



One of the problems in studying stoats is being able to observe them. This photograph is a rare example of one captured live in action. Stoats can climb large trees to the full height of the forest canopy, running fearlessly along the branches and down again head first.

Photo: A. Brandon, Taranaki Daily News

## Control of stoats

All discussions of control of stoats are confounded by irrelevant human prejudices. Stoats have a reputation as vicious, alien killers that seems to have an extra-ordinary effect on people. The sight of a helpless little feathered bundle clamped between the jaws of a steely-eyed stoat is virtually guaranteed to get even the calmest, nicest, most logical member of the Forest and Bird Society all steamed up in a matter of seconds. We have to recognise how important this human reaction is, because it goes a long way toward explaining why some people simply cannot accept the rational arguments against conducting a general programme of stoat control, not even in National Parks. Yet all the evidence points towards the conclusions that stoats have in fact had very little to do with the catastrophic extinction of our native birds in the past, and that, except in two or three specific places, control of stoats now would do practically *nothing* to protect the native birds that remain. However much these statements may seem to contradict all you ever believed about stoats, yet the reasons for them are simple and logical, they have nothing to do with compassion or prevention of cruelty, only with the necessity of avoiding unwise expenditure of the scarce funds available for protection of our wildlife.

First, over most of the country, stoats have played a very minor part in these historic extinctions, partly because they arrived late (1884 onwards), long after Norway and ship rats, cats, dogs and human hunters had removed all the most vulnerable birds on the mainland, and partly because stoats have never reached most of the offshore islands where many more very vulnerable birds lived. Westland and Fiordland were the only mainland areas still relatively free of disturbance by the time the stoats arrived, and the destruction of the last of the ancient ground-dwelling birds (the kakapo, saddlebacks, thrushes and bushwrens) of the south and west from 1890 onwards was eloquently described by many contemporary writers. Observers such as Douglas and Harper were in no doubt that stoats were to blame, but they overlooked another, far

more dangerous enemy, ship rats, which arrived at about the same time and certainly could have achieved the same effect with or without the help of stoats. The evidence against stoats as contributing to extinctions in the south and west is circumstantial, and would never stand up in a court of law; that does not mean they were innocent, only that they were not *solely* to blame.

Elsewhere in the country, there is no evidence against them at all. In fact, attacks by stoats on the Westland thrushes and saddlebacks, though well known, were quite exceptional; of the 153 distinct populations of birds known to have disappeared from the islands of the New Zealand group (excluding the outlying islands) since 1000 AD, stoats could have come into contact with only five (3 percent) that are now extinct and 11 (7 percent) that are still threatened. Stoats were perfectly *capable* of causing wholesale slaughter, but they never had the opportunity; it was the Polynesian hunters and the European sailors and their rats and cats which had the luck to discover undisturbed, tame and defenceless birds on every island they visited.

Second, the natural environment in New Zealand is totally different now from the way it was when the first predators arrived and the old conditions cannot be restored by predator control or any other means. The forests have been radically diminished, dissected and irretrievably changed by browsing deer, goats and possums; the old network of relationships to which the original forest dwellers were so well adapted has been torn apart. The past has gone as permanently as if it had never been; and even if the predators could be totally exterminated, the most sensitive of the native birds now confined to predator-free offshore islands, have no recognisable home to return to. The effects of predators in the past cannot be undone by predator control now; it is too late to slam the stable door, since there is now not only no horse, but no stable.

Third, control of stoats would probably not have any effect on the numbers of those hardy species of birds that still manage to survive in the bush today. Not only is it very unlikely that stoats can, in fact, be kept at artificially low numbers, but also, there is no guarantee that individual birds of the non-endangered species saved from predation will necessarily live much longer. Other factors besides trapping determine the numbers of stoats, and other factors besides predation determine the numbers of birds. The trick to understanding both these statements (which are really the same) is to think of life and death among animals as a bank balance.

## Bankrupt birds

If you see people spending lavishly on luxurious cars, trips abroad and dinners at expensive restaurants, you know it could mean that either they must have a

large income, or that they will soon be broke. Only if you are allowed to see their bank statement, and read both the credit and the debit columns, will you be able to tell whether they are genuinely wealthy or just spendthrifts. Everyone understands that a person's financial position is determined not by expenditure alone, but by the *relationship* between expenditure and income. So it should be easy to see that populations of birds are just the same, and can be easily understood if we think of breeding as income and death as expenditure.

The common small bush birds live short lives, and many of them die every year; but those deaths are usually balanced more or less by the large number of young they rear each season. Take for example the fantail: adult females commonly lay 3, 4 or even 5 clutches a year, averaging 3-5 eggs per clutch, but fewer than one in a hundred adults survive long enough to breed in more than one season. They have high incomes and high expenditure every year, and their bank balance (the population density) tends to be unsteady, but over the long term there is plenty of income available to counter the heavy outgoings. Birds in this position are like the genuinely wealthy — they can suffer heavy mortality year after year without serious effects.

But not all birds are adapted to produce a lot of young. Some, like the takahe, lay only one clutch a season, of 1-3 eggs each, so obviously their income is small, and they normally match it with very small expenditure. Their bank balance is steady and reliable — until something happens to increase the cost of living too much. Then there is no way of increasing income sufficient to restore the balance, and disaster follows. Birds in this position are like the spendthrift to whom no bank manager will grant an overdraft — they can suffer heavy mortality only for a limited time, and then they become extinct.

Unfortunately, many of the most unique of New Zealand's ancient birds, such as the moa, huia, thrush, bush wren and hosts of others, had evolved the low-income, low-expenditure pattern. The arrival of the first predators suddenly increased the expenditure; no possible increase in income could compensate; the birds swiftly disappeared. But the common bush birds that still survive were used to heavy mortality, and the predators merely took those that would soon have died from some other cause.

This is why the coming of the predators did not have the same results for all birds; it is also why it is difficult to control predators such as stoats, which have the same high population turnover characteristic of small bush birds.

Stoats killed in traps are merely rescued from dying of some other cause — usually starvation — just as small bush birds killed by stoats are rescued from dying of some other cause — most often causes that were operating long before the stoats arrived.