

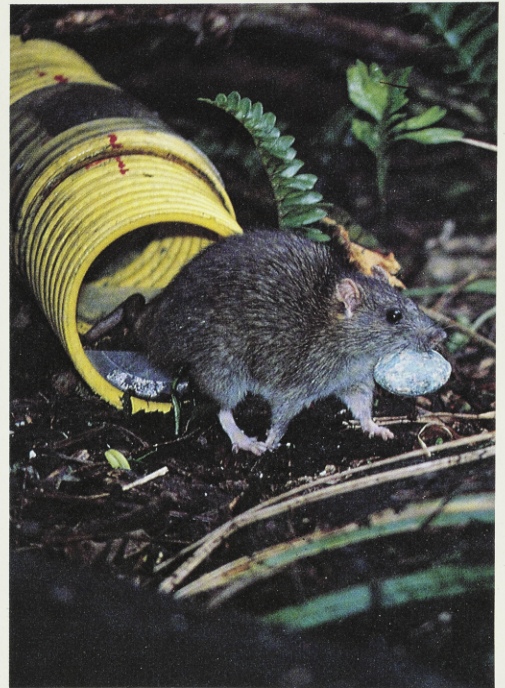


The rat populations on Breaksea Island are dense and their sign is everywhere. Rowley Taylor inspects bark biting. Photo: Bruce Thomas.

has shown large fluctuations in the size of the population. On one occasion, the only traces of rats were old burrows full of cobwebs, and sea shells many metres from the shoreline — but on later visits rats and their sign were commonplace.

Historical records show that during the last century Norway rats were widespread on many Fiordland islands, but that they disappeared almost completely after the arrival of stoats. Nowadays off the coast of southern New Zealand they are found only on islands that stoats have not reached. The original survey revealed very old rat sign on some other islands in Breaksea and Dusky Sounds, but rats were subsequently caught only on Breaksea and Hawea.

On the positive side, it was clear that rats had not reached nearby Wairaki Island, and that Breaksea, Hawea and Wairaki were among the very few islands in Fiordland that were outside the swimming range of stoats. None of the three islands showed sign of deer. The potential value of these islands if they could be made rat-free was obvious, and in spite of popular opinion that complete eradication was impossible, ideas



Poisoned pellets on Hawea Island were frequently carried off by Norway rats in less than a minute. Photo: Rowley Taylor.

Rodent Eradication From Islands — The Conservation Potential

by Dr David Towns, scientist with the Science and Research Directorate of the Department of Conservation.

With the introduction of an array of rodent, feline and mustelid predators to New Zealand over the last 150 years, the fauna of the main islands has taken a battering. So great is the extent of this destruction, Jared Diamond (1984) was recently moved to comment that New Zealand no longer has an avifauna, just the wreckage of one.

Predator-free offshore islands provide the only means of preserving some unique remnants of this fauna. They remain a last refuge not just for birds, but also many lizards, insects and even some plant species. The continuation of these outposts has not always been regarded as assured. As recently as 10 years ago, the slow creep of rodents through these remaining predator-free islands seemed inevitable. This view was reinforced by the irruption of ship rats on Big South Cape Island in 1964, followed by the extinction of two endemic forms of birdlife, and the invasion of Whenuakura Island by Norway rats in the early 1980s, causing the destruction of the tuatara population. In a workshop on the impacts of rodents on nature reserves in 1978, both Dr Ian Atkinson and the late Dr Kazimierz Wodzicki concluded that eradicating rodents from islands, however small, was an unrealistic goal.

Because of this previously well justified view, predator-free islands, especially those free of rodents, took on a dual role. In addition to their value as the least modified of New Zealand's ecosystems, they have acquired the guise of living arks — havens to which the inhabitants of other islands could

be moved once their original homes had been invaded by rodents.

Recently our whole approach to this problem has undergone a revolution. New forms of safer, effective rat poisons, and some innovative methods of dispensing them, have meant that we can now change from constantly battling to save a diminishing resource to a phase of pre-emptive strikes. Choosing islands for their potential conservation value and removal of rats is feasible, and the first attempts are already under way.

While DSIR teams from Ecology Division have been developing their rodent eradication techniques on islands in the Marlborough Sounds and Fiordland, a second group, now in the Department of Conservation, has been developing methods for removal of Norway rats and kiore from islands in the Hauraki Gulf and Bay of Plenty.

Korapuki Island

The most recent of these has been on Korapuki Island, the first project designed specifically with endangered species conservation as the ultimate goal. Reaching this point has taken several years and covered four different groups of islands as techniques have been developed and refined.

The sequence really began in the late 1970s when Department of Conservation (DoC) science technician, Ian McFadden, became involved with Dr Phil Moors' programme for eradicating Norway rats from the Noises Islands in the inner Hauraki Gulf. When the need for bait dispensing silos became apparent, Ian tried a number of designs with kiore on Lady Alice Island, in the Hen and Chickens Group, prior to their use on the Noises. Further work on Lady Alice enabled Ian to test various forms of baits and attractants (McFadden 1984). As work concluded on the Noises, the focus shifted to Rurima Island, a small (6 ha) island in-

habited by kiore, off Whale Island, in the Bay of Plenty. This is where the final phase of design was required — the selection of the most suitable rodenticide. After about 6 months of trials, all rat sign ceased on Rurima and no kiore have been seen for over three years.

The way was now open to design a rat extermination programme around the conservation needs of rare species. The one chosen was Whitaker's skink, a large (20 cm) lizard confined to two tiny offshore islands (the largest just 10 ha), and a small and highly vulnerable area at Pukerua Bay near Wellington. In 1986 the Hauraki Gulf Maritime Park Board accepted a proposal



Whitaker's skink (*Cyclodina whitakeri*) photographed on Middle Island. Photo: Ewen Cameron

by myself and Ian McFadden to eradicate kiore and rabbits from 18 ha Korapuki Island as a prelude to establishing a new population of Whitaker's skink, most of which would be transferred from Middle Island about 2 km away.

The eradication campaign began in early November 1986, when Ian McFadden and Derek Brown (the latter now DoC, Nelson/Marlborough Region) put in long days setting up bait silos, and filling them with unpoisoned grain as bait. After a rather tense wait of four days when little happened, it became obvious that the kiore were starting to find the grain very much to their taste. It was then time to switch to poisoned grain,