

# Reintroduction of the critically endangered Campbell Island teal *Anas nesiotis* to Campbell Island, New Zealand

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## SUMMARY

A total of 105 (44 wild, 61 captive-bred) Campbell Island teal *Anas nesiotis* were transferred to Campbell Island in 2004 and 2005. They were kept in pens and released once above normal body weight. At least 78% of 2004 cohort survived five months after release and a minimum of 41 out of 55 survived a similar period in 2005. Successful breeding was proven when two nests and four immature teal were found in 2006.

## BACKGROUND

The flightless Campbell Island teal *Anas nesiotis* (Photo 1), endemic to the Campbell Island group (New Zealand), is critically endangered. In the 1970s, only a single remnant population of approximately 25 pairs were surviving on Dent Island, a 23 ha small islet situated 1.6 km from Campbell Island and 700 km south of New Zealand. Here it lives amongst chest-high tussock grass *Poa* spp. and the large leaved mega-herbs dominant in the sub-Antarctic. The teal is most commonly sighted in the damper areas of the island below 100 m altitude. A long-term goal for the recovery of Campbell Island teal was reintroduction to Campbell Island (11,268 ha), their likely former stronghold. However, this could not be implemented until introduced Norway rats *Rattus norvegicus* (predators of teal eggs and young) had been eradicated. At the time, Campbell Island was believed to hold the world's densest Norway rat population, with an estimated 200,000 individuals. In 2001, the New Zealand government launched a NZ\$2.6 million eradication programme and two years later, after its implementation, the island was declared rat free. Alongside this, a teal captive-breeding programme was implemented. Eleven birds (four in 1984 and seven in 1990) were captured on Dent Island and taken to Mount Bruce National Wildlife Centre on North Island for this purpose. Successful breeding began in 1994. Subsequently, the Peacock Springs Isaac Wildlife Trust has also become involved in the captive breeding programme.

The captive breeding programme advanced more rapidly than the rehabilitation of Campbell Island. Therefore, as an interim measure, in 1999 a temporary wild teal population was established on Codfish Island (Whenua Hou) where 12 birds were released in 1999 and 2000. Codfish Island is a bush-covered island lying about 3 km off Stewart Island to the south of New Zealand's main South Island. Although Codfish Island was north of the teal's native range, it was predator free and had an established reintroduction and monitoring programme for other threatened species. The establishment of this 'wild' population, using birds that would otherwise experience prolonged captive confinement, served to provide a suitable source of birds for reintroduction to Campbell Island as well as being an 'insurance' population, in case something happened to the tiny population on Dent Island.

This case describes the first and second translocations of Campbell Island teal to Campbell Island, in September 2004 and September 2005.

## ACTION

**Study site:** Campbell Island (52°32.4'S 169°8.7'E) is located 700 km south of New Zealand. Its habitats includes streams, tidal mudflats, a lake, sandy beaches and rocky coasts. These encompass similar habitat types used by the Campbell Island teal introduced on Codfish Island.

**Selection of individuals for reintroduction:**

In September 2004, a total of 22 'wild' teal were caught from the free-ranging population on Codfish. Radio-tracking, spot-lighting and a specially trained dog were used to assist capture. Prior to transport to Campbell Island, these 22 individuals plus 28 captive-bred teal were put through a conditioning programme for several weeks. This involved being fed inside the transfer crates to familiarise them with transfer conditions and an artificial diet. Dry pellet food was made into a watery 'mash' (to provide extra fluid) and tube feeding techniques were developed so birds could be fed directly if necessary, in order to prevent dehydration and weight loss. If not already fitted, birds were colour ringed and an 8 g radio-transmitter backpack was attached. Also, an outbreak of *Erysipelas* in kakapo *Strigops habroptilus* on Campbell Island necessitated that the teal were vaccinated against the disease. All were then sent to the Department of Conservation's (DOC) Southern Islands Quarantine station in Invercargill by road and air. At the quarantine station birds were watered, and bathed to get rid of potential weed seeds in their plumage. This process was repeated for the second release in September 2005 of 33 captive bred and 22 'wild birds'.



**Photo 1.** Campbell island teal being inspected.

**Translocation:** Birds were held in specially designed individual crates (34 x 25 x 25 cm) and put in to a specially modified cabin on the transport boat. Crates were placed on purpose built shelves that prevented too much movement. As well as having unlimited access to food, the teal were tube fed at 12 hour intervals during the course of the 40 hour journey.

Once on Campbell Island, the teal were transferred into individual pre-fabricated

holding pens (135 x 67.5 x 67.5 cm). Each pen contained a washing-up bowl (to simulate a small pool) and a bowl of food (mash). During the first translocation, some birds were kept in pairs but in these cases, one bird tended to monopolise the food, causing the other to lose weight. The birds were kept in the shelter for up to 10 days to allow them to preen and recondition their plumage, regain any weight lost during transfer and acclimatise before release. Once the teal were above their normal body weight, they were released in small groups. The information on weight changes and survival gained during the 2004 translocation, allowed the birds from the second release in 2005 to be released sooner (between 2-8 days).

**Post release monitoring:** The areas chosen for the first release of 50 birds in 2004 were three sheltered coves in Perseverance Harbour, the main inlet on Campbell Island. For the second release in 2005, a further 20 birds were released in Perseverance Harbour, 30 at Northwest Bay (on the other side of the island), and five were released at 6ft Lake, the largest freshwater body on the island. After release, the translocated birds were radio-tracked for two weeks by a four person team. The aim of the monitoring was to determine the dispersal and survival of each bird. In addition, there is an annual census conducted each February.

## CONSEQUENCES

### **Post release establishment of 2004 cohort:**

The day after arrival on Campbell Island, all of the teal were examined. Most had lost weight and of the 50 birds transferred, the average weight loss was 15 g, equivalent to 4% of body weight. The greatest loss was 40 g, 10% of body weight. Two birds, both from Codfish Island, had gained weight. All of the Codfish Island birds ate well once on Campbell Island, but the captive birds needed encouragement so mealworms were placed on top of their mash to entice them to eat. After release, the birds' behaviour caused some initial concern. They seemed oblivious to their new surroundings and aggressively chased and squabbled with each other. Researchers worried that this would attract the attention of avian predators (south polar skua *Stercorarius maccormicki* and giant petrel *Macronectes giganteus*).

The dispersal of the birds was unpredictable, with some venturing 5 km from the point of release and one up into open habitat at almost

200 m altitude. Many stayed around the release area frequenting the pools and old elephant seal *Mirounga leonine* wallows above the shoreline. Others moved into the thick scrubby *Dracophyllum* forest. Despite concerns, during initial monitoring all 50 birds were found again. Some were in pairs but most were alone.

**Survival of 2004 cohort:** In February 2005, whilst not all transmitter signals were being received, at least 39 (78%) of the released birds were alive five months after release. All transmitters on birds that were captured were removed as they only had a 12 month lifespan and were not replaced. After transmitters had been removed and biometrics taken, the individuals were released.

During the second teal release in September 2005, 19 teal from the first release were observed at night in Perseverance Harbour. Finding this number of birds without the aid of radio-tracking or a dog was taken as an excellent result. The majority of these birds were male. Territorial males are more conspicuous than females, therefore it was considered highly likely that a large proportion of the birds survived their first year even though not directly observed.

**Post release establishment of 2005 cohort:** Post release monitoring found a good survival

rate of the 2005 released teal, with only one bird predated upon by a skua.

**Survival of 2005 cohort:** In February 2006, a monitoring trip to check survival and dispersal of the 2005 release birds was conducted. A total of 29 of the 55 teal from this release were recaptured and a further 12 confirmed alive through radio-tracking. No dead birds were found, further indicating high survival. The inability to find all 55 teal may have been due to their wide dispersal on the island, with some individuals recorded walking over ridges 140 m high thus making tracking difficult.

**Breeding success:** During the February 2006 monitoring trip breeding was confirmed with the discovery of two nests and four immature teals without rings, plus one adult, believed to be an offspring from the 2004 release.

**Conclusions:** The first and second translocations of Campbell Island teal to Campbell Island have been considered successful. Monitoring in 2005 and 2006 indicated that the majority of these birds are thriving. To date, 105 teal have been translocated to Campbell Island with a third and hopefully final release of 50 birds planned for August 2006.