

# The long journey home for Campbell Island Teal

Recent sightings of teal ducklings and nests on subantarctic Campbell Island are evidence of the success of an internationally significant conservation effort involving the world's most ambitious rat-eradication program, a captive breeding strategy, and pioneering work in disease screening and monitoring procedures to protect the re-established population. **Ingrid Shepherd** reports.

Above: Thanks to Auckland Zoo vets working with a team of people from NZ conservation and wildlife agencies, teal have been successfully reintroduced to Campbell Island after almost 200 years' absence. Campbell Island lies approximately 700 km off the southern tip of the New Zealand mainland – an isolated subantarctic island that, until recently, was one of the most rat-infested wilderness areas on earth.

For more than 50 years, the Campbell Island Teal had been presumed extinct. Then, in 1977, a New Zealand Wildlife Service ranger discovered one of the ducks on Dent Island, a rocky outcrop off Campbell Island.

In 1984 and again in 1990 a small number of teal were brought back to the Pukaha Mt Bruce National Wildlife Centre captive breeding facility near Wellington, on New Zealand's mainland, in the hope of bolstering bird numbers, estimated at the time at less than 25 breeding pairs.

However, almost nothing was known about the ecology or breeding habits of the teal. By 1993, not a single duckling had been born in captivity. With numbers on Dent Island also perilously low, the flightless Campbell Island Teal was teetering on the edge of genuine extinction.

## Rats, rats and more rats

The near-extinction of the Campbell Island Teal was largely due to rat predation. It is thought that rats first came to the island with sealers in the early 1800s. Unlike other mammals introduced later – such as cats and cattle – the rats prospered, at the expense of the native birds. They competed against the birds for food, ate their eggs and chicks and destroyed nests. This resulted in local extinctions of all the native terrestrial birds as well as several invertebrate species, and the decimation of seabird populations.

By 2001, the concentration of rats on Campbell Island fluctuated from 50 000 to 200 000, depending on the season. Prospects for eradication were dim. Not only was the island remote and rugged, its







consistently inclement weather and size – about the same area as Macquarie Island – posed further challenges.

Fortunately, New Zealand's Department of Conservation had already successfully eradicated rats and mice from several other large islands in the late 1980s and the 1990s. These included Mana Island and Kapiti Island near Wellington, Fiordland's Breaksea Island and two islands just south of mainland New Zealand – Ulva Island and Whenua Hou (Codfish) Island.

However, the sheer size of Campbell Island (five times larger than islands previously targeted for rat eradication) meant that traditional bait-laying methods were prohibitively expensive. So the department developed a method based on half the usual amount of bait, which still amounted to 120 tonnes. The operation, which cost New Zealand \$2.2 million, was conducted in 2001 in the middle of the subantarctic winter and involved a team of 19 people and four helicopters.

Subsequent monitoring that year and again in 2003 failed to detect any live rats, and the island was officially pronounced rat-free.

## Model for eradication on remote islands

'The Campbell Island project pushed the known limits of rat eradications and required a lot of faith from both the project team and the department managers and politicians who supported it,' says Pete McClelland, the Department of Conservation's Program Manager. 'To succeed, it required innovation, dedication, skill and an element of good fortune with the weather. Some would 'Campbell Island has shown people that large-scale eradications on remote islands are possible, and it has got many countries considering what can actually be done.'

say luck but I like the saying "Luck is when opportunity meets good planning!"

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Campbell Island remains the largest island in the world to have been the subject of a rodent eradication program '... but fingers crossed we will soon be overtaken!' says McClelland, suggesting that Australia's Macquarie Island (11 785 ha) could be the next target.

The rat eradication program has also led to the return and repopulation of invertebrates and bird species long absent from the island. The Campbell Island Snipe is a notable example. Last year, these birds were seen on Campbell Island for the first time, having presumably flown across from the islet Jacquemart Island, their previous rat-free refuge.

## Captive breeding program

Hand-in-hand with the eradication program was the captive breeding program carried out at Pukaha Mt Bruce.<sup>1</sup> Success here came in 1994, when a change The flightless teal are adapted to island life with their clawed feet and short, stubby wings – evident in the photo (left) showing a radio tracking harness used to monitor their movement. Avdand Zoo

1 Pukaha Mt Bruce is a partnership between the NZ National Wildlife Centre Trust, Rangitaane o Wairarapa and the Department of Conservation. One of its key roles is captive breeding of threatened wildlife at the National Wildlife Centre in the Pukaha Mt Bruce forest north of Wellington on the North Island.



New Zealand manages islands such as Campbell as wildlife sanctuaries to ensure that seabirds and other vulnerable animals can thrive. Auckland Zoo in husbandry techniques resulted in two clutches of ducklings being born to 'Daisy' – a decade after the first birds had been brought back to mainland New Zealand! With successful breeding each subsequent year, the

captive population increased significantly. In 1999 and 2000, 24 teal were transferred to Whenua Hou Island to form an 'insurance' population.

## Islands as wildlife 'lifeboats'

Islands have often been considered the 'lifeboats' in New Zealand's conservation strategy. While a few of New Zealand's islands have remained in pristine condition due to their isolated location, more than 100 others have become wildlife sanctuaries as a result of intensive environmental management programs based around the eradication of invasive species of animals and plants – in particular rats.

Although rats can have a detrimental effect in almost any terrestrial ecosystem, the New Zealand ecosystem is particularly vulnerable. Other than bats, there are no native mammals in New Zealand. Birds fill the niche in the ecosystem that would be filled by small mammals in other countries.

Consequently, many New Zealand birds dwell on the forest floor (or



Teal bred in captivity on the mainland were shipped back to Campbell – now an island refuge. Auckland Zoo

comparable zone) and have become either flightless or very poor at flying. As these birds did not have mammalian predators until the arrival of people a thousand or so years ago, they had no need to evolve selfdefence mechanisms, making them extremely vulnerable. In 2004, the first 50 teal were released onto the now rat-free Campbell Island and the following year a further 55 birds were released. Some of the released teal came from Whenua Hou Island, with the remainder coming from captive breeding facilities in mainland New Zealand.

At the end of August 2006, a release team took the long journey south for the third and final stage of the relocation program, involving the transfer of a further 54 birds from mainland New Zealand.

## The new threat of disease

Despite the eradication of the rats, and the successful breeding of captive and insurance populations of the teal, there still exists one major threat to the survival of these birds on Campbell Island – disease. The year before the first teal were transferred to Campbell Island, an outbreak of erysipalis on Whenua Hou led to the deaths of several endangered flightless kakapo (a parrot).

Dr Richard Jakob-Hoff, Senior Veterinarian at Auckland Zoo, has played a significant role in pioneering work to monitor disease in New Zealand native birds. He started looking after kiwi, studying their relationship with the parasite coccidian in the early days of an 'Operation Nest Egg' program. At that time, he says, 'there was very little data on diseases of New Zealand native birds, and certainly nothing systematic'.

Further study of other diseases – such as babesia, malaria and pox – in wild and captive populations of kiwi and other native birds demonstrated how important it was to health-screen birds before moving them. 'Otherwise, you could be introducing a sick bird into a healthy environment or a healthy bird into an unhealthy environment,' explains Dr Jakob-Hoff.







Above and top right: More than 150 teal have been reintroduced to Campbell Island since 2004, with the first nests and ducklings found in early 2006. Right: The island is an isolated subantarctic island 700 km south of New Zealand. Auckland Zoo & NZ Depr Conservation

These studies led to the creation of a workbook that was aimed at non-vets and that could be adapted to different contexts. Though commissioned by New Zealand's Department of Conservation, it was later picked up by the conservation breeding specialists group of the World Conservation Union as a disease risk-analysis tool.

Dr Jakob-Hoff and colleague Dr John Potter have played an integral part in preparing teal for release onto Campbell Island by identifying disease threats, providing vaccinations and screening the birds for a range of diseases.

In previous years they have also accompanied the teal on their long journey south, providing primary health care to the teal and other seasick personnel!

### International recognition

In the early months of 2006, Department of Conservation staff reported finding teal eggs, nests and ducklings of different ages on Campbell Island – indisputable evidence that the teal are surviving and breeding.

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) recognised the contributions of Pukaha Mt Bruce and Auckland Zoo towards the recovery of the Campbell Island Teal by presenting them with the 2006 award for *in situ* conservation.

Indeed the success of the Campbell Island Teal conservation program has depended on many contributions, from helicopter pilots to 'dogged' bird-catchers.

'They (the teal) are very good at hiding,' says Dr Jakob-Hoff. 'You could be looking straight at one, and it would seem to melt away and the next thing you hear is a noise behind you and there it is behind you! The people



who can catch these birds are amazing – they are really very highly skilled. And dogged. They don't give up.'

Having overcome near-extinction, rats and the risk of disease, it is hopeful that the Campbell Island Teal won't 'give up' either, and remain an inspiration to conservationists around the globe.

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McClelland P and Tyree P (2002). Eratication: the clearance of Campbell Island. *New Zealand Geographic*. Issue 58. www.wwt.org.uk/threatsp/twsg/bulletins/12/F9.htm www.cmag.org.nz/?p=campbell\_island\_teal Shipping the birds to the island required the use of special 'bird cabins'. Auckland Zoo