

**THREATENED SPECIES RECOVERY PLAN NO.7**

**SUBANTARCTIC TEAL  
RECOVERY PLAN**  
*(Anas aucklandica)*

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#### **ABSTRACT**

Recovery options are suggested for two endangered endemic species of waterfowl: the Auckland Island and Campbell Island teals. The distribution of both species is presumed to have been significantly reduced since the introduction of predators and competitors to each island group.

The recommended recovery options for Campbell Island teal will, when achieved, establish at least three populations of this species compared to the one population at present and will advance the prospects of returning it to Campbell Island in the future. The recovery strategy outlined for Auckland Island teal will maintain the present situation until management techniques allow for their return to the whole of their former range.

Frontispiece: *Anas aucklandica aucklandica*, Auckland Island. Photo: J. Kendrick.

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## 1. INTRODUCTION

This recovery plan covers both of the flightless teals found on New Zealand's subantarctic islands, namely the Auckland Island teal (*Anas aucklandica*) and the Campbell Island teal (*A. a. nesiotis*). Gel-electrophoretic analysis of blood proteins undertaken in 1989 by Dr C. Daugherty at Victoria University (Williams, McKinney and Norman 1991) showed that the subantarctic teals were more distinctly different from each other and the brown teal (*A. a. chlorotis*) than brown teal is from the chestnut teal (*A. castanea*) of continental Australia. This suggests that the subantarctic teals are the result of two quite independent colonisations at different times, and probably from different sources. Flightlessness has evolved independently in both forms and both are descended from continental, not New Zealand stock. In other words they are taxa worthy of specific distinction. This recovery plan will refer to the teal as having species status, although a formal re-classification is yet to be published.

Although the two species are similar morphologically and, from what is known, behaviourally (Williams, McKinney and Norman, 1991), they each have a different conservation status. Campbell Island teal are listed as critical, with a limited distribution (IUCN, 1992) while Auckland Island teal are endangered (IUCN, 1992) and regionally threatened with a limited distribution (Bell, 1986). Both species are fully protected, and the islands they inhabit are Nature Reserves, where entry by people is restricted. Although there has been concern expressed over the conservation status of both species for many years, there has been little applied management undertaken on either, especially Campbell Island teal. This has been partly due to a lack of any form of overall co-ordination. This recovery plan seeks to remedy this problem.

It is presumed that both teal previously occupied all of the suitable habitat on their respective island groups, and have both now been eliminated from their respective main islands, i.e. Auckland Island and Campbell Island, by introduced predators, leaving them with greatly reduced distribution and now each in different situations. While Auckland Island teal remain on several small islands and islets in the Auckland group, Campbell Island teal is presently known to persist on only one small island (Dent Island). Both species are presumed to have declined as a result of the impacts of intentional or accidental introductions of mammals by people visiting the islands. Most notable of these are the cat (*Felis catus*), Norway rat (*Rattus norvegicus*) and pig (*Sus scrofa*).

Management of both species has been hindered by the lack of knowledge of their ecology and behaviour due to the secretive nature of the birds, the isolation of their habitats and, particularly in the case of Campbell Island teal, the small size of the population. While some research and survey work has been carried out on the Auckland Island teal, very little work has been undertaken on Campbell Island teal. Although the causes for the decline of both species may be similar, proposed recovery strategies are quite different. This is a reflection of the differences in status, circumstances and management options which exist between the two species.

A recovery group will co-ordinate and oversee the implementation of this plan, review subantarctic teal conservation efforts and promote the conservation of these species.

This group should meet or consult at least annually to review progress. The group should include:

- \* a nominee of the Regional Conservator, Southland (to be the group leader)
- \* a nominee of the Manager, Threatened Species Unit
- \* a nominee of the Manager, National Wildlife Centre
- \* a scientific advisor experienced with teal issues
- \* a member of a non-government conservation organisation.

## **2. PAST AND PRESENT DISTRIBUTION**

### **2.1 Wild Populations**

#### **2.1.1 Campbell Island Teal**

Having never been recorded historically from main Campbell Island, it is presumed that Campbell Island teal were eliminated from there following the introduction of Norway rats in the early 1800s. Campbell Island teal have only been recorded on Dent Island, a 23 ha islet 1.6 km off the west coast of Campbell Island. However birds may occasionally disperse to Campbell Island; this was the locality of collection of the museum specimens (1886, 1944) and another sighting (1944). The wild population of Campbell Island teal was estimated to number no more than 100 individuals.

#### **2.1.2 Auckland Island teal**

Auckland Island teal currently inhabit seven islands (on a permanent basis), in the Auckland group, ranging from Disappointment Island which has had minimal interference (shipwrecked sailors early this century) to Enderby Island at the other end of the scale, where the presence of cattle (recently removed) and rabbits (now probably eradicated) has resulted in close cropped pasture on the southern coast and highly modified vegetation over the rest of the island. The islands vary in size from Ocean at 12 ha to Adams at 10,117 ha. Due to the distance between some of the islands the teal may be categorised into three units or subpopulations.

- i) Port Ross Islands - Enderby, Rose, Ocean, Ewing, Dundas, Friday (sporadic), French's (sporadic)
- ii) Disappointment
- iii) Carnley Harbour Islands - Adams, Monumental (sporadic)

Estimates of the numbers of Auckland Island teal have been made. These were made by Williams following survey undertaken in 1982-83 and 1991 and by Moore and Walker in 1989. (See Table 1.)

## 2.2 Captive Populations

### 2.2.1 Campbell Island Teal

Two pair and three males are currently held at the National Wildlife Centre and one pair is held by a private aviculturist. Breeding has not yet occurred despite two males and one female being held since 1984 and the remainder since 1990.

### 2.2.2 Auckland Island Teal

The captive population consists of 16 birds (6 males and 10 females). They are held by National Wildlife Centre (2 males and 5 females), Wellington Zoo (2 pairs), Otorohanga Kiwi House (1 pair and 1 male), and a private aviculturist (2 females). This species appears to breed relatively easily in captivity.

**Table 1. Estimates of Population Size of Auckland Island Teal.**

ISLAND	SIZE (in ha)	POPULATION
Rose	81	100+
Ocean	12	16
Ewing	81	200 (approx.)
Dundas	+ 5	14
Friday	+ 5	no permanent population
French	+ 5	no permanent population
Enderby	607	50 (approx.)
Disappointment	392	30 (approx.)
Adams	10,117	78- 162
Monumental	+ 5	no permanent population
TOTAL ESTIMATE	11,310	400

## 2.3 Previous Management Efforts

No Campbell Island teal were recorded after the 1944 sightings until 1975 when they were rediscovered on Dent Island. At that time the population was estimated to be between 30 and 50 birds. This estimate was based on the number of sightings and the amount of skeletal material found in skua (*Catharacta skua lonnbergi*) middens. Searches for teal on the other small islands around Campbell have proved fruitless and it is now presumed that Dent is their last refuge. In 1984 a census of the teal population was attempted using capture-recapture techniques. This proved impracticable due to the low encounter rate. One male was caught and taken to the National Wildlife Centre at Mt Bruce.

Later in 1984 an expedition travelled to both the Auckland and Campbell Island groups to capture up to four pairs of teal from each. However only three birds (1 female and 2 males) were caught on Dent Island, and these along with four pairs of Auckland Island teal were taken to New Zealand where they joined the one male caught on the previous trip. Various pairings of the Campbell Island teal in captivity have been tried since 1984, at two separate locations, none of which lead to successful matings.

In November and December 1990 another expedition went to Campbell Island with the aim of catching four pairs of teal from Dent Island. In total 10 birds were caught and 7 taken to the mainland (3 females, 4 males), the three released were surplus males. Of these birds taken there were possibly 2 pairs. The other 3 had no known relationship. On arrival in the mainland the definite and probable pairs were kept as pairs, and the other female flock mated with the other 2 males. After two breeding seasons (1990 and 1991) no eggs have been produced.

While some research has been carried out on Auckland Island teal (Weller, 1975 and Williams, 1986; 1992 in prep), the management of the species has largely been either indirect, i.e. through the management of the habitat, or through management of the small captive population which originated from four pairs of teal caught in 1984. These teal were caught to allow the avicultural requirements of subantarctic teal to be learned for subsequent application on the more endangered Campbell Island teal.

### **3. ECOLOGY AND HABITAT OF CAMPBELL ISLAND TEAL AND AUCKLAND ISLAND TEAL**

#### **3.1 Campbell Island Teal**

Dent Island rises to a height of 120 metres above sea level with steep and craggy coastal cliffs on all sides except the south-east. This face has a mean slope of 25-30 degrees and has several small shallow gullies dissecting it. These gullies maintain a trickle of water for most of the year and feature a series of soaks between small pools. This face has almost continuous vegetative cover, consisting mainly of *Poa foliosa*, *Stilbocarpa polaris* and *Bulbinella rossi* in the steep gullies, while the intervening ridge crests are dominated by *Poa litorosa* tussock grassland. This vegetation overlays a peat soil which is deep on the gentler slopes but diminishes at steeply sloping sites. This thick peat soil slips readily, making slips and slip scars a conspicuous feature of the lower slopes. The soil is honeycombed with petrel burrows which, in addition to the tussock provide cover for the teal. The burrows also mean that any visitors to the island are likely to do a lot of damage by caving in burrows. This leads rapidly to water channels forming and erosion. Williams and Garrick (1984) believed that the suitable teal habitat on the island was quite limited, and well below the total 23 ha of the island. Sightings during their January 1984 trip indicated that Campbell Island teal, like most waterfowl, prefer damp areas. This not only restricts the available preferred habitat but means that any slips, which tend to be associated with gullies and water courses, are likely to be having a major effect on the remnant teal population by destroying more preferred teal habitat than other habitat types. The 1984 expedition also found that several large slips had

occurred which, together with the low encounter rate, led to strong fears for the future of the population. The 1990 expedition found that although slip scars observed in 1984 were still obvious, they had largely been recolonised by megaherbs (*Stilbocarpa*, *Bulbinella* etc.) which appeared to provide a better habitat for teal than the pre-slip tussock land - as indicated by the higher teal encounter rate in these areas. It is possible that this increase in quantity and quality of habitat has led to an increase in the size of the teal population. This 1990 expedition with more time on the island and improved detection techniques, concluded that the teal were more widespread on Dent Island than previously believed although they were in higher densities in the water courses than elsewhere, they were not as restricted to them as previously thought. If this conclusion is correct it greatly increases the possible holding capacity of the island. There is still a large percentage of the island which is not suitable for teal being bare rock. Based on the encounter rate of the 1990 expedition and area of suitable habitat available (i.e. excluding the bare rock), the population of Campbell Island teal is estimated to be approximately 100 birds.

### **3.2 Auckland Island Teal**

Due largely to the greater accessibility of teal on the Auckland Islands more research has been undertaken on the ecology of this species than its Campbell Island counterpart. Auckland Island teal show a very wide habitat tolerance in the absence of surface feeding competitors and mammalian predators. They occupy a wide range of habitats on the islands, including tidal zones (Ewing, Rose and Adams); freshwater streams and pools (Enderby, Rose, Adams and Dundas) and tussock grassland (Rose, Adams, Disappointment, Ocean and Dundas).

It appears that the only restrictions on where teal will survive are:

- i. the size of the habitat (e.g. Friday and French's Islands are too small to hold teal permanently).
- ii. the presence of mammalian predators (i.e. Auckland Island with cats and pigs present), as the teal have inadequate behavioural or physical defences against them.

Lack of knowledge of the full ecological requirements of this bird means that we can only assume what is ideal habitat. Teal have been observed feeding on a variety of invertebrates as well as some plants. Most feeding takes place in the intertidal and shallow coastal zones, but they have also been observed dabbling in fresh water. In their present habitats the only significant teal predator is the skua with teal remains being found in many skua middens. Skuas hunt during both the day, and at night (when they probably catch the majority of their teal). Auckland Island teal have a mean clutch size of 3.5 eggs (range 2-6), and an incubation period of 30 days. They generally nest at the base of *Carex* sedges, in clumps of fern or beneath logs. They have a high hatching success (94%) but poor duckling survival which is rarely greater than one per brood (Williams 1992).

## **4. THREATS TO LONG-TERM SURVIVAL**

### **4.1 Predation**

The introduction of predators to any of the remaining teal habitats would almost certainly result in the extinction of Campbell Island teal and cause local extinction(s) of Auckland Island teal populations. Because most habitats are visited infrequently by people detection of the arrival of any predator is likely to be well after its arrival and successful colonization. In this case the teal population may have already been extirpated before the presence of predators is detected. This plan aims to reduce the chances of predation affecting the remaining populations of teal.

### **4.2 Disease**

Due to the isolation of the subantarctic islands, both species of teal may be particularly susceptible to the introduction of disease. The effect of disease may be as catastrophic as the introduction of predators. This plan promotes measures to reduce the risks associated with disease.

## **5. ABILITY OF CAMPBELL ISLAND TEAL AND AUCKLAND ISLAND TEAL TO RECOVER**

Although Campbell Island teal are critically endangered this species has the ability to recover to a less threatened status if appropriate management options are chosen and successfully implemented. This species is restricted to one habitat and the small captive population has yet to breed. Recent breeding by Auckland Island teal in captivity raises the expectation that these techniques may be employed to breed Campbell Island teal and thus assist in their recovery. It is also predicted that the introduction of both species to suitable predator-free habitats will create new populations. Improvement of current captive breeding and habitat rehabilitation techniques is required to assist the recovery of subantarctic teal.

## **6. OPTIONS FOR RECOVERY**

### **6.1 Campbell Island Teal**

- (1) **Do nothing.** - Due to the critically endangered status of Campbell Island teal and the vulnerable nature of their sole remaining habitat, this is not considered an acceptable option.
- (2) **Maintain the existing wild population.** - This option represents only a small increase in effort over option 1 and does little to enhance the long-term viability of Campbell Island teal or promote their recovery. This option in isolation is not

considered appropriate but maintenance of the wild population is an absolute minimum condition which is to be incorporated into options 3-5.

- (3) **Restore Campbell Island teal to their former range.** - While techniques for eradicating rodents and cats have progressed rapidly over recent years, DOC managers do not possess the ability to efficiently rid an island the size of Campbell Island of these predators at present. This option is a major component of the long-term goal of this recovery programme but is not seen to be achievable prior to the next review of this plan.
- (4) **Establish a new wild population with teal taken directly from Dent Island.** - Due to the small size of the teal population on Dent Island, the effect of removing sufficient birds to directly establish new populations is likely to have an unacceptable impact on the Dent Island population. This option is not considered acceptable.
- (5) **Maintain a Campbell Island teal population in captivity as insurance against the loss of the Dent Island population and to establish a new wild population of Campbell Island teal.** - Any captive programme should be complementary to conservation of the species in the wild, with captive stock being available for restoration or replacement of the Dent Island population. Ideally any captive population should be self-sustaining, as this minimises the need for removal of birds from the wild. Public display may be a lesser priority for these birds. This option is considered essential to the recovery of Campbell Island teal.

The preferred option (5) in conjunction with maintenance of the wild population, is considered realistic and achievable in the short and medium term. Option 3, the rehabilitation of Campbell Island and reintroduction of its teal is the preferred long-term option.

## 6.2 Auckland Island Teal

- (1) **Do nothing.** - Auckland Island teal are endangered and require some management and research effort to promote their recovery; this is not considered an acceptable option.
- (2) **Maintain existing wild populations.** - Efforts to protect the existing wild populations should be continued and expanded. These efforts should include predator, pest and disease precautions, population monitoring and appropriate controls on DOC management and other visitor impacts. This option is a significant component of the Auckland Island teal recovery strategy.
- (3) **Restore Auckland Island teal to their former range.** - The techniques for eradicating cats and pigs have progressed rapidly in recent times to the point where this option may already be feasible. The costs involved in removing predators from an island the size of Auckland Island are currently prohibitive and

removal techniques still require refinement. While the long-term goal remains the removal of predators and the re-introduction of teal to the main Auckland Island it is not considered an option during this planning period.

- (4) **Maintain the captive Auckland Island teal population as an insurance against the loss of wild populations, for public display and as an avicultural tool for the Campbell Island teal programme.** - The captive population of Auckland Island teal provides several options to enhance the recovery of both species of subantarctic teals. Capture, transfer, husbandry and breeding techniques have been learnt and refined with Auckland Island teal which will have application to Campbell Island teal. Should the need arise for restoration or enhancement of wild Auckland Island teal populations, birds can be captive bred for this purpose. Advocacy gains have been made with teal on public display and the ability exists for Auckland Island teal to be used as surrogate parents in cross-fostering clutches or broods of Campbell Island teal in captivity.

Release of captive breed Auckland Island teal to new habitats away from the Auckland Island group is not supported due to the much higher priority for suitable habitat in which to establish an additional wild population of Campbell Island teal (see 6.1.(4)). Maintain the present captive population of Auckland Island teal is an option that is supported.

The preferred options (2 and 4) are given priority as short-term goals for this recovery plan. Option 3, the rehabilitation of Auckland Island and the reintroduction of its teal is the long-term goal.

## **7. RECOVERY STRATEGY: GOALS AND OBJECTIVES**

### **LONG-TERM GOAL:**

**To improve the conservation status of both Campbell Island teal and Auckland Island teal from endangered to rare by re-establishing them in their former ranges so that further intensive management is no longer required.**

### **GOALS FOR THIS PLANNING PERIOD:**

- 1. To improve the conservation status of Campbell Island teal from endangered to vulnerable within 10 years by protecting the Dent Island population of Campbell Island teal and establishing at least one additional wild population and to promote the re-introduction of the species to Campbell Island.**
- 2. To prevent the extinction of Auckland Island teal through the protection and maintenance of existing wild populations of Auckland**

**Island teal in their current range and to promote re-establishment of the species to its former range in the future.**

During this recovery plan period priority will be accorded to Campbell Island teal management involving captive breeding and the identification of a site for the establishment of an additional wild population. The management of Auckland Island teal will be a lower priority and will concentrate on protection of the existing populations.

**CONSERVATION OBJECTIVES**

**OBJECTIVE 1: MAINTAIN WILD POPULATIONS**

- \* Protect and maintain the population of Campbell Island teal on Dent Island and the seven wild populations of Auckland Island teal in the Auckland Island group.

**OBJECTIVE 2: SURVEY THE CAMPBELL ISLAND GROUP FOR FURTHER TEAL POPULATIONS**

- \* Survey all other likely islands in the Campbell Island group in order to locate any further populations of Campbell Island teal which may exist.

**OBJECTIVE 3: ESTABLISH A CAPTIVE BREEDING POPULATION OF CAMPBELL ISLAND TEAL**

- \* Using existing captive Campbell Island teal and, if required, additional birds from Dent Island, establish and maintain a self-sustaining population in order to:
  - act as an insurance population in the event of the extinction of the Dent Island population.
  - provide up to 30 birds annually for translocation to a "new" island site.
  - provide birds for public display and interpretation.

**OBJECTIVE 4: ESTABLISH AN ADDITIONAL WILD POPULATION OF CAMPBELL ISLAND TEAL**

- \* Establish a population of Campbell Island teal on at least one additional island within 10 years to reduce the risk of extinction in the event of a decline in the Dent Island population.

## **OBJECTIVE 5: MAINTENANCE OF A CAPTIVE POPULATION OF AUCKLAND ISLAND TEAL**

- \* To maintain a captive population of Auckland Island teal in order to:
  - insure against the loss of any of the wild populations.
  - use for public display and interpretation of subantarctic teal conservation issues.
  - assist waterfowl breeders develop the required avicultural skills for subantarctic teal in preparation for involvement in the Campbell Island teal captive breeding programme.
  - use as an avicultural tool for Campbell Island teal propagation, e.g. cross-fostering.

## **OBJECTIVE 6: MAINTAIN DATABASE**

- \* Maintain an information database about subantarctic teal behaviour, ecology, distribution and habitat requirements for application in the conservation management of teal generally, and the captive breeding programme in particular.

## **OBJECTIVE 7: ADVOCACY**

- \* Advocate the conservation of subantarctic teal. Promote the recovery of subantarctic teal and emphasize the importance of predator free islands in general and subantarctic island ecosystems in particular.

## **OBJECTIVE 8: PROMOTE THE REMOVAL OF PREDATORS FROM CAMPBELL AND AUCKLAND ISLANDS**

- \* To promote removal of predators from Campbell and Auckland Islands for the eventual reintroduction of Campbell and Auckland Island teal on those respective islands.

## **8. RECOVERY STRATEGY: WORK PLAN**

To meet the goals and fulfil each objective the following actions are required.

### **OBJECTIVE 1: MAINTAIN WILD POPULATIONS**

Aim

To protect and maintain the population of Campbell Island teal on Dent Island and the seven wild populations of Auckland Island teal in the Auckland Island group.

## Explanation

The survival of all subantarctic teal populations is dependent on the continued absence of introduced predators, competitors and diseases. It is therefore important to continue to restrict access to islands to only those people involved in important research and management activities. Strict quarantine precautions must be set in place and adhered to by all visitors to the islands.

It is crucial that the conservation of subantarctic teal be accounted for when formulating any management decisions concerning the Auckland Island and Campbell Island Nature Reserves. Considerations include all visits (i.e. research and management activities, and ecotourism parties which may risk the introduction of predators, pests, weeds or disease or disturb the birds at critical periods). Current Management Plan policy includes the restriction of all public access to most of the islands where teal are present namely; Dent, Adams, Ewing, Rose and Disappointment. The other current policy which is vital to the recovery of the subantarctic teals is the eradication of all introduced animals on both the Auckland and Campbell Islands groups. These policies should be pursued for the recovery of the teals.

In conjunction with protection measures and precautions for teal habitat it is important that a monitoring programme be set up to assess teal recovery and to monitor the state of their habitat. This will assist in identifying changes in teal population sizes, population health, habitat quality and the threats to each population (i.e. presence or absence of predators). The populations should be monitored as regularly as possible, while not increasing risks from the frequency or nature of visits (e.g. erosion damage, introduction of diseases and pest species).

It is desirable to monitor the population of Campbell Island teal on Dent Island and the condition of the habitat. Any major fluctuations in the number of birds recorded or the discovery of any new risks to the birds or their habitat may require immediate action (i.e. eradication of pests, removal of teal to captivity, etc.). Monitoring of the Dent Island population should ideally be carried out on a biennial basis until an additional captive or wild population has been established. As visits to the island are generally only possible on an infrequent and opportunistic basis however the priority for monitoring increases for every year that it is not carried out. The frequency of monitoring the Auckland Island teal habitats and populations is to be determined by further field based research and monitoring protocols will be developed.

Teal management and research that is to be undertaken in situ will be limited to that able to be carried out as transport opportunities arise. Due to the inaccessible nature of Dent Island and the infrequency of suitable transport it is unlikely that extensive research programmes can be undertaken on site. As such Auckland Island teal may be suitable as analogues in some Campbell Island teal studies.

## Plan

- i) To develop monitoring techniques and protocols for assessing teal distribution and abundance on subantarctic islands. Refinement of the

present survey techniques requires some investigation of assessment of numbers of teal (particularly sex ratio) and the social structure of population with particular emphasis on determining whether a non-breeding component of the population exists and what size it may be.

- ii) To undertake regular monitoring of subantarctic teal populations and habitats. Details of the monitoring are to be developed in the protocols referred to above.
- iii) To continue to restrict public entry on subantarctic teal islands, to establish guidelines (quarantine procedures) for all landings and have these guidelines included in any Conservation Management Strategies/Plans for the subantarctic Nature Reserves.
- iv) To make sure that the welfare of the teal species is considered when making any decisions concerning their habitat, whether it affects them directly or indirectly. This includes management of visitors and of other species.

#### Outcomes

- i) Development of monitoring technique and protocol- January 1993
- ii) Monitoring rate - as per protocol
- iii) Development of guidelines and quarantine procedures - January 1993
- iv) Planning for and management of Campbell Island and Auckland Islands Nature Reserves reflects the requirements of the teal.

#### Key Personnel

Conservation Officers - Fauna, Southland Conservancy  
Scientist - Teal Research, S&R Division

### **OBJECTIVE 2: SURVEY THE CAMPBELL ISLAND GROUP FOR FURTHER TEAL POPULATIONS**

#### Aim

To survey all other likely islands in the Campbell Island group in order to locate any further populations of Campbell Island teal which may exist.

## Explanation

Recent field work on subantarctic teal has shown that the teal can exploit a much wider range of habitats than previously thought. This knowledge has come about through the use of new survey techniques, namely tape recorded calls and tracker dogs. Islands which had previously been searched for teal should be re-surveyed using the new techniques.

## Plan

Using all techniques now available re-survey all the islands in the Campbell Island group which may be suitable for Campbell Island teal. As landing on the islands that require surveying is only achievable by helicopter this objective may only be achieved on an opportunistic basis. Survey of suitable islands should be carried out as soon as possible.

## Outcomes

An accurate knowledge of the distribution of Campbell Island teal.

## Key Personnel

Conservation Officers - Fauna, Southland Conservancy  
Operations Manager, Southland Conservancy (Navy liaison)  
Scientist - Teal Research, S&R Division (Survey advice)

## **OBJECTIVE 3: ESTABLISH A CAPTIVE BREEDING POPULATION OF CAMPBELL ISLAND TEAL**

### Aim

Using existing captive Campbell Island teal and, if required, additional birds from Dent Island, establish and maintain a self-sustaining population in order to:

- act as an insurance population in the event of the extinction of the Dent Island population.
- provide up to 30 birds annually for translocation to a new site.
- provide birds for public display and interpretation.

### Explanation

In order to safeguard the future of this species it is vital that another population be established. Captive breeding is considered the best method to obtain sufficient teal for a liberation into a new habitat to maximise the chance of success. Transfer of teal directly from Dent Island to other habitats is unlikely to be successful as it is doubtful that enough birds could be obtained without overly endangering the Dent Island population. To date breeding of Campbell Island teal in captivity has not occurred,

success with this is key to the recovery of this species. By liberating captive bred birds the brood stock will be retained, allowing for repeated releases. A target of 30 birds available annually for release has been set, but may be modified with the experience gained as the breeding programme continues. The captive breeding programme will be managed to produce the minimum number of teal necessary to ensure establishment of a new population. This requires retaining a captive population of minimal size that can:

- i) achieve the required annual output (30 birds).
- ii) ensure the retention of as much as possible of the existing genetic variation within the population.

It is hoped that the population currently in captivity can fulfil this role, if however additional birds are required, they will be taken from Dent Island in such a way as to have the least possible affect on the Dent Island population while providing maximum benefit to the captive population (e.g. genetic relatedness, age, pair bonds, etc.)

Experience with other similar species indicates that having teal on public display reduces their chances of successful breeding, the use of Campbell Island teal for display and interpretation may be supported if it does not have any detrimental effect on the breeding programme. Birds which are not required for the breeding programme may be used for display. Until that time Auckland Island teal will fill this role.

#### Plan

- i) Research needs include study of the behaviour of captive birds especially in relation to pairing and breeding, also feeding and food requirements. Genetic relatedness within the captive and wild population, especially of birds in neighbouring territories is also a priority.
- ii) Preparation of a Captive Management Plan to achieve the objective.
- iii) Implementation of the Captive Management Plan.

#### Outcomes

- i) Campbell Island teal breeding successfully in captivity with high reproductive rates, low mortality and production of healthy, disease free stock suitable for release into the wild.
- ii) Suitable avicultural facilities identified for an expanded breeding programme and prepared for Campbell Island teal prior to their being required.

#### Key personnel

Captive Breeding Co-ordinator

Conservation Officer, National Wildlife Centre  
Scientist - Teal Research, S&R Division  
Conservation Officers - Fauna, Southland Conservancy

**OBJECTIVE 4: ESTABLISH AN ADDITIONAL WILD POPULATION OF CAMPBELL ISLAND TEAL**

Aim

To establish a population of Campbell Island teal on at least one additional island within 10 years to reduce the risk of extinction in the event of a decline in the Dent Island population.

Explanation

Establishment of another island population of Campbell Island teal derived from captive bred birds provides an additional level of security i.e. three populations (1 captive, 2 wild) in case of the extinction of any of them. This translocation may be viewed as an interim measure only, prior to the re-introduction of teal to Campbell Island (the teal may be removed from the "insurance" island to Campbell Island as part of the reintroduction). It may prove beneficial to manage an additional population on an island away from the Campbell Island group. This will be fully discussed by the recovery group before the reintroduction of teal to Campbell Island becomes a reality.

Island selection criteria which must be considered in addition to those criteria covered in the DOC transfer guidelines should include discussion of the potential for hybridisation with brown teal and ease of removal once teal are re-introduced on Campbell Island.

Plan

- i) set criteria for island selection.
- ii) identify potential islands for the introduction of Campbell Island teal.
- iii) identify most suitable island prior to teal being available for release
- iv) prepare transfer proposal and gain transfer approval.
- v) establish teal on the island and monitor their success.

Outcomes

- i) by June 1993
- ii) by October 1993

iii) & iv) as required

v) by 2000

#### Key Personnel

Conservation Officers - Fauna, Southland Conservancy  
Scientist - Teal Research, S&R Division

### **OBJECTIVE 5: MAINTENANCE OF A CAPTIVE POPULATION OF AUCKLAND ISLAND TEAL**

#### Aim

To maintain a captive population of Auckland Island teal in order to:

- insure against the loss of any of the wild populations.
- use for public display and interpretation of subantarctic teal conservation issues.
- assist waterfowl breeders develop the required avicultural skills for subantarctic teal in preparation for involvement in the Campbell Island teal captive breeding programme.
- use as an avicultural tool for Campbell Island teal propagation, e.g. cross-fostering.

#### Explanation

Although listed as endangered, Auckland Island teal are under less threat than Campbell Island teal within their natural range. It is currently not necessary to carry out an intensive captive breeding programme for the conservation of this species. Should any of the wild populations of Auckland Island teal become extinct then techniques will be available for a captive population to be established for possible reintroductions. The potential founder stock are already present at the National Wildlife Centre and at other captive institutions. Captive Auckland Island teal are required as analogues to gain experience and develop techniques applicable to the Campbell Island teal captive breeding programme. They may also have a role as foster parents to Campbell Island teal.

The behaviour and physical adaptations of subantarctic teals along with the isolation and nature of their environment make them an ideal species for educating the public on the wider subjects of the evolution of New Zealand's avifauna and the importance of predator free islands in the conservation of many threatened species. At present

Auckland Island teal may fill this role, however when Campbell Island teal become available they may be used for this purpose replacing Auckland Island birds.

#### Plan

- i) Prepare Captive Management Plan for Auckland Island teal.
- ii) Implement Captive Management Plan to achieve the aims

#### Outcomes

- i) Maintenance of a healthy captive population of Auckland Island teal.
- ii) Auckland Island teal available as required for the Campbell Island teal breeding programme and for public display and education.

#### Key Personnel

Captive Breeding Co-ordinator

### **OBJECTIVE 6: MAINTAIN DATABASE**

#### Aim

Maintain an information database about subantarctic teal behaviour, ecology, distribution and habitat requirements for application in the conservation management of teal generally, and the captive breeding programme in particular.

#### Explanation

Our management of subantarctic teal is limited by lack of knowledge on aspects of teal ecology, habitat and husbandry, managers must make use of all available information relating to these species and related species to achieve the objectives of this plan and especially to increase their productivity in captivity.

#### Plan

Establish and maintain a database of all knowledge relating to subantarctic teal including:

- i) names and addresses of all people who are able to contribute knowledge related to subantarctic teal, including details on what that expertise is, eg behavioural, avicultural, ecological etc.
- ii) a bibliography listing of all papers, reports, maps etc. relating to subantarctic teal.

Copy to be held by Southland Conservancy as part of subantarctic database for access by personnel involved with teal recovery.

#### Outcomes

- i) Initial set up June 1993, collection will be ongoing.
- ii) Maintenance of database containing all relevant material available.
- iii) Production of a bibliography.

#### Key Personnel

Conservation Officers - Fauna, Southland Conservancy  
Conservation Officers - National Wildlife Centre  
Scientist - Teal Research, S&R Division

### **OBJECTIVE 7: ADVOCACY**

#### Aim

Advocate the conservation of subantarctic teal. Promote the recovery of subantarctic teal and emphasize the importance of predator free islands in general and subantarctic island ecosystems in particular.

#### Explanation

The behaviour and physical adaptations of the subantarctic teal, their isolation and the nature of their environment make them an ideal tool for educating the public on the wider subjects of the evolution of New Zealand's birds and the importance of predator free islands in the conservation of many rare and endangered species.

#### Plan

To promote and publicise the subantarctic teal recovery programme and to use the appeal of the teal to educate the public of the importance of predator free islands both in the subantarctic and around the rest of New Zealand. This will involve the use of the media whenever possible.

#### Outcomes

The public made aware of the teal recovery programme, the sensitivity of sub-antarctic islands and the importance of predator free islands.

## Key Personnel

Conservation Officers - Fauna, Southland Conservancy  
Conservation Officers - Public Awareness, Southland Conservancy  
Scientist - Teal Research, S&R Division  
Conservation Officer,- National Wildlife Centre

## **OBJECTIVE 8: PROMOTE THE REMOVAL OF PREDATORS FROM CAMPBELL AND AUCKLAND ISLANDS**

### Aim

To promote removal of predators from Campbell and Auckland Islands for the eventual reintroduction of Campbell and Auckland Island teal on each island respectively.

### Explanation

Achievement of this objective would ultimately lead to an improvement in the conservation status of the Campbell Island and Auckland Island teals and reduce the need for any further intensive management of either species. Removal of predators will have large scale benefits for the ecosystems of both islands and is considered the best long-term option for the recovery of both species.

The rehabilitation of Campbell and Auckland Islands for teal requires the removal of the introduced predators (cats, Norway rats and pigs). While efficient techniques for the eradication of these species are currently available for smaller islands, the logistical and financial constraints involved in employing current techniques on islands the size of Campbell and Auckland are currently prohibitive. Through refinement of current techniques and by developing new ones in the course of carrying out other small scale eradications, it is likely that removing cats and rats from Campbell Island and pigs and cats from Auckland Island will become feasible in the future. As such it is important that both the recovery group and Southland Conservancy promote and support any related work in this field including research, management trials and full scale eradications.

The rehabilitation of each will benefit for each island's entire ecosystem and the re-introduction of the teals will be but one of the reasons for carrying out this work.

### Plan

- i) To support and promote research and management trials related to the further development of rodent, cat and pig eradication techniques.
- ii) To promote the objective of predator eradication on the islands as an achievable goal.

## Outcomes

- i) Development of viable, economic techniques for eradication of predator species on large islands.
- ii) Predator eradication programmes identified as definite objectives of future management.

## Key Personnel

Protection Manager, Southland Conservancy  
Operations Manager, Southland Conservancy  
Predator Biologist, S&R Division  
Conservation Officers - Fauna, Southland Conservancy  
Conservation Officer - Wild Animal Control, Southland Conservancy  
Conservation Officer - Predator control, Threatened Species Unit

### RECOVERY STRATEGY: CRITICAL PATH

OBJECTIVE	TASK	COMPLETION
MAINTENANCE OF WILD POPULATIONS	protection measures, monitor	as transport opportunities allow, on-going
SURVEY CAMPBELL IS.	survey	as soon as transport opportunities allow
ESTABLISH CAPTIVE CAMPBELL IS. POPULATION	achieve captive breeding	urgent
ESTABLISH ADDITIONAL C.I.TEAL POPULATION	identify suitable islands and rehabilitation needs	Oct. 1993
MAINTAIN CAPTIVE A.I.-TEAL	captive management	on-going
MAINTAIN DATABASE	collect, analyse, store data	set up by June 1993
ADVOCACY	promote teal recovery	on-going
PROMOTE REMOVAL OF PREDATORS	promote ideas support any trials	on-going

**9. RECOVERY STRATEGY: COSTS**

<b>OBJECTIVE</b>	<b>TASK</b>	<b>COSTS (per year est).</b>
MAINTENANCE OF WILD POPULATIONS	protection measures, monitor	depend on transport opportunities
SURVEY CAMPBELL IS.	survey	depend on transport opportunities
ESTABLISH CAPTIVE CAMPBELL IS. POPULATION	achieve captive breeding	see Ob. 5 below
ESTABLISH ADDITIONAL C.I. TEAL POPULATION	identify suitable island and rehabilitation needs	staff time, Southland, S&R. 3 weeks
MAINTAIN CAPTIVE A.I. TEAL	captive management	NWC staff time 20% of a person year, \$1,800 operating, also includes C.I.teal.
MAINTAIN DATABASE	collect, analyse, store data	<\$20 operating, 1 week C.O. time
ADVOCACY	promote teal recovery	staff time, Southland, S&R, NWC. 3 weeks
PROMOTE REMOVAL OF PREDATORS	promote ideas support any trials	staff time, Southland, S&R. 2 weeks

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## APPENDIX 1: KEY PERSONNEL - SKILLS WITH SUBANTARCTIC TEAL

C = Campbell Island teal

A = Auckland Island teal

1 = Capture

2 = Transfer

3 = Aviculture

4 = Veterinary

5 = Field Ecology

Hilary Aikman	(DOC National Wildlife Centre) A,C 3
John Andrews	(DOC Canterbury) A,1 5
Dave Barker	(Pvt. Blenheim) A,1 5
Bob the Dog	accompanied by D Barker A 1
Martin Bell	(Auckland Zoo) A,C 3
John Cheynne	(DOC Hawkes Bay) A,C 1 2 3
Leon Cook	(unknown) A,C 1
Darryl Eason	(DOC Southland) A,C 3
Andy Garrick	(DOC Bay of Plenty) C 1 2 5
John Gill	(Pvt. Tarawera) A,C 3 4
Paul Jansen	(DOC Bay of Plenty) A,C 1
Allan Munn	(DOC Canterbury (Chatham Islands)) A,C 1
Geordie Murman	(Pvt. Chatham Islands) A,C 1
Rick Thorpe	(DOC Waikato) A,C 1
Susan Anderson	(Unknown) A,C 3
Murray Williams	(DOC S&R Wellington) A,C 1 2 3 5
Pete McClelland	(DOC Southland) A,C 1 2 5
Andy Cox	(DOC Southland) C 1 2
Ron Goudswaard	(Wellington Zoo) C 1 2 3 5
Murray Willans	(DOC National Wildlife Centre) C 1 2 3 5, A 3
Shane Hancox	(DOC Southland) C 1
Peter Moore	(DOC S&R Wellington) A 1 5
Kath Walker	(DOC Nelson) A 5
Graeme Elliott	(Pvt. Nelson) A 5
Rhys Buckingham	(Pvt. Nelson) A- 5

**APPENDIX 2: SUGGESTED SELECTION CRITERIA FOR ISLAND TO BE  
CONSIDERED AS SUITABLE FOR AN ADDITIONAL POPULATION OF  
CAMPBELL ISLAND TEAL.**

Essential Factors:

- i) large enough to hold a viable population
- ii) free of rats and larger predators
- iii) more than 1.2 km from a source of stoats or 0.4 km from rats
- iv) ease of access for monitoring
- v) no brown teal or Auckland Island teal within the vicinity or within (100 km?).
- vi) ease of removal of teal upon Campbell I. becoming suitable.

Preferred Factors:

- i) tussock grassland
- ii) kelp in tidal margins
- iii) DOC controlled
- iv) not "pristine"
- v) subantarctic (or southern at least)
- vi) little disease risk from other waterfowl

Islands Or Island Group Worth Investigation:

- i) Subantarctic:  
Campbell group, Auckland group, Snares, Bounty, Antipodes
- ii) Stewart Island:  
Codfish, Titi Islands, Bench
- iii) Foveaux Strait:  
Ruapuke group, Centre, Solander
- iv) Fiordland:  
Breaksea
- v) Chathams:  
South East, Pitt, Mangere
- vi) Marlborough Sounds:  
Allports, Long, Motuara, Nukuwaiata, Te Kakaho, Stephens, Titi
- vii) North Island:  
Mana