

Campbell Island Teal: research to support conservation



Male and female Campbell Island Teal in breeding plumage

Campbell Island Teal is the smallest of four small, brown-plumaged ducks in the New Zealand region. Others are Brown Teal on the NZ mainland, Chatham Brown Teal from Chatham Island (now extinct) and Auckland Island Teal from the Auckland Islands archipelago. Females weigh about 300 gms, males about 450 gms.

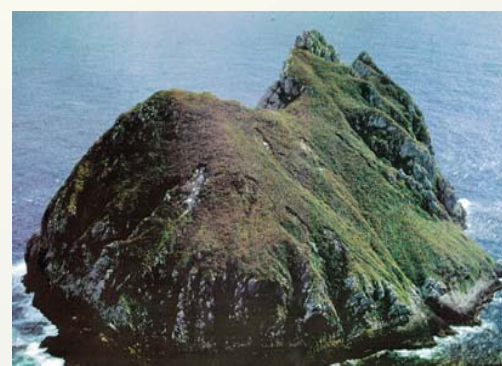
Campbell Island Teal occur only on Dent Island, a 23 ha islet 3km off the western coast of Campbell Island

Teal have probably persisted solely on Dent Island for at least the past 150 years. Campbell Island was invaded by Norway rats soon after the island's discovery by sealers in 1810. Teal were never recorded there by any of the island's early visitors.

The total wild population is unlikely to exceed 25 pairs.

Campbell Island Teal is the rarest and most geographically confined duck in the world.

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Dent Island

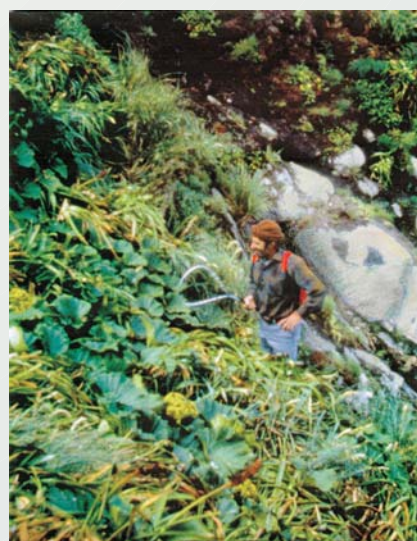


Conservation objectives

The Department of Conservation recovery plan for Campbell Island Teal outlines conservation objectives for the 10 years 1992-2002. These are:

- Protection and maintenance of the Dent Island population at its present size.
- Maintain and propagate teal in captivity
- Establish, temporarily, a second wild population of teal by re-releasing captive-raised birds at a subantarctic site from which they may later be removed.
- Promote the eradication of rats from Campbell Island

The recovery goal is to re-establish Campbell Island Teal on Campbell Island.



Campbell Island Teal habitat on the wetter lower slopes of Dent Island.

Biological knowledge

Most aspects of Campbell Island Teal biology are unknown.

- Eggs, nest and ducklings have not been seen in the wild.
- Breeding behaviour and annual productivity are unknown
- There are no survival or longevity estimates
- Population size has not been directly assessed
- Pairs are assumed to be together year-round and to defend exclusive territories year-round but this has not been confirmed.

Dent Island is an isolated, difficult and fragile islet on which to work. Visits are restricted in order to limit damage to vegetation and seabird burrows and to prevent accidental introductions of alien flora and fauna. Detailed study of teal is not possible there. Studies of the related Auckland Island Teal in its diversity of sub-antarctic habitats can provide adequate knowledge to guide Campbell Island Teal conservation initiatives.



Typical shoreline habitat for Auckland Island Teal on Ewing Island.

Supporting captive breeding

One female and three males were taken into captivity in 1984. Another three females and four males were collected in 1990. Pairs were held in separate pens but by 1993, and after 19 pair-years of captive confinement, no eggs had been laid.

Research on Auckland Island teal breeding behaviour and social organisation on Ewing Island showed pairs held very small territories (200-1000m²) year-round. Territories were contiguous in coastal grassland, boundary disputes between neighbouring males were frequent and vigorous and all breeding and feeding occurred within the confines of the territory.



Captive Campbell Island Teal at the National Wildlife Centre

A multi-pair pen was designed and trialled using surplus Campbell Island males and captive-raised Auckland Island females. Pairs nested successfully. The following year, three pairs of Campbell Island Teal were co-housed and the first eggs were laid.

The genetic relationships of birds taken into captivity were appraised using mini-satellite DNA profiling. Nine surviving birds (3 female, 6 male) shared 86% of the bands appearing in their "fingerprints", evidence of an extremely high level of background relatedness. Auckland Island Teal on Ewing Island share 72% of "fingerprint" bands.

The background levels of relatedness in island populations of Campbell and Auckland Island Teals are among the highest recorded for any bird species to date. They indicate these populations to have been derived from very few colonists with little or no subsequent immigration to "expand" the gene pool. Breeding between close relatives has been a frequent event during their history.

Temporary site for a second population

To select an appropriate site for the temporary establishment of a second wild population requires knowledge of the ecological tolerances and requirements of Campbell Island Teal. Habitat occupied on tiny Dent Island is unlikely to reflect all of that.

Auckland Island Teal presently inhabit seven islands of diverse ecological character. On all but one island, Auckland Island Teal appear dependant upon shoreline resources. Although Teal have been found living in grassland up to 400-500 m distant from the coast, they appear to make nightly feeding forays to the shore, forcing their way through the territories of others to do so.

Only on Disappointment Island, a major seabird island, are Auckland Island teal living without access to the coast. They occur amongst nesting Shy Mollmawks and White-chinned Petrels on the island's lower slopes and amongst burrows of White-headed Petrels on the island's grassland crown.

On Dent Island there is no coastal platform and Campbell Island Teal are concentrated about the island's lower slopes amongst white-chinned petrel and sooty shearwater burrows. Few occur in grassland near the island's crown. The presence and persistence of Campbell Island Teal may be dependant upon nesting seabirds on Dent Island's lower slopes.

Although not a 'seabird island', Whenua Hou/Codfish Island with its easy access, stream and sheltered bays became the site of a second wild population. Twenty four captive-raised teal were released over two years and they subsequently bred.



Auckland Island Teal feeding amongst kelp