

Chatham Islands threatened birds

Recovery and management plans

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1. Introduction

The Chatham Island group lies 860 km east of mainland New Zealand at a latitude of about 44°S. The group comprises two large, inhabited islands: Chatham (c. 90 000 ha) and Pitt (c. 6000 ha); and numerous smaller islands, islets, and rocks (Fig. 1). Two of these smaller islands, Rangatira and Mangere, are nature reserves and provide extremely important habitat for many of the threatened bird species of the Chatham Islands.

The Chathams group has a biota quite distinct from that of mainland New Zealand. The remote marine setting and distinctive climatic conditions and physical make-up of the Chathams have led to a high degree of endemism. The group has the highest level of plant endemism of any New Zealand biogeographic region, and there are sixteen bird taxa endemic to the Chatham Islands. Fourteen of these bird species and subspecies are threatened, giving the Chathams twenty percent of New Zealand's threatened birds (Department of Conservation 1999a).

The Department of Conservation's work in the Chatham Islands is administered from Wellington Conservancy. Conservation management objectives for the Department in the Chatham Islands over the next ten years are set out in the *Chatham Islands Conservation Management Strategy* (Department of Conservation 1999a)

The current document is intended to guide management of threatened bird species in the Chatham Islands over this period. It covers birds that are ranked as priorities for conservation management by the Department, i.e. all Category A, B, or C birds found in the Chatham Islands (Molloy & Davis 1994), and gives their rating according to IUCN rankings (IUCN 1994). Two species that are not ranked as conservation priorities but are endemic to the Chatham Islands are also included, thus providing coverage of all endemic Chatham Island birds.

This document contains eleven recovery plans. Seven of these cover individual species (Chatham Island taiko, Chatham petrel, Chatham Island oystercatcher, parea, black robin, Chatham Island tui, and New Zealand shore plover). There are four plans that cover two or three species that are closely related and/or have similar management needs. The combined plans cover parakeets (Forbes' parakeet and Chatham Island red-crowned parakeet), forest passerines (Chatham Island tomtit, Chatham Island fantail and Chatham Island warbler), shags (Chatham Island shag and Pitt Island shag) and albatrosses (Chatham Island mollymawk, northern royal albatross and Pacific mollymawk). All the recovery plans listed above follow the Department of Conservation's standard operating procedure for species recovery planning (Department of Conservation 1999b). The species covered are almost entirely restricted to the Chatham Islands and are ranked as priorities for conservation action by the Department of Conservation (Molloy & Davis 1994).

There are also five management plans included in this document. Two of these are for species (Chatham Island snipe and buff weka) that are covered by national recovery plans (draft and published, respectively). The management

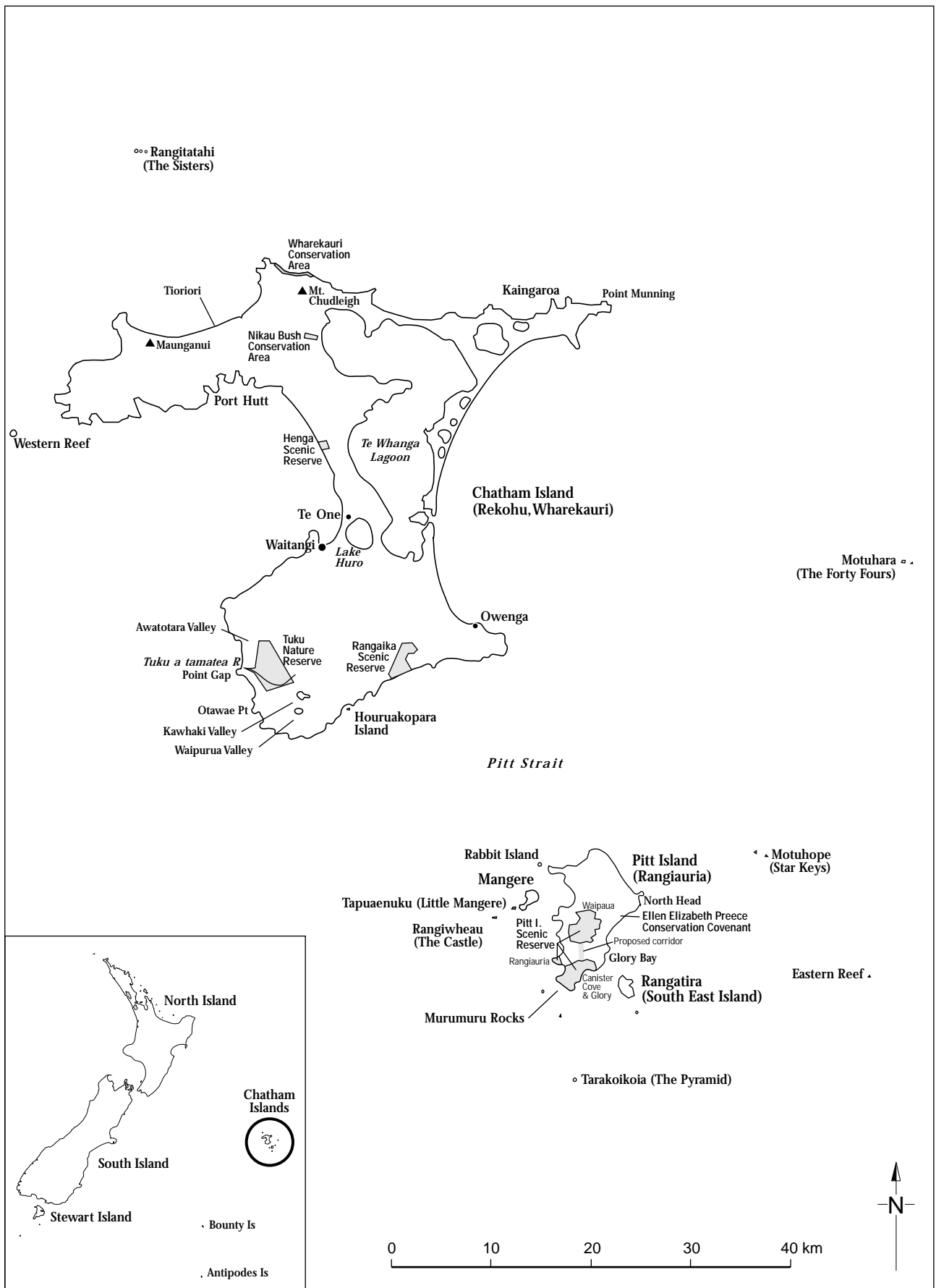


Figure 1. Map of the Chatham Islands.

plans here cover the Chatham Island component of the recovery actions recommended in the recovery plans. Another management plan details the actions recommended for banded dotterel in the Chatham Islands. The banded dotterel is a Category C species found in both the Chatham Islands and mainland New Zealand. Two management plans cover Chatham Island endemic birds (CI pipit and CI blue penguin) that are not ranked as priorities for conservation management but were considered worthy of inclusion as the only other birds endemic to the Chathams that were not already covered. While some of the actions identified in these last two plans may be undertaken by the Department in association with other work, it is anticipated that most would be undertaken by external groups with the Department's guidance.

A large number of the seabirds that breed in the Chatham Islands have their main distribution centred away from the Chatham Islands. These species are included in the *Action plan for seabird conservation in New Zealand* (Taylor 2000a, 2000b). The management, research and monitoring objectives relevant to the Chatham Islands for these less threatened species are summarised in Table 1.

Species ranked as category A or category B, the Department's first and second highest rankings for conservation management, will receive priority for government funding to undertake the recovery actions outlined in these plans. Research actions identified in the plans will generally be undertaken in conjunction with universities or the Science & Research Unit, and will not usually be funded by the Conservancy. For lower-ranked species, it is anticipated that the Department will undertake some of the identified actions in the course of fulfilling objectives for more endangered species. The identification of recommended work for lower-ranked species should also assist Departmental staff and external groups to determine projects that might be undertaken by students or other groups with Departmental permission and support.

2. Review and ongoing consultation

The plans contained in this document will be reviewed after ten years, or sooner for some species if new information leads to proposals for significant changes in direction. The plans will remain operative until reviewed plans are in place. The date that is proposed for review of the plans is July 2011. It is anticipated that a number of species, particularly those that are of high priority and where there is a considerable amount of new information being gained, such as Chatham petrel and Forbes' parakeet, may need to be reviewed before ten years have passed to respond to changing knowledge and priorities.

The implementation of actions identified in these plans will be subject to ongoing discussion regarding their detail by species recovery groups. Actions in the plan are ranked as essential, high, moderate, or lower. The annual recovery

TABLE 1. RECOMMENDED ACTIONS FOR SEABIRDS, OTHER THAN ENDEMIC (OR NEAR-ENDEMIC) SPECIES, IN THE CHATHAM ISLANDS, SUMMARISED FROM *ACTION PLAN FOR SEABIRD CONSERVATION IN NEW ZEALAND* (TAYLOR 2000a, 2000b).

A. THREATENED SEABIRDS			
Species	Molloy & Davis, IUCN ranking	Distribution in the Chatham Islands	Management, survey, monitoring and research objectives specific to the Chatham Islands (ranked as High, Medium or Low priority)
Fulmar prion <i>Pachyptila crassirostris crassirostris</i>	Category B Vulnerable	Breeds on The Pyramid and Forty Fours (est. 1000-5000 pairs). Largest population on Bounty Islands.	Management: High—Pest quarantine measures to prevent new animals and plants reaching breeding islands. Low—Seek community agreement for removal of feral cats and weka from all or part of Pitt Island and then seek to establish safe colony at suitable site on Pitt. Survey: High—Survey small islands and stacks in Chathams not yet visited by seabird biologist. Medium—Quantitative surveys needed of each breeding site.
White-capped mollymawk <i>Tbalassarche steadi</i>	Category C Vulnerable	One pair recorded incubating on the Forty Fours in Dec 1991 and 1996. Most of population breeds on Disappointment I.	Survey and monitoring: Low—Breeding status of white-capped mollymawk should be monitored on the Forty Fours every 5-10 years.
Salvin's mollymawk <i>Tbalassarche salvini</i>	Category C Vulnerable	A few individuals possibly breeding on The Pyramid with CI mollymawk. Main population on Bounty Is.	Survey and monitoring: Low—Confirm breeding status of Salvin's mollymawk at The Pyramid.
Southern white-fronted tern <i>Sterna striata aucklandornata</i>	Category C Vulnerable	In the Chathams, breeds on Chatham, Rangatira, Mangere, Star Keys, Middle Sister, Murumurus, The Pyramid, and Houruakopara.	Management: High—Pest quarantine measures to prevent new animal and plant pest species reaching offshore islands. Medium—Advocacy is needed to educate dog owners about the risks dogs pose to surface-nesting seabirds. Survey: High—Survey of all breeding colonies and counts of number of breeding pairs needed. Medium—Monitor breeding populations on Rangatira and Mangere Islands annually. Research: Low—Investigate gene flow between the Auckland Island, Chatham Island and mainland populations.
B. NON-THREATENED SEABIRDS			
Species	Molloy & Davis, IUCN ranking	Distribution in the Chatham Islands	Management, survey, monitoring and research objectives specific to the Chatham Islands (ranked as High, Medium or Low priority)
Northern giant petrel <i>Macronectes balli</i>	Category C Lower Risk— Near Threatened	Forty Fours, Big Sister, Little Sister.	Management: Low—Investigate possibility of establishing new colony, e.g. on Mangere or Rangatira. Monitoring: High—Census of breeding pairs from all populations in NZ region is needed. This should be repeated in the Chathams every 10 years. Research: Medium—Examine movements using satellite telemetry.
Sooty shearwater <i>Puffinus griseus</i>	Not listed Lower Risk— Least Concern	Chatham, Rangatira, Mangere, Star Keys, Little Mangere, Rabbit, Houruakopara, Big and Middle Sisters.	Management: Low—Removal of feral cats and weka from all or parts of Pitt Island if suitable agreements are reached with community. Monitoring: Medium—Long-term monitoring of population trends at one or two colonies. Low—Accurate estimates needed of size of breeding colonies.

B. NON-THREATENED SEABIRDS (<i>continued</i>)			
Species	Molloy & Davis, IUCN ranking	Distribution in the Chatham Islands	Management, survey, monitoring and research objectives specific to the Chatham Islands (ranked as High, Medium or Low priority)
Subantarctic little shearwater <i>Puffinus assimilis elegans</i>	Not listed Lower Risk— Least Concern	Est. 100+ pairs on Star Keys, possibly also on Little Mangere.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands. Monitoring: Medium—Star Keys should be visited at least once every 5-10 years to check that no introduced mammals have established. Low—The current status of the species on Little Mangere needs confirming.
Southern diving petrel <i>Pelecanoides urinatrix chathamensis</i>	Not listed Lower Risk— Least Concern	Rangatira, Murumurus, Star Keys, Middle Sister, Rabbit I., Houruakopara.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands Low—Removal of feral cats and weka from all or parts of Pitt I. if suitable agreements are reached with community Low—Consideration should be given to re-establishing southern diving petrel on Mangere Island Monitoring: High—Rangatira should be visited at least once every 2-3 ¹ years to check that no introduced mammals have established, and smaller colonies every 5-10 years.
Snares cape pigeon <i>Daption capense australe</i>	Not listed Lower Risk— Least Concern	Only a few tens of pairs are known to breed in the Chatham Islands.	Monitoring: Low—The Forty Fours, The Sisters, and The Pyramid should be checked at ten-year intervals to monitor the establishment of cape pigeons at the Chatham Islands.
Fairy prion <i>Pachyptila turtur</i>	Not listed Lower Risk— Least Concern	Mangere, Murumurus, Middle Sister.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands. Low—Seek community agreement for removal of feral cats and weka from all or part of Pitt Island and then seek to establish fairy prions at suitable site on Pitt. Monitoring: High—Mangere (the main colony) needs to be visited at least once every 5 years to check that no introduced mammals have established. Low—Quantitative surveys should be carried out at breeding colonies to give an accurate estimate of breeding population.
Broad-billed prion <i>Pachyptila vittata</i>	Not listed Lower Risk— Least Concern	Chatham, Pitt, Rangatira, Mangere, Middle Sister, Star Keys, Murumurus, Little Mangere, Kokope, Rabbit, Houruakopara, and Blyth's Stack.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands. Medium—Seek community agreement for removal of feral cats and weka from all or part of Pitt Island and then seek to establish broad-billed prions at suitable site on Pitt. Monitoring: High—Key colonies such as Rangatira and Mangere need to be visited at least once every 5 years to check that no introduced mammals have established. Low—Monitoring is needed of a few colonies to determine population trends and quantitative surveys of known colonies are required to give an accurate estimate of the breeding population. Research: High—The social behaviour of broad-billed prions needs further research. In particular, the process by which prions locate and claim burrows and how this impacts on Chatham petrels needs further investigation.

¹ For some species (such as southern diving petrels) more regular checks for rodents have been recommended than for other species. This is because it is considered likely that smaller species could be eliminated within a few years of rodents arriving on an island.

B. NON-THREATENED SEABIRDS (<i>continued</i>)			
Species	Molloy & Davis, IUCN ranking	Distribution in the Chatham Islands	Management, survey, monitoring and research objectives specific to the Chatham Islands (ranked as High, Medium or Low priority)
Black-winged petrel <i>Pterodroma nigripennis</i>	Not listed Lower Risk— Least Concern	Rangatira, Mangere and possibly Star Keys and The Forty Fours.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands Survey: Low—The colonisation of Rangatira and Mangere by black-winged petrels should be monitored at 5-year intervals to determine if the colonies are expanding, and the species' status on Star Keys and Forty Fours should be confirmed. Research: Low—Diet comparison between geographic locations.
Grey-backed storm petrel <i>Oceanites nereis</i>	Not listed Lower Risk— Least Concern	Rangatira, Mangere, Rabbit, Star Keys, Middle Sister, The Pyramid, Houruakopara, stack and islet east of Houruakopara, Murumuru Rocks, and possibly main Chatham.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands. Low-Seek community agreement for removal of feral cats and weka from all or part of Pitt Island. Monitoring: Low—The breeding population of Mangere should be monitored every ten years, population estimates are needed for Rangatira and Star Keys and a survey is needed to determine if breeding occurs on Little Mangere Island. Research: Low—Long-term study of population dynamics and study of vocalisations.
NZ white-faced storm petrel <i>Pelagodroma marina maoriana</i>	Not listed Lower Risk— Least Concern	Rangatira, Mangere.	Management: High—Quarantine measures needed to prevent new animal and plant pests reaching offshore islands. Monitoring: High—Rangatira needs to be visited at least once every two years to check that no introduced mammals have established. Low—Rangatira should be surveyed to estimate the size of the breeding population and the colony should be monitored every ten years to determine population trends.
Brown skua <i>Catbaracta antarctica (skua) lonnbergi</i>	Not listed Lower Risk— Least Concern	The Sisters, Forty Fours, Mangere, Little Mangere, Pitt, Rangatira, The Pyramid, Star Keys, Rabbit, Murumurus, and The Castle.	Management: Medium—Ongoing advocacy with the Pitt Island community is needed to reduce the incidence of shooting of brown skuas on farmland. The species is currently partially protected by the Wildlife Act. Consideration should be given to raising the protection status to totally protected. Survey and monitoring: Medium—The breeding population on the Chatham Islands should be monitored every five years to determine trends in this population.
Southern black-backed gull <i>Larus dominicanus dominicanus</i>	Not listed Lower Risk— Least Concern	Widespread.	Nil.
Red-billed gull <i>Larus scopulinus</i>	Not listed Lower Risk— Least Concern	Widespread.	Research: Low—Taxonomy (Chatham Islands birds have a significantly longer tarsus than birds from the mainland).

group meetings play an important role in determining annual priorities, and providing advice to the Department on funding requirements and priorities for the coming year. The Chatham Islands Conservation Board will continue to be closely involved with the implementation of all species recovery programmes in the Chatham Islands. The Board will continue to be represented at the annual species recovery group meetings. The full Board will be consulted whenever plans are reviewed and prior to any species transfers, even if these are covered under these plans.

3. Overview of management techniques

A range of techniques is available to species managers to assist with the recovery of threatened species. Many of the measures proposed in these recovery plans will benefit more than one species as well as providing wider benefits to the environment. Unfortunately there are also cases where action undertaken for the recovery of one species may pose a risk to other species or the environment. It will be important in the implementation of these plans to carefully consider the wider implications of management actions and to attempt to maximise the benefits that can be obtained from the work undertaken.

New management techniques are continually being devised and technological advancements are making new tools available. It is important for species managers to continually seek to improve the way that programmes are run and to keep up-to-date with the latest developments.

3.1 HABITAT PROTECTION

Habitat protection is vital to all species covered by these plans. This includes the protection of the habitat that remnant populations are living in now, and also the protection and enhancement of areas into which recovering bird populations can expand. Large areas of forest habitat have been lost on the Chatham Islands, and measures to protect the small areas that remain are essential. A large proportion of the remnant forest habitat in the Chatham Islands is in private ownership. There is a strong commitment within the Chatham Island community to protect their unique flora and fauna. This has been demonstrated by the number of landowners that have protected areas of forest on their land through the establishment of conservation covenants. The continuation of this trend needs to be encouraged. The fencing of remnant forest patches to exclude stock is one of the key measures needed on Chatham and Pitt Islands to protect what remains of the forest habitat. Once fences have been constructed, a high standard of maintenance is essential to ensure that feral stock is kept out of regenerating areas. An extremely important

development over the next ten years will be the completion of the fence around Tuku Nature Reserve and South Chatham covenants.

The control of possums is important for the protection of forest habitat on Chatham Island. Bird species particularly likely to benefit from possum control are taiko, parea, CI red-crowned parakeet and, in the future, CI tui and Forbes' parakeet.

Priority sites and species for ecological weed control work on the Chatham Islands have been identified by Walls (2000). In conjunction with undertaking its own control work, the Department needs to encourage the Chatham Islands Council and wider community to initiate measures to control ecological weeds and to prevent the establishment of new weeds in the Chatham Islands. The Department needs to ensure that strict quarantine measures are maintained to prevent the introduction of potential weed species to Mangere or Rangatira.

Fire can pose a significant threat to areas of protected habitat. It is important that the Department continues in its efforts to control and reduce the risk fires pose to areas of high conservation value. The Department needs to work closely with the Chatham Islands Council and the Chatham Islands community to ensure a coordinated approach to fire control.

3.2 HABITAT ENHANCEMENT

Once protection has been implemented, measures may be required to restore the habitat, either to speed regeneration or to replace elements that have been lost from the area. Planting of key species in reserves and other protected areas on Chatham and Pitt Islands may be required both to increase populations of endangered plant species and also to ensure important food species are available for the re-introduction or expansion of bird populations to the area. The major revegetation programme being undertaken on Mangere will provide important additional habitat of a number of bird species. This work is a key component of the recovery strategy for black robin and Forbes' parakeet but will also provide important habitat for a number of other forest species such as CI tui, parea, CI fantail, CI tomtit, and CI snipe. Mangere could provide additional habitat for Chatham petrel in the longer term. Habitat management is also required in coastal areas to restore native dune ecosystems. The bird species that would benefit most from this management is the CI oystercatcher.

3.3 PREDATOR CONTROL

Introduced mammalian predators and weka are the main ongoing threat to many of the Chatham Islands' threatened bird species. Cats, rats, weka, possums, pigs and mice are present on Chatham Island, and cats, weka, pigs and mice are on Pitt Island. The Chatham Islands are fortunate to be free of some of the mammalian predators found on mainland New Zealand. No mustelid species (ferrets, stoats and weasels) have reached the Chatham Islands, and Pitt Island is free of possums and rats. Mangere and Rangatira Nature Reserves are free of all

introduced mammalian pests and weka. It is important that no more introduced predators reach any of these islands. The Department implements quarantine measures to prevent the arrival of unwanted species to Rangatira and Mangere, and has prepared contingency plans to respond to the arrival of rodents on Rangatira, Mangere, or Pitt Island (Couchman 2000). The Department needs to work in conjunction with the Chatham Islands Council and the local community to ensure that the arrival of new pest species on Chatham and Pitt Islands is prevented.

There are a number of areas on Chatham and Pitt Islands where predator control programmes are undertaken for the protection of threatened birds. There has been regular control of cats and possums in the Tuku Valley to protect both taiko and parea. This control has wider benefits, improving habitat and protecting other threatened bird species such as CI red-crowned parakeets, CI warbler, and CI fantail. It is hoped that this protection can be built on in the future to enable CI tui, CI tomtit, and possibly black robin to be re-established in the area. An extensive predator control programme has also been initiated to protect CI oystercatcher nesting areas along beaches in northern Chatham Island. The extension of predator control to other protected areas on Chatham Island would allow the spread of a number of bird populations such as parea and CI red-crowned parakeet. Intensive cat control in the Waipaua Block on Pitt Island would benefit a number of species there, particularly CI tui and parea.

In the long term, the eradication of feral cats and weka from Pitt Island would be a huge benefit to a suite of threatened Chatham Islands bird species, such as black robin, CI tui, parea, Forbes' parakeet, CI oystercatcher, NZ shore plover, and CI snipe. The creation of a large area of predator-free habitat on Pitt Island would allow for a substantial increase in their populations, helping to secure their long-term future survival. This could only be carried out if fully supported by the Pitt Island community.

3.4 PREDATOR-PROOF FENCE CONSTRUCTION

An important development for a number of species will be the construction of fences capable of excluding predators from areas of habitat on Chatham and Pitt Islands. Two such fences are planned in the near future. One, in southern Chatham Island, will create a safe breeding area for taiko and Chatham petrel, and a second, on Pitt Island, will create an area of secure habitat to enable a third population of black robin to be established. These sites, particularly the larger area on Pitt Island, have the potential to benefit a number of other forest species by providing habitat, additional to that on Mangere and Rangatira, that is free from mammalian predators. The construction of these fences will also provide an opportunity to demonstrate the potential for reintroducing species that have disappeared from the two main islands. Additional fences might then be constructed at other sites on Chatham and Pitt Islands. In the medium term, predator-proof fencing will be required to create an area of secure habitat suitable for the attempted establishment of a second population of Forbes' parakeet in northern Chatham Island.

3.5 SPECIES MANAGEMENT

The recovery of a number of species requires the establishment of new populations in other parts of the Chathams group, or re-establishment of species lost from those areas. In some cases birds are likely to re-establish themselves once suitable habitat is available at the new site. Other species may need to be attracted to new sites by artificial means, or may have to be transferred. Transfers of forest species have been fairly successful in the past, and techniques are well tested. Techniques for seabird transfers are less well developed, and further research is needed. It may be possible to attract some seabirds by using taped calls played out over loudspeakers or by the placement of bird models at the new site, creating the impression of a colony. There are a number of trials being undertaken with seabird species around New Zealand that will improve our understanding of the factors important to the successful establishment of new seabird colonies. This information will be particularly important for the recovery of taiko and Chatham petrel. Once habitat protection and predator control measures are in place in areas on Chatham and Pitt Islands there may also be opportunities for restoration of other seabird species, including species of particular importance to iwi and other members of the Chatham Islands community. There may be opportunities to involve the local community in restoration projects, including those for seabird colonies on private land.

Manipulation of nests to improve productivity has been an important technique for the recovery of black robin. This technique is not being used as extensively as before in any current programmes, although there is some manipulation of nests being done for CI oystercatcher, encouraging birds to nest on raised platforms made of car tyres and moving nests out of the reach of high seas. There is also a small amount of nest manipulation occurring in the Chatham petrel programme.

Competitor control is a key issue with Chatham petrel, where interference with burrows by broad-billed prions is a major cause of chick loss. A number of trials are under way to devise methods of excluding broad-billed prions from Chatham petrel burrows without restricting the Chatham petrels' access.

Captive breeding for release to new sites is a key recovery measure being used in the shore plover recovery programme. Captive-reared birds are being released at sites offshore from the New Zealand mainland in an attempt to re-establish shore plover in New Zealand. There is also a proposal to trial captive breeding of CI snipe. Captive breeding is not considered suitable or necessary for other Chatham Islands species at this stage. Captive breeding of further species would only be considered if there was a major disaster that placed the current populations under immediate threat.

Wildlife health management has received increased attention in recent years, as the potential impacts that disease can have on wild populations have become better understood. There are inherent disease risks associated with any species translocation, particularly from sites of high exposure to exotic disease to those that have been more isolated, such as from mainland New Zealand to offshore islands. In order to minimise these risks in the Chatham Islands, it will be necessary to improve understanding of the current disease status of Chatham

Islands bird populations. All transfers should include disease screening and quarantine procedures appropriate to the circumstances to reduce the risk of avian diseases being inadvertently spread to new areas.

3.6 SURVEY AND MONITORING

The distribution of bird species on the Chatham Islands is generally well known, but the surprise find of a small population of NZ shore plover on Western Reef in 1999 demonstrated that there is more to learn. Opportunities to visit small islets, rock stacks and reefs should be taken where possible to survey for threatened species. Some sites might not have been visited by ornithologists, or species might have recently colonised.

There are several monitoring programmes, either already in place or proposed, that aim to detect changes in populations of individual species. A Chatham-wide census of CI oystercatchers was conducted during 1998 and it is proposed that this be repeated every five years. During the census, other native shore-birds were also counted, and it is recommended that a five-yearly coastal bird count be conducted in the Chatham Islands. Annual five-minute bird counts have been conducted in forest areas on Pitt Island since 1996. It is recommended that these be continued and that similar forest-bird monitoring programmes be initiated on Rangatira, Mangere, and Chatham Island.

3.7 COMMUNITY SUPPORT

The involvement and support of local communities is essential to the long-term success of conservation programmes in the Chatham Islands. Much of the remaining forest habitat is in private ownership, and the long-term future of these areas depends on the conservation commitment of landowners. The Department of Conservation is reliant on the local community for many aspects of its daily work, such as boat transport to the offshore islands, access across private land to get to areas of important wildlife habitat, and for advice and information from the community on conservation work and priorities in the Chatham Islands. The support of the local community will also be essential if measures such as the eradication of cats and/or weka are ever to occur on Pitt Island.

There are a large number of ways in which the Department can seek to improve the Chatham Island community's understanding of the Department's work. These include running programmes with local schools, providing advice to landowners on means of protecting flora and fauna on their land, providing opportunities for members of the local community to visit areas such as Rangatira, and by providing work opportunities for Chatham Islanders. The involvement of the Chatham Islands Conservation Board and Pitt Island Reserve Committee in Department of Conservation's operational and strategic planning is also an important means of keeping both the community and the Department in touch with each other's perspectives. The local newspaper (*The Chatham Islander*) and Chatham Islands television both provide excellent means of

keeping the community well informed about Department of Conservation activities.

4. Restoration opportunities

At least 23 species of birds have become extinct on the Chatham Islands since humans reached there, and at least 12 of these occurred nowhere else on earth (Table 2). In some cases the niches vacated by these locally or globally extinct species appear to have been filled by New Zealand native or introduced species that have flown to the Chathams in the last 150 years. However, there is little doubt that Chatham Islands bird communities are extremely impoverished compared to what they were 1000 years ago (Atkinson submitted ms). It is possible that loss of some bird species is continuing to impact on existing Chatham Islands ecosystems; for example, the extinct Chatham Island bellbird and Chatham Island kaka may have been key pollinators and seed dispersers for some shrub and tree species. There is also little doubt that the decimation of Chatham Islands seabird communities has had a major impact on nutrient flows into terrestrial ecosystems, on Chatham Island and Pitt Island at least.

For those species that became extinct on the Chatham Islands but still exist elsewhere, it should be possible to attempt reintroduction to suitable restored habitats, as is currently planned for brown teal on Chatham Island by Ducks Unlimited. At this stage the Department of Conservation is not actively pursuing other reintroduction opportunities on the Chatham Islands, as it is focusing resources on urgent recovery programmes for many endemic Chatham Islands bird species. However, the reintroduction of locally extinct species is a necessary component in restoring Chatham Islands ecosystems (Atkinson submitted MS).

For the 12-14 Chatham Island bird species that are now globally extinct (Table 2) reintroduction is not possible. However, nine of these species are still represented by closely related forms elsewhere in the New Zealand region (Table 3). The possibility of using these surviving forms as ecological replacements for extinct taxa is gaining increasing acceptance (see Miskelly 1999, Atkinson submitted MS). Such translocations could serve the dual benefit of improving the conservation status of a rare species and restoring some of the ecological processes formerly characteristic of Chatham Islands ecosystems (Atkinson submitted MS). With the possible exception of Snares Islands fernbird being used to replace the extinct Chatham Island fernbird, it is unlikely that any of these proposed surrogate introductions will occur during the ten-year time frame of this planning document. However, the concept of surrogate replacements of extinct taxa to and from the Chatham Islands is worthy of debate by the Chatham Islands community.

TABLE 2 - BIRD SPECIES KNOWN TO HAVE BECOME EXTINCT ON THE CHATHAM ISLANDS BETWEEN AD 1000 AND AD 2000.

COMMON NAME	SCIENTIFIC NAME	ENDEMIC?	EXTANT ELSEWHERE?
South Georgian diving petrel	<i>Pelecanoides georgicus</i>	No	Yes
Grey petrel	<i>Procellaria cinerea</i>	No	Yes
Unidentified gadfly petrel	<i>Pterodroma ?inexpectata</i>	?	?
Black-bellied storm petrel	<i>Fregetta tropica</i>	No	Yes
Chatham Island crested penguin	<i>Eudyptes</i> sp.	Yes	No
Reef heron	<i>Egretta sacra</i>	No	Yes
Chatham Island shelduck	<i>Tadorna</i> sp.	Yes	No
Brown teal	<i>Anas chlorotis</i>	No	Yes
New Zealand shoveler	<i>A. rhynchotis</i>	No	Yes
Chatham Island steamer duck	<i>Pachyanas chathamica</i>	Yes	No
New Zealand scaup	<i>Aythya novaeseelandiae</i>	No	Yes
(New Zealand) merganser	<i>Mergus ?australis</i>	Probably	No
Chatham Island sea eagle	<i>Haliaeetus australis</i>	Yes	No
New Zealand falcon	<i>Falco novaeseelandiae</i>	No	Yes
Dieffenbach's rail	<i>Gallirallus dieffenbachii</i>	Yes	No
Chatham Island rail	<i>G. modestus</i>	Yes	No
Hawkin's rail	<i>Diaphorapteryx hawkinsi</i>	Yes	No
Chatham Island coot	<i>Fulica chathamensis</i>	Yes	No
Forbes' snipe	<i>Coenocorypha chathamica</i>	Yes	No
Chatham Island kaka	<i>Nestor</i> sp.	Yes	No
Chatham Island fernbird	<i>Bowdleria rufescens</i>	Yes	No
Chatham Island bellbird	<i>Anthornis melanura melanocephala</i>	Yes	No
New Zealand crow	<i>Corvus mortorum</i>	No	No

TABLE 3 - CHATHAM ISLANDS BIRD SPECIES THAT ARE GLOBALLY EXTINCT, BUT HAVE CLOSELY RELATED FORMS STILL SURVIVING ELSEWHERE IN THE NEW ZEALAND REGION.

EXTINCT CHATHAM ISLAND FORMS	POSSIBLE REPLACEMENT TAXA
Chatham Island crested penguin <i>Eudyptes</i> sp.	Snares crested penguin <i>Eudyptes atratus</i>
Chatham Island shelduck <i>Tadorna</i> sp.	Paradise shelduck <i>Tadorna variegata</i>
Dieffenbach's rail <i>Gallirallus dieffenbachii</i>	Banded rail <i>Rallus philippensis</i>
Chatham Island rail <i>G. modestus</i>	Banded rail <i>Rallus philippensis</i>
Chatham Island coot <i>Fulica chathamensis</i>	Australian coot <i>Fulica atra</i>
Forbes' snipe <i>Coenocorypha chathamica</i>	New Zealand snipe <i>Coenocorypha aucklandica</i>
Chatham Island kaka <i>Nestor</i> sp.	Kaka <i>Nestor meridionalis</i>
Chatham Island fernbird <i>Bowdleria rufescens</i>	Snares Islands fernbird <i>Bowdleria punctata caudata</i>
Chatham Island bellbird <i>Anthornis melanura melanocephala</i>	Bellbird <i>Anthornis m. melanura</i>

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Published recovery plans

NUMBER	SPECIES	YEAR APPROVED
35	Yellow-eyed penguin (hoiho)	2001
34	Pygmy button daisy	2001
33	<i>Hebe cupressoides</i>	2000
32	<i>Lepidium</i>	2000
31	Shrubby toraro (<i>Muehlenbeckia astonii</i> Petrie)	2000
30	North Island kokako	1999
29	Weka (<i>Gallirallus australis</i>)	1999
28	<i>Pittosporum patulum</i>	1999
27	<i>Cyclodina</i> spp. skinks	1999
26	Coastal cresses (nau)	1999
25	Threatened weta	1998
24	Striped skink <i>Oligosoma striatum</i>	1998
23	New Zealand fairy tern (tara-iti) <i>Sterna nereis davisae</i>	1997
22	Blue duck (whio) <i>Hymenolaimus malacorhynchos</i>	1997
21	Kakapo	1996
20	Stitchbird (hihi) <i>Notiomystis cincta</i>	1996
19	Brown teal (pateke) <i>Anas chlorotis</i>	1996
18	Native frogs (<i>Leiopelma</i> spp.)	1996
17	Hooker's sea lion (<i>Phocarctos hookeri</i>)	1995
16	<i>Dactylantbus taylorii</i>	1995
15	Bat (peka peka) (<i>Mystacina, Chalinolobus</i>)	1995
14	Otago skink and grand skink (<i>Leiopisma otagense</i> and <i>L. grande</i>)	1995
13	Giant land snail (<i>Placostylus</i> spp., <i>Paryphanta</i> sp.)	1995
12	Takahe (<i>Porphyrio [Notornis] mantelli</i>)	1994
11	South Island saddleback (<i>Ptilisternus carunculatus carunculatus</i>)	1994
10	New Zealand dotterel (<i>Charadrius obscurus</i>)	1993
9	Tuatara (<i>Sphenodon</i> spp.)	1993
8	Kowhai ngutukaka (<i>Cliantbus puniceus</i>)	1993
7	Subantarctic teal (<i>Anas aucklandica</i>)	1993
6	Mohua (yellowhead) (<i>Moboua ocbrocephala</i>)	1993
5	Chevron skink (<i>Leiopisma bomalonotum</i>)	1993
4	Black stilt (<i>Himantopus novaeseelandiae</i>)	1993
3	Whitaker's skink and robust skink	1992
2	Kiwi	1991
1	North Island kokako	1991
-	Yellow-eyed penguin**	1991

* Available from DOC Science Publications, Science & Research Unit, P.O. Box 10-420, Wellington.

** Available from Otago Conservancy, Department of Conservation, P.O. Box 5244, Dunedin.