivors should be killed.

## Rabbit Calicivirus Disease (RCD)

RHD was formally known in New Zealand and Australia as Rabbit Calicivirus Disease (RCD). In 1999 the internationally recognised name RHD or Rabbit Haemorrhagic Disease had to be adopted in New Zealand and Australia. This was to avoid confusion between the virus which causes RHD, and a very similar virus found in Europe, the rabbit calicivirus, which is not known to be present in New Zealand. Rabbit calicivirus would be most unwelcome in New Zealand because it is apparently not harmful to rabbits, but causes them to become resistant to RHD.

**For further information** on animal pests or the Regional Pest Management Strategy, please contact the Biosecurity Animal Pest Officers at the Hawke's Bay Regional Council.

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