

CAMPBELL ISLAND TEAL: Conservation Update

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The single surviving wild population of Campbell Island Teal, restricted to Dent Island in the New Zealand subantarctic, is unlikely to exceed 25 pairs. Twelve Campbell Island Teal were released in 1999 onto Codfish Island in southern New Zealand to establish, temporarily, a second wild population. These birds originated from a captive breeding programme that has produced 40 fledglings during 1994 - 1998 from an initial wild-caught stock of 11 birds. Wild-raised and wild-acclimatised teal from Codfish Island are intended as the source for eventual re-establishment on Campbell Island. Planning for the removal of Norway rats, the sole remaining alien mammal there, has commenced.



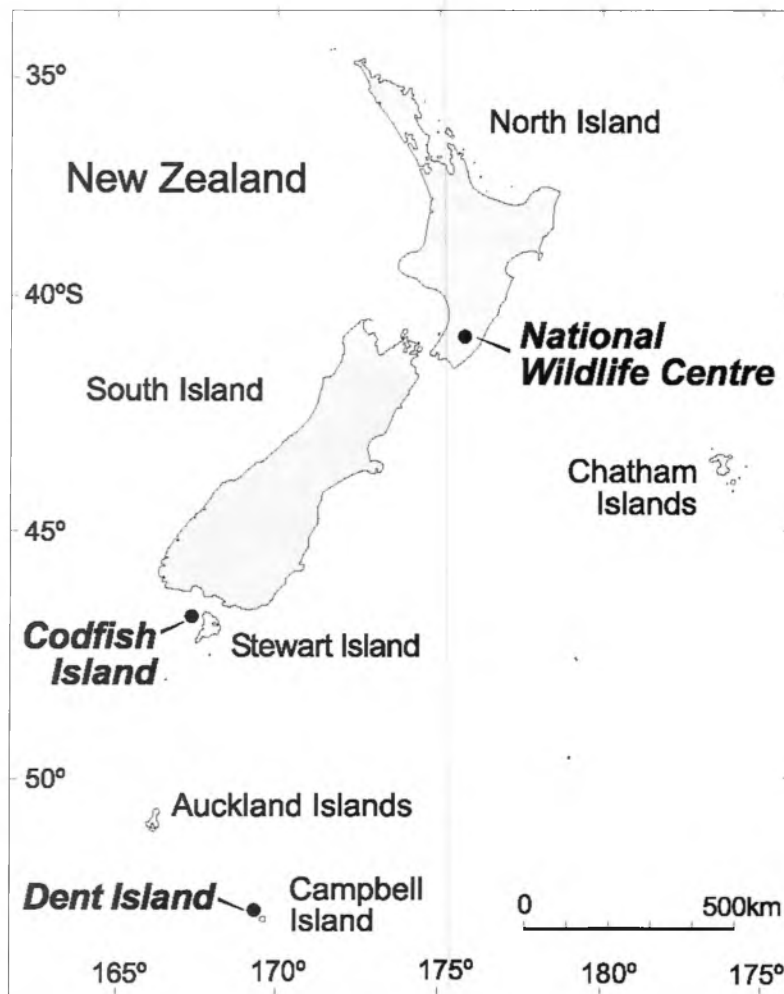
Campbell Island Teal *Anas nesiotis*
drawn by Amanda Bradbury, WWT

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Restricted to the remnants of a tiny volcanic island in the New Zealand subantarctic region of the Pacific Ocean, the Campbell Island Teal *Anas nesiotis* is probably the most geographically restricted and isolated of the world's waterfowl. It may also be among the world's rarest: the single wild population on Dent Island, 3 km windward of Campbell Island, is unlikely to exceed 25 pairs (Williams & Robertson 1996).

This small, flightless teal is the focus of a determined conservation initiative by the New Zealand Department of Conservation (McClelland 1993), the goal of which is to establish them on their presumed former home of Campbell Island. This recovery programme is intended to proceed by a series of short-term objectives which include:

- Survey of all islets adjacent to Campbell Island for possible presence of teal;



Map showing location of Campbell Island teal wild population (Dent Island), captive breeding facility (National Wildlife Centre), and reintroduction site (Codfish Island).

- Establishment and operation of a captive breeding programme;
- Establishment, temporarily, of a second island population of teal using captive-raised birds;
- Removal of rats from Campbell Island.
- Release of teal from the temporary island population on to Campbell Island.

In this paper, we report on the programme's recent progress.

Taxonomic status of Campbell Island Teal

The programme of recovery for Campbell Island Teal is predicated upon the bird's taxonomic uniqueness. Historically this teal has been recognised as one of three island races of a more widespread species *A. aucklandica* (summary in Williams & Robertson 1996), thereby recognising only its geographic novelty. However, Daugherty *et al.* (1999) have

demonstrated, following an analysis of variation at 14 allozyme loci amongst five Australasian teal taxa, that Campbell Island Teal is diagnosable on objective genetic criteria, and that genetic differentiation is mirrored in morphological and ecological distinctiveness. Thus, the Campbell Island Teal is an evolutionarily independent lineage and meets the requirements for designation as a separate species under the Phylogenetic Species Concept (Cracraft 1983).

Distribution

Two islets adjacent to Campbell Island, Jacquemart Island and Isle de Jeanette Marie, each contain sufficient grassland and nesting seabird colonies to be credible "long shots" as refuges for Campbell Island Teal. Both islets, each with difficult access, were searched for teal in November 1997 with the aid of dogs and audio-taped calls. Teal were not located on either, so Dent Island can now be viewed as the sole wild refuge of the species.

Table 1. Breeding history of captive Campbell Island Teal at the National Wildlife Centre, 1994-1998.

Year	Potential Pairs	Successful Pairs	Eggs Laid	Eggs fertile (%)	Fertile Eggs hatched (%)	Fledglings raised m:f
1994	3	1	7	57	100	3:1
1995	4	2	14	36	80	1:2
1996	6	4	22	73	88	9:4
1997	6	4	18	89	81	5:6
1998	7	3	18	78	64	1:8
Total	26	14	79	70	80	19:21

Note: Percentage egg fertility may be higher than indicated; only 9% of eggs laid were confirmed infertile with the remainder of undetermined fertility due to advanced decomposition of egg contents or breakage in the nest during early stages of incubation.

Captive breeding programme

A captive management programme, at the National Wildlife Centre, was initiated in 1984 following the removal of three male and one female Campbell Island Teal from Dent Island. A further four males and three females were removed and added to the captive population in 1990. Preddey (1995) reported the first successful breeding in 1994 after 19 pair-years of effort. Subsequently, breeding has occurred in every year (**Table 1**). During 1994-1998 inclusive, 21 clutches (mean 3.8 ± 1.1) have been laid and 40 fledglings raised, all but one by their parents.

Pairs have been held for breeding in either multi-pair aviaries or as single pairs. Four of 12 pairs placed in multi-pair aviaries have laid; nine of 10 pairs with established breeding histories have laid when placed in single aviaries; and one of four forced pairings held in single aviaries have bred.

As a result of the first breeding successes, captive-bred males and females became available for further flock-mating. Wild-origin males immediately selected these females as mates over wild-caught females during flocking. Six wild-origin Campbell Island Teal have now contributed to the captive gene pool including all surviving males and one of two surviving females. Attempts are being made to force-pair the unrepresented wild female with a captive-born male. In 1998, a wild female of at least nine years of age accepted a captive-bred mate in a forced-pairing, exhibiting nesting activity for the first time, but became egg-bound with her first egg and died.

Campbell Island Teal are proving long-lived in captivity. Two males caught in 1984, and three males and two females caught in 1990 remain alive (at 1 July 1999). Mean annual survival of wild-caught birds has been 96% and that of captive-

raised birds 95%.

Future captive management plans involve maintaining up to a total of 10 pairs, with broad genetic representation, at two facilities, to produce birds for further releases onto the temporary holding island.

Establishing a temporary island population

Concern that the captive breeding programme could become significantly advanced long before the rehabilitation of Campbell Island could be achieved, thereby resulting in teal being held in captivity over several generations, prompted the idea of establishing, temporarily, a second wild population. In addition to providing a conservation "insurance", this population was viewed as the source from which birds released onto Campbell Island would be derived, thereby removing the necessity to extract birds from the tiny Dent Island population and also avoiding the direct release there of naive captive-raised birds.

Criteria for the preferred temporary population site included it being within the subantarctic zoogeographic zone, so as to allow the captive-raised birds to experience a climate and biotic associations similar to those likely on Campbell Island. Ease of access for monitoring and terrain conducive to successful recapturing of the birds were additional considerations.

Islands in Fouveau Strait between New Zealand's South and Stewart Islands, in the Chathams archipelago, and Bollons Island adjacent to Antipodes Island were examined and informal discussions centred upon islands in the Falkland archipelago. This search for a suitable temporary refuge highlighted the intellectual conundrum associated with attempting to

place rare species, even temporarily, in pristine environments which have their own intrinsic values and which may lie beyond a species' historic range (Williams 1996).

Codfish Island, the eventual choice, is 1396 ha in area and lies 3 km west of Stewart Island at latitude 48°S. It is the location of an intensive conservation programme for the flightless parrot, Kakapo *Strigops habroptilus* (Cresswell 1996), and has been free of alien predators, such as Pacific rat *Rattus exulans*, since late 1998.

The first release of 12 teal onto Codfish Island occurred in March 1999. Comprising three pairs of adults, one juvenile male and five juvenile females, the group genetically represented all wild-origin birds that have bred in captivity. Males (with a mean weight of 489 g) and females (with a mean weight of 383 g) were transferred following intensive disease screening procedures. On the island, they were held in aviaries for up to two weeks to allow acclimatisation to new surroundings, familiarisation with food sources, and an opportunity to regain some of the weight lost during the transfer. The birds were released with mean weights of 460 g (males) and 359 g (females) at three coastal locations. All carried 8g “back-pack” radio-transmitters to which they had been habituated for several weeks prior to release.

Post-release monitoring was intensive during the first month in order to determine survival, dispersal and habitat use. Predictions of habitat use have been based on related teal on Auckland Islands (Williams 1995). Four months following release, all 12 teal were located alive. They remained on the coasts near stream mouths and fed mostly on invertebrates amongst piles of decaying seaweed on the

beaches. Some individuals have also made nocturnal excursions out to sea. Monitoring during October to December will attempt to detect breeding attempts.

Additional releases onto Codfish Island are planned for a further two years after which teal survival and breeding on the island will be assessed.

Rehabilitation of Campbell Island

Several factors have combined to promote the removal of rats from Campbell Island. All islands in the New Zealand subantarctic have been recently accorded world heritage status, a designation that gives due recognition to their uniqueness as biotic preserves within the southern oceans. In the management of these islands, the New Zealand Department of Conservation recognises the necessity to remove all alien species where practical. Cattle and sheep have previously been eliminated from Campbell Island, cats appear to have died out, leaving Norway rats *R. norvegicus* as the last target for removal from the island.

Progress on the Campbell Island Teal conservation programme has focused attention on the penultimate conservation objective, of rehabilitating Campbell Island. This objective has received additional emphasis with the recent discovery of a remnant population of snipe on Jacquemart Island, previously unknown from Campbell Island (Judd 1998). Conservation plans for this snipe *Coenocorypha aucklandica* nov.sp. (most probably an endemic race for there is similar differentiation on several islands in the New Zealand subantarctic: Turbott 1990) include its eventual re-establishment on Campbell Island once rats have been removed.

Planning for the eradication of rats from Campbell Island has commenced. Field trials of intended poison baits and of helicopter broadcast procedures took place in September 1999. Further trials are scheduled for 2000 and, if successful, the eradication attempt could occur within the first three years of the new millennium.

Postscript: As at 1 November 1999, all birds released on Codfish Island remained alive. On 22 November 1999 a nest containing five eggs was located and a second female was "very gravid".

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