

# Rats

## Information Sheet

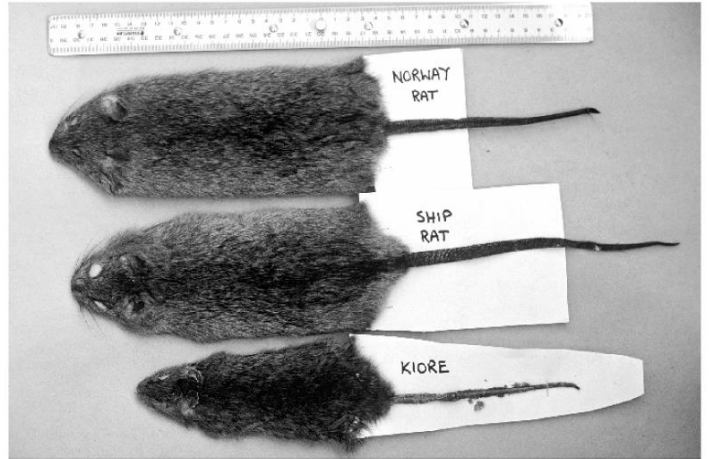
### Species

There are three species of rat in New Zealand, the ship rat, the Norway (or water rat) and the kiore, all of which were introduced.

Ship rats inhabit most places but are most common in bush areas. They are excellent climbers and can be identified by having a tail longer than their body, which varies in colour from light black to grey. Ship rats don't dig burrows but still hoard food.

The Norway rat is larger than the ship rat with a body about 200mm long. It has a thick tail, which is shorter than its body. They are common where food is stored or processed around farms, industrial areas land fills and wetlands, Norway rats dig burrows and like the ship rats, hoard food. They live on the ground and can swim 500 metres.

The Kiore or pacific rat is the smallest of the three and has largely been displaced by the Norway and Ship rats. Kiore are now only found in a few isolated pockets mostly on offshore Islands.



### Damage caused by rats

Rats have been identified as a major predator and competitor in our forest ecosystem. New Zealand evolved without rats, mustelids, deer or possums so the native flora and fauna have not developed natural defences. The tree climbing ship rat is the main predator of robin, fantail, kereru, tui, bellbird, greywarbler, rifleman, tomtits, morepork and whiteheads. Both eggs and chicks are taken by rats.

Rats also feed on invertebrates, fruits and seeds that may have otherwise been used as a food source by native birds or helped to regenerate the native flora. Norway rats may be ground/water dwelling but they cause much havoc by feeding on ground nesting birds, eggs, lizards, insects and seeds.

Rats are also an attractive food source for mustelids thus helping them breed. There is growing evidence that by controlling rat numbers you can also control mustelid numbers.

Ship rat  
killing fantail chicks



Photo D Mudge

## Methods of control

Long-term control of rats is difficult as they are prolific breeders and given suitable conditions mature in 3 - 5 months. They can recover from an 80% kill rate typically obtained during poisoning operations, to pre-poisoning numbers in 9 to 12 months. Rats have relatively small territories so require an intensive control programme to effectively reduce numbers.

Rat numbers can be controlled by either poison or kill traps. Poisons must be used in suitable bait stations, and kill traps inside tunnels to minimise any danger to non-target species. Poison is the most common method of rat control and depending on the type used, may also reduce predator numbers through secondary poisoning, a great advantage to overall pest management.

There are two main poison types, rapid kill and delayed kill. A disadvantage of rapid kill poison is that it may cause bait shyness, when a animal eats a sub-lethal dose and just gets sick it may associate that sickness to the poison.

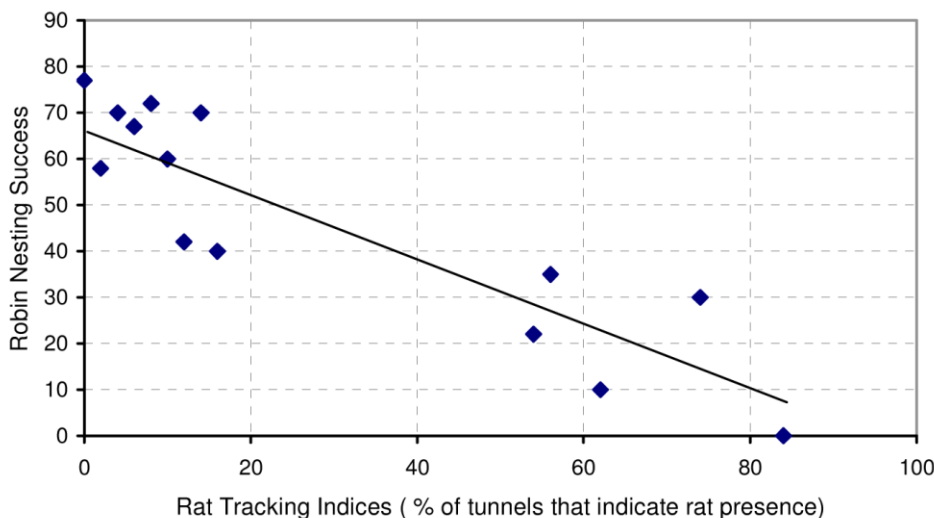
A problem with delayed kill poisons is that they allow the animal to eat far more poison than is required to kill it, or it may cache bait in its den before dying, increasing the amounts of bait and cost required for an operation.

Trapping is more labour intensive than poison and has the disadvantage of one having to remove every dead rat from the trap, and reset it. However a rat in a trap is a dead rat. The Victor snap trap is a commonly used and effective kill trap. Trapping is now carried out over large areas once deemed impossible to trap and is viewed as a sustainable long-term environmentally friendly method of rodent control.

The graph below shows how a rat control program in the Pueora forest is having a significant benefit to the Robin population. Before rat control is carried out it is usual practice to set up tracking stations to gauge the resident rat population. The results can then be used for future reference to determine the effectiveness of control methods. Bird counts are also done before rat control and then each season afterwards to determine if the level of rodent control is helping bird populations to recover.

For the Otanewainuku project, it is proposed to carry out control work during the bird-breeding season; starting in late winter and continuing throughout summer. Reducing rat predation during this time will help birds to successfully fledge their chicks and increase native bird numbers.

**Nesting success for Robins and Rat Tracking Indices**



Graph courtesy of DOC