Chatham petrel recovery plan

2001–2011

THREATENED SPECIES RECOVERY PLAN 37

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Cover: Chatham petrel. (*David Garrick*)

CONTENTS

Recovery plans

This is one of a series of recovery plans published by the Department of Conservation. Recovery plans are statements of the Department's intentions for the conservation of particular plants and animals for a defined period. In focusing on goals and objectives for management, recovery plans serve to guide the Department in its allocation of resources, and to promote discussion amongst a wider section of the interested public.

After a technical report which had been refined by scientists and managers both within and outside the Department had been prepared, a draft of this plan was sent to the Chatham Islands Conservation Board for comment. After further refinement, this plan was formally approved by the Wellington Conservator in January 2001. A review of this plan is due after ten years (in 2011), or sooner if new information leads to proposals for a significant change in direction. This plan will remain operative until a reviewed plan is in place.

The Department acknowledges the need to take account of the views of the tangata whenua and the application of their values in the conservation of natural resources. While the expression of these values may vary, the recovery planning process provides opportunities for consultation between the Department and the tangata whenua. Departmental Conservancy Kaupapa Atawhai Managers are available to facilitate this dialogue.

A recovery group consisting of people with knowledge of Chatham petrel, and with an interest in its conservation has been established. The purpose of the Chatham Petrel Recovery Group is to review progress in the implementation of this plan, and to recommend to the Department any changes which may be required as management proceeds. Comments and suggestions relating to the conservation of Chatham petrel are welcome and should be directed to the recovery group via the Wellington Conservancy office of the Department.

1. Introduction

The Chatham petrel *Pterodroma axillaris* is endemic to the Chatham Islands and is now confined to a single breeding population on Rangatira (Figure 1). Fewer than 200 pairs are thought to breed each year. Conservation attention did not begin to focus on the Chatham petrel until the late 1980s. Most of the work over this decade has been researching Chatham petrel distribution, population dynamics and ecology to understand more about this little-known species. Various management actions have been initiated in the last few years, moving the recovery programme of this species into a new phase.

The Department of Conservation presently ranks Chatham petrel as Category A, the highest priority category for conservation management (Molloy & Davis 1994). Chatham petrel are ranked as Critically Endangered internationally by the IUCN Red List Categories (BirdLife 2000).

This plan sets out the recovery programme for Chatham petrel over the next ten years (2001–2011). It is preceded by a series of position papers and management strategies (Grant 1988; Kennedy 1993), culminating in the first Chatham petrel recovery plan covering the period 1994 to 1998 (Kennedy 1994a).

2. Past/present distribution and population numbers

Chatham petrel bones have been found in subfossil deposits of recent age on Mangere, Chatham, and Pitt Islands (Tennyson & Millener 1994). It appears that Chatham petrel were widespread over the Chatham group, and were one of the more abundant burrowing seabirds in historic times. By the turn of the 20th century it appears that the Chatham petrel breeding range had become confined to Rangatira. It is not known whether Rangatira was the stronghold in the past of Chatham petrel, or a habitat on the periphery of major Chatham petrel concentrations elsewhere in the Chatham group.

Chatham petrel breeding burrows are only found on Rangatira—mainly in the Kokupu Creek headwaters. The Kokupu Swamp in the headwaters of the catchment is the focus of the Chatham petrel aerial courtship displays. The number of burrows located has gradually increased over recent years. Searches have generally involved catching Chatham petrels on the ground at night, attaching transmitters to them then tracking them to their burrows. A major search effort at the beginning of the 1999/2000 breeding season nearly doubled the number of known burrows bringing the total number of active breeding burrows for the season to approximately 100. A number of other burrows are visited by prospecting Chatham petrel. The total population is estimated as 800–1000 birds (Taylor 2000).

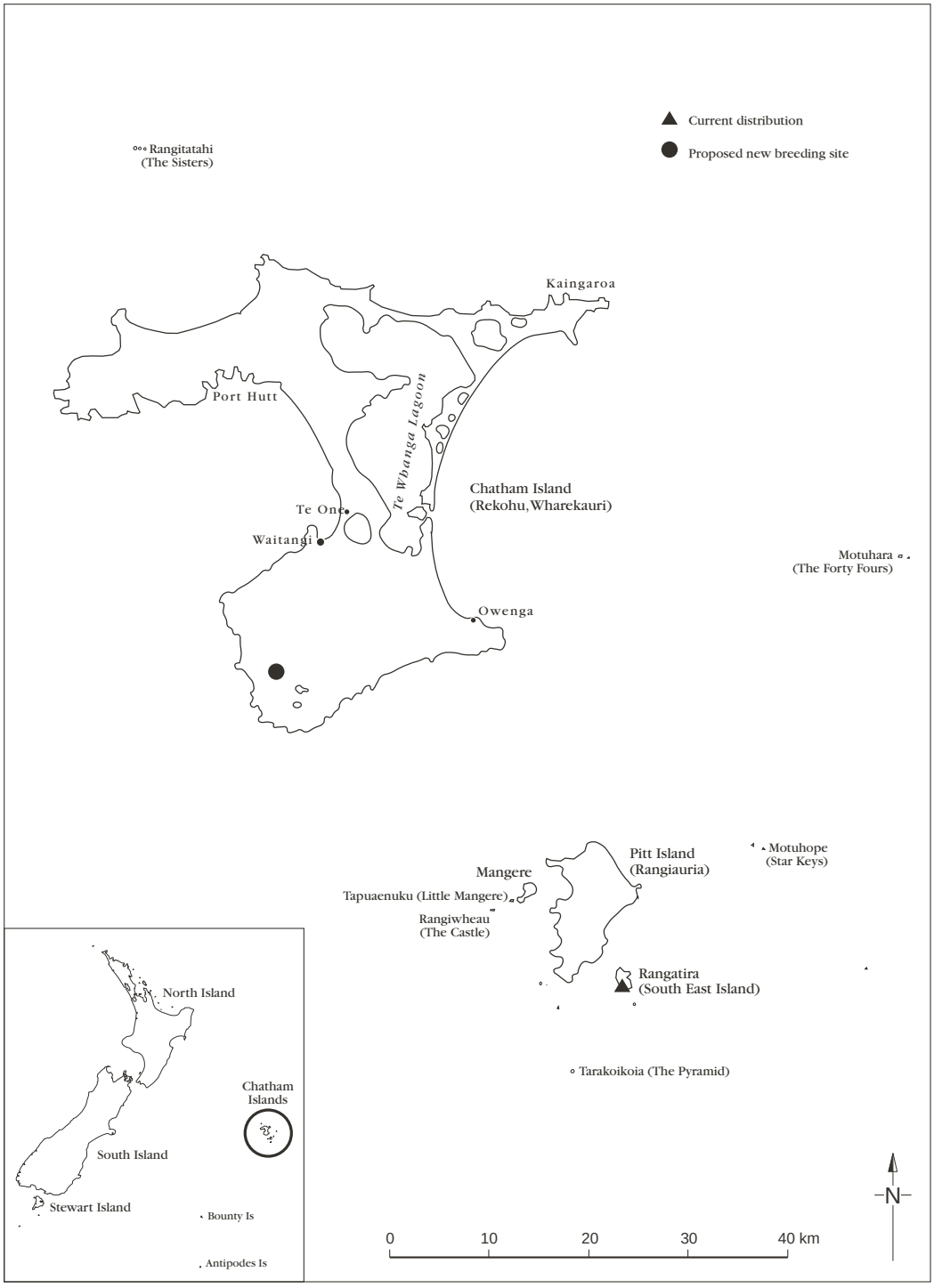

Figure 1. Distribution of Chatham petrel in 2000.

3. Cause of decline and present-day threats

Prior to European arrival in the Chatham Islands, Chatham petrel probably underwent a population decline from predation by kiore (*Rattus exulans*) and muttonbird harvest (Tennyson & Millener 1994). The arrival of mammalian predators, particularly rodents and cats, and the loss of forest habitat would have led to the confinement of Chatham petrel to Rangatira.

The immediate threat to Chatham petrel is burrow competition with broad-billed prion *Pachyptila vittata*. While these two species are assumed to have co-existed on Rangatira for a long time, the decline in Chatham petrel numbers and confinement to a single population appears to have shifted the balance in favour of the broad-billed prion. Broad-billed prion are uncommon in fossil bird deposits of the Chatham Islands suggesting it has recently increased in numbers (A.Tennyson pers. comm.). The fact that broad-billed prions breed earlier in the year than Chatham petrel gives broad-billed prions a competitive advantage (Wilson 1999). Also, Chatham petrel currently breed predominantly under forest cover while broad-billed prion exercise less choice, giving them a far greater habitat area to breed in compared with Chatham petrel.

Information on the nature and impact of the relationship between Chatham petrel and broad-billed prion is presented by Gardner & Wilson (1999) and in the Chatham Island Threatened Species Recovery Group Meeting Minutes (Department of Conservation 1998, 1999). The introduction of mammalian predators on Rangatira, loss of forest habitat from fire and introduction of disease are ever-present risks which threaten the single population of Chatham petrel. Harvest by illegal muttonbirders and crushing of burrows (particularly by researchers and conservation managers) is a further risk.

4. Species ecology and biology

Chatham petrel is a medium-sized petrel with distinctive dark feathering on the base of the underwing. They have long wings and are fast capable fliers. They forage for fish and squid in the open ocean well away from their breeding grounds. Chatham petrels possibly migrate to the north Pacific each year between June and October (Marchant & Higgins 1990). The Chatham petrel is a burrowing petrel, seemingly preferring to make breeding burrows under a mature forest cover. They tend to retain the same pair bond from one year to the next. However, the pair bond can be disrupted for reasons not clearly understood. Both sexes contribute to incubation and chick raising. The Chatham petrel breeding season extends from November to June, and overlaps with the breeding season of the broad-billed prion. Many Chatham petrel chicks, some close to fledging, are evicted from their burrows or killed by

prions when the latter return to the island to moult in February. Further information on breeding biology is documented by Gardner (1999).

Fertility among Chatham petrels appears high, but eggs have been evicted from burrows by broad-billed prions. With active management, 42 chicks fledged from the 54 protected Chatham petrel burrows in the 1998/99 season. This is a slightly higher rate of productivity than would be expected from an unmanaged petrel population in the absence of human-induced threats. Other *Pterodoma* species have an average productivity rate of 65% fledglings produced per annum (G. Taylor pers. comm.). Adult survival in Chatham petrel is estimated at 95% per annum (G. Taylor pers. comm.).

5. Past conservation efforts

Chatham petrel began to be studied closely in the 1989/90 breeding season. Before this date only nine burrows had been discovered, and only a small number of birds banded. These studies continue today, with results reported by Bancroft (1998a, 1998b, 1999), Bell & Nilsson (1992), Department of Conservation (1992, 1998, 1999), Gardner (1998), Gardner & Wilson (1999), Kennedy (1993, 1994a, 1994b), Kennedy & Taylor (1993), Nilsson et al. (1994), Taylor (1991, 1992, 1995, 1998, 1999), Was & Wilson (1998), Was et al. (2000), West (1989, 1990), West & Nilsson (1994), and Wilson (2000).

These studies have confirmed the conservation status of Chatham petrel as critically endangered, and that burrow competition from broad-billed prions is currently the major factor threatening Chatham petrel. During the course of the research, various techniques were trialed to minimise the impact of prions on Chatham petrel. These have greatly increased breeding production of Chatham petrels. Research on techniques to reduce prion impact on Chatham petrel is still proceeding, and is urgently required to assist management.

6. Recovery goal

Two goals are proposed—a longer-term goal and a shorter-term goal. The short-term goal of ten years is to be achieved by the year 2011, which is when this plan expires.

LONG-TERM GOAL

To re-instate Chatham petrel within its traditional breeding range as a number of self-sustaining populations that will require minimal management.

TEN-YEAR GOAL

To arrest the expected decline of Chatham petrel breeding pairs and total population numbers, and improve productivity on Rangatira, and establish a second Chatham petrel breeding population in the Chatham Islands.

THIS WILL CHANGE THE IUCN CONSERVATION RANKING OF CHATHAM PETREL FROM CRITICALLY ENDANGERED TO VULNERABLE.

7. Options for recovery

7.1 OPTION 1

No action

This option is not recommended. If there was no further research and management effort it is likely that Chatham petrel would effectively be extinct in the next two to three generations. Small numbers of Chatham petrel are likely to persist for many years, but numbers would be too low to recover the species. Competition for burrow space with broad-billed prions would continue unabated causing low productivity among Chatham petrel. This would lead to a decline in Chatham petrel population numbers, and to eventual extinction. With only one relatively small population the species is exposed constantly to the risk of loss through natural or human-induced disaster. While broad-billed prions are natural competitors of Chatham petrels, the degree of competition is not likely to be the result of natural circumstances. Rather it is likely to have been brought about by a human-induced change to Chatham Islands' ecosystems.

7.2 OPTION 2

Protect the Chatham petrel population on Rangatira alone

This option alone is not recommended. Confinement of Chatham petrel to a single breeding location keeps the species at risk from extinction from human-induced threats or natural disaster. To maintain Chatham petrel on Rangatira, high management input would be required indefinitely as the threats from broad-billed prion would be forever present. This option does not allow for the reinstatement of Chatham petrel to its historic distribution.

7.3 OPTION 3 (PREFERRED OPTION)

Protect Chatham petrel habitat and breeding burrows on Rangatira, and establish a second Chatham petrel population elsewhere in the Chathams

This is the preferred option for recovery. An essential first step is to protect the single Chatham petrel population on Rangatira from extinction by protecting the forest habitat and mammalian predator-free status of Rangatira. Management is also needed to reduce competition with broad-billed prions for breeding burrows. Methods to achieve this with minimal management intervention need to be developed. The productivity of Chatham petrel needs to be boosted in order to increase Chatham petrel numbers on Rangatira and to provide sufficient birds for the establishment of a second population. This option also requires the preparation of a site elsewhere in the Chathams in readiness for the establishment of a new population. This requires immediate research by management on more common analogue species to develop reintroduction techniques. Establishment of a second Chatham petrel population will greatly reduce the threat of the species extinction, and improve the species conservation status. This option will also result in the reinstatement of Chatham petrel to its historic range.

7.4 OPTION 4

Establish an alternative population elsewhere in the Chathams and leave the Rangatira population to fend for itself

This option is not recommended. The establishment of a second population is a long-term project that will take longer than ten years to complete, and meanwhile the Rangatira population will decline to the point where there are unlikely to be sufficient birds to establish an alternative population.

7.5 OPTION 5

Establish a Chatham petrel population in captivity

This option is not recommended. The breeding biology of petrel species and their habit of foraging at sea would make it difficult to maintain them in captivity. Also, it is considered likely that Chatham petrel will survive with active management of the species on Rangatira, and efforts to establish a second population in the Chathams.

8. Objectives for term of plan

The objectives for Chatham petrel recovery for the term of this plan are:

1. Protect the Chatham petrel population and breeding habitat on Rangatira.
2. Improve Chatham petrel productivity on Rangatira and locate additional Chatham petrel burrows.
3. Monitor Chatham petrel population dynamics, distribution and habitat use on Rangatira.
4. Develop techniques to establish Chatham petrel at new sites.
5. Select and prepare a site for establishment of a second Chatham petrel population in the Chatham Islands and initiate attracting and/or transferring birds to the site.

9. Work plan

Specific tasks required to achieve each objective, and performance measures to assess success in meeting objectives are set out below.

OBJECTIVE 1. PROTECT THE CHATHAM PETREL POPULATION AND BREEDING HABITAT ON RANGATIRA

Performance measures

The Chatham petrel population on Rangatira does not decline, over the term of the plan, due to human-induced threats such as the introduction of new predators or avian diseases, fire, illegal mutton-birding or the crushing of Chatham petrel burrows.

Explanation

With the total Chatham petrel population being found only on Rangatira it is essential that this population is protected from a range of threats. Preventing these threats from occurring or minimising their damage is a key requirement to protect the Chatham petrel.

Actions required

Action 1.1 Implement quarantine measures, restrict visitors and enforce the Wildlife and Reserves Acts in relation to illegal landing and mutton-birding on Rangatira

Explanation

With the total Chatham petrel population being found on only one island, it is essential that they are protected from potential threats. The arrival of

introduced predators (rodents and cats), and of alien diseases must be prevented. The risk of habitat loss or deterioration due to human disturbance, the introduction of invasive plant species, disease or fire must also be mitigated against. Quarantine measures have been in place on Rangatira for many years - new people visiting the island need to be made aware of these measures, and there should be regular audits to ensure they are being followed vigilantly. Rangatira is a nature reserve and all entry is by permit only. It is a fragile island and easily damaged by people. Current restrictions on the numbers of people visiting the island should continue. Illegal muttonbirding of sooty shearwater has occurred on Rangatira and regular surveillance of the island in March-April is required to prevent this. Prevention of illegal entry needs to be rigorously enforced.

Priority
Essential

Responsibility
Chatham Island Area Office

OBJECTIVE 2. IMPROVE CHATHAM PETREL PRODUCTIVITY ON RANGATIRA AND LOCATE ADDITIONAL CHATHAM PETREL BURROWS

Performance measures

(1) A minimum of 100 Chatham petrel breeding burrows managed annually, in line with current best practice.

(2) A minimum of 65 Chatham petrel chicks fledge each year from managed burrows.

Explanation
In early 1990s annual Chatham petrel productivity was as low as 10–20%. In recent years, management intervention resulted in a reduction in the effects of broad-billed prion on Chatham petrel nesting to less than 10%, contributing to an increased in Chatham petrel productivity to 60–80%. In some years, natural events such as climatic effects on food supplies or flooding of burrows may depress Chatham petrel productivity. There were 120 active burrows known during the 1999/2000 breeding season (H. Gummer pers. comm.). Approximately half of these burrows were located during an intensive telemetry search effort at the beginning of the 1999/2000 breeding season (Bancroft et al. 2000). Additional search efforts will be necessary to ensure that there are at least 100 breeding burrows being managed each season. Some loss of known burrows can be expected each year as Chatham petrels desert burrows due to prion and possibly management interference. New burrows must be located to compensate for this loss. The location of additional burrows is also crucial to obtaining a more accurate population estimate for Chatham petrel burrows and understanding of their distribution on Rangatira.

Actions required

Action 2.1 Reduce broad-billed prion interference at managed Chatham petrel burrows, using current best practice, to achieve performance measures

Explanation

Broad-billed prions are the immediate threat to the Chatham petrel population on Rangatira. Techniques such as blocking burrow entrances during the period when Chatham petrel are absent from Rangatira, and culling of any broad-billed prion found in Chatham petrel burrows have had partial success in protecting Chatham petrel eggs and chicks. New techniques to further reduce broad-billed prion interference are required (see Action 2.3). Until an effective long-term solution is found to reduce interference, broad-billed prions found in the entrance of Chatham petrel burrows will continue to be culled each season in line with agreed protocols. Burrow protection regimes will be reviewed annually.

Priority

Essential

Responsibility

Wellington Conservancy

Chatham Island Area Office

Action 2.2 Locate sufficient Chatham petrel burrows to ensure that a minimum of 100 breeding burrows can be managed annually

Explanation

Of the 120 active Chatham petrel burrows managed during the 1999/2000 season, 100 had eggs (H. Gummer pers. comm.). Most burrows were located by radio tracking birds caught on the ground at night. It is important to continue to conduct these searches so that the number of managed burrows is maintained at no less than 100 burrows. A minimum of 100 breeding burrows needs to be located and protected to enable the population to stablise at 500–1000 birds. Systematic searches of all areas on Rangatira also provides baseline information on the abundance and distribution of Chatham petrel and helps to explain why the Chatham petrel breeding range appears to be contracting into the Kokupu Creek area. The current method of radio-tracking tagged birds, while effective at finding burrows, is time consuming and potentially damaging to nesting habitat. Alternative methods of locating Chatham petrel burrows should also be investigated, such as using a dog trained to locate *Pterodroma* burrows.

Priority

Essential

Responsibility

Chatham Island Area Office

Wellington Conservancy

Action 2.3 Develop and trial new techniques over the next five years to reduce broad-billed prion interference with Chatham petrel burrows

Explanation

Various techniques to prevent broad-billed prions gaining access to Chatham petrel burrows have been trialled over recent breeding seasons. These include the use of automatic doors at burrow entrances, screens over entrances, placement of additional artificial burrows around the Chatham petrel burrow and use of burrow traps. Culling of prions from neighbouring burrows in a defined area around Chatham petrel burrows is also being trialled. These measures aim to reduce the risk of invasion of prions into Chatham petrel burrows. The trials have shown that the use of automatic doors shows considerable promise (Gardner 1998) and burrow entrance screens do act as a deterrent to non-occupants entering burrows (Was et al. 2000, Wilson 2000). The use of artificial burrows did not succeed in excluding broad-billed prion from Chatham petrel burrows, but culling of broad-billed prions did reduce the incidence of Chatham petrel injury from broad-billed prion attack. The use of burrow entrance screens has been further tested, using Pycroft's petrel as an analogue species and was found to have no detrimental effect on chick development (K.-J. Wilson pers. comm.). Ongoing testing and refinement of techniques will be required over several seasons to determine the most effective management regime to minimise prion interference and maximise Chatham petrel breeding success. It may also be possible to concentrate Chatham petrel activity, using seabird attraction techniques to encourage recruitment of young birds into a confined managed area.

Priority

High

Responsibility

Wellington Conservancy

Science Technology and Information Services

Chatham Island Area Office

Action 2.4 Manipulate nest contents of managed burrows as appropriate to ensure fertile eggs are being incubated

Explanation

Swapping of infertile or broken eggs with abandoned fertile eggs from other Chatham petrel pairs will be undertaken if appropriate. These measures will require few resources to implement given conservation workers are already protecting Chatham petrel burrows on a daily basis. Accurate records will be kept of actions undertaken.

Priority

Lower

Responsibility

Chatham Island Area Office

OBJECTIVE 3. MONITOR CHATHAM PETREL POPULATION DYNAMICS, DISTRIBUTION AND HABITAT USE ON RANGATIRA

Performance measures

(1) Information obtained and analysed each year from all known Chatham petrel burrows on population dynamics and breeding activity.

(2) All new Chatham petrel burrows marked in line with current best practice and distribution of burrows on Rangatira mapped each year.

Explanation

Intensive monitoring of Chatham petrel population dynamics and distribution on Rangatira is required to determine the success of various management techniques that are put into place, and whether the Chatham petrel population numbers have stabilised and productivity improved.

Actions required

Action 3.1 Monitor key population parameters at all managed Chatham petrel burrows

Explanation

Aspects to be monitored include stability of pair bonds, numbers of breeding pairs, breeding frequency of individual birds, the ratio of breeding birds to non-breeding birds, adult survivorship, juvenile survivorship, productivity and recruitment of chicks to the breeding population. Protocols for checking burrows and working within Chatham petrel breeding colonies will be implemented to avoid adverse effects on Chatham petrel. The information gathered needs to be put into a database annually and analysed every 2–3 years to detect any changes in population trends that may require changes in management.

Priority

High

Responsibility

Chatham Island Area Office

Wellington Conservancy

Action 3.2 Mark and map the location of all active Chatham petrel burrows

Explanation

By marking and mapping the location of new Chatham petrel burrows each year a pattern of distribution across Rangatira can be determined. This will assist in understanding the preferred habitat of Chatham petrel and gross changes in population size. The possible contraction of Chatham petrel breeding burrows to Kokupu Creek from widespread sites across Rangatira can be closely tracked.

Priority
High

Responsibility
Chatham Island Area Office

Action 3.3 Identify and monitor the key habitat characteristics of sites of Chatham petrel burrows

Explanation
Chatham petrels appear to favour mature forest for breeding sites. However, there may be subtle difference in the forest composition and structure that are important to Chatham petrels. Forest characteristic could influence such aspects as the suitability of the substrate for burrowing, the ability of Chatham petrel to land and take-off out to sea or the microclimate of the burrows. Changes in forest habitat on Rangatira through canopy collapse and lack of replacement trees and shrubs in the understorey may also occur. This could have a serious adverse effect on Chatham petrels. Understanding the relationship between Chatham petrel choice of burrow site and productivity in different habitat types will assist with preparing sites for new Chatham petrel breeding colonies. A three-year research study is proposed to look at this relationship (Wilson 2000).

Priority
Lower

Responsibility
Chatham Island Area Office

Lincoln University

Action 3.4 Continue to investigate the relationship between Chatham petrel and broad-billed prion

Explanation
Although there has been considerable research undertaken on the relationship between Chatham petrel and broad-billed prion, there are further unanswered questions. In particular, the question to be investigated is: What environmental factors have been detrimental to Chatham petrel and/or favoured broad-billed prion to create the imbalance in population numbers between the two species? The answer to this could include habitat changes, food availability or timing of breeding seasons. Research topics that could be investigated on this question are outlined in Wilson (2000). A good understanding of the relationship between the two species will be useful when developing management solutions to reduce prion interference with Chatham petrel burrows.

Priority
Lower

Responsibility
Wellington Conservancy

OBJECTIVE 4. DEVELOP TECHNIQUES TO ESTABLISH CHATHAM PETRELS AT NEW SITES

Performance measures

(1) Over the next three years, collect and analyse information on Chatham petrel chick feeding frequency, meal size, diet, average fledging weight and chick weight curves, the stability of Chatham petrel pairs following loss of chicks and the reaction of petrels to taped calls.

(2) Conduct trials using an analogue species to develop and document techniques to enable Chatham petrel to be established at new sites, over the next three years, subject to funding.

Explanation

Burrowing seabirds tend to return to their natal site to breed and seldom establish at new sites naturally. Before a second population of Chatham petrel can be established, information needs to be obtained regarding key aspects of Chatham petrel biology to ensure that chicks can be successfully cared for during and after transfer, and that taking chicks from Rangatira does not seriously impact on that population. Experimentation to refine transfer methodology also needs to be carried out on less rare, related species before the techniques are applied to Chatham petrel.

Actions required

Action 4.1 Research key aspects of Chatham petrel biology to facilitate the development of transfer methodology

Explanation

Information on Chatham petrel biology including chick feeding frequency, meal size, nutritional analysis of natural Chatham petrel diet, average fledging weight and average weight curve will be required to enable hand-rearing of Chatham petrel as part of a transfer. Information is also required on the stability of pair bonds following the loss of chicks, so that the impacts of chick transfers on existing pair bonds can be assessed. The harvest of chicks from the Chatham petrel population may also have an effect on population trends of the Rangatira population. Numbers of chicks that can be harvested for transfer to new sites, without harming the Rangatira population needs to be estimated. An analogue petrel species to Chatham petrel may be used to investigate the effects of chick harvest on population trends. To test whether playing taped calls of Chatham petrel will attract birds, a trial will be undertaken on Rangatira in an area that has a low density of broad-billed prion burrows. Species related to Chatham petrel can be researched to identify the cues used by birds to select mates and breeding locations. Wilson (2000) proposed various aspects that need to be investigated to ensure trouble-free translocation of Chatham petrel to new sites.

Priority
High

Responsibility
Wellington Conservancy

Science Technology and Information Services

Chatham Island Area Office

Action 4.2 Conduct trials, using Pycroft's petrel as an analogue, to develop transfer techniques for use on Chatham petrels

Explanation
Some research has been undertaken in New Zealand on establishing burrowing seabirds at new sites using techniques such as translocation of chicks near fledging, hand-rearing chicks, and using taped calls as a lure to the new site. These techniques will be further tested by conducting trials on Pycrofts' petrels, which are closely related to Chatham petrel, on Red Mercury Island. Feeding trials were conducted on Pycrofts' petrel during 2000 and a transfer of Pycroft's petrel chicks is proposed during 2001. If successful, the methodology developed during this transfer will be used for Chatham petrel.

Priority
High

Responsibility
Wellington Conservancy

Science Technology and Information Services

OBJECTIVE 5. SELECT AND PREPARE A SITE FOR ESTABLISHMENT OF A SECOND CHATHAM PETREL POPULATION IN THE CHATHAM ISLANDS AND INITIATE ATTRACTING AND/OR TRANSFERRING BIRDS TO THE SITE

Performance measures

(1) Prepare a list, within the next three years, of recommended sites for the establishment of new Chatham petrel breeding colonies in the Chatham Islands, including an assessment of the management requirements for Chatham petrel at each site.

(2) A site is selected and ready for the establishment of a Chatham petrel breeding colony and work is under way to attract or transfer Chatham petrels to the site within five years, subject to funding.

Explanation
The long-term survival of Chatham petrel will be greatly enhanced by the establishment of a second population. While the protection of the existing

population on Rangatira remains a high priority, it may be difficult to achieve a large increase in Chatham petrel numbers on Rangatira given the high number of broad-billed prions there. Establishment of further populations of Chatham petrel in the Chatham Islands is essential to reduce the risk of loss of the Rangatira population and to achieve the long-term goal of reinstating Chatham petrel to further sites within its traditional range. Potential sites for new colonies will need to be assessed and necessary management undertaken. A site with few or no broad-billed prions and with no predators would give Chatham petrels the best opportunity to establish. The presence of other burrowing seabirds is unlikely to be a problem.

Actions required

Action 5.1 Assess and select potential sites for the establishment of new Chatham petrel breeding colonies

Explanation

Criteria to select suitable Chatham petrel breeding habitat should include the likelihood of the site attracting the attention of Chatham petrels and broad-billed prions, and the ability to remove or control predators of Chatham petrel. Information on habitat features, including vegetation composition and structure, and micro-climate characteristics will also assist in the selection of potential transfer sites. The presence of other petrel species or likelihood of them being attracted to a site intended for Chatham petrel needs to be considered, but should not necessarily be the limiting factor. For instance, it has been proposed that the predator-free exclosure planned for taiko may also be used for Chatham petrel. In contrast, sites where broad-billed prions are already established, such as Mangere, may be less suitable for establishing Chatham petrels, since they will face the same threats as they face on Rangatira. Other sites suggested include the Ellen Elizabeth Preece Conservation Covenant, other Pitt Island sites, Awatotara/Tuku Valleys, Mt Chudleigh and Maunganui. Once a suitable site has been selected and prepared, and transfer methodology has been developed, it will be necessary to produce a work plan detailing the methods and proposed timeframes for establishing Chatham petrel at the selected site.

Priority

High

Responsibility

Wellington Conservancy

Chatham Island Area Office

Action 5.2 Support the current initiative to build a predator-proof exclosure near the Tuku Valley for the establishment of a secure taiko breeding colony

Explanation

Sweetwater Covenant, owned by Bruce & Liz Tuanui, has been selected as the preferred site for the construction of a predator-free exclosure and the establishment of a taiko breeding colony (Aikman 1999). This site should also be

suitable for Chatham petrel. Taiko and Chatham petrel co-existed historically and, being different sizes, should not compete for the same burrows. The proposed fence will exclude cats, pigs, weka and possums and it is proposed that rodents be controlled to zero-density within the exclosure. Rodent control will be very important for the establishment of Chatham petrel as Norway rat and possibly ship rat would pose a serious threat to them.

Priority
Moderate

Responsibility
Wellington Conservancy

Chathams Area Office

10. Review date

This plan will be reviewed after ten years, or sooner if new information leads to proposals for a significant change in direction. The plan will remain operative until a reviewed plan is in place. The date that is proposed for review of this recovery plan is **July 2011**.

11. References

Aikman, H.A. 1999: Chatham predator-proof fence update and fence design trials. Progress report to the Chatham recovery group meeting 1999. Unpublished report, Department of Conservation, Wellington.

Bancroft, F. 1999: Chatham Island petrel mid season progress report. Unpublished report, Department of Conservation, Chatham Island.

Bancroft, F. 1998a: Chatham Island petrel end of breeding season report 1997/98. Unpublished report, Department of Conservation, Wellington.

Bancroft, F. 1998b: Trial cull of broad-billed prions around selected Chatham Island petrel burrows, September 1998. Unpublished report, Department of Conservation, Wellington.

Bancroft, F.; Bell, M.; Gardner, P. 2000. Report to Chatham Island Petrel Recovery Group. Unpublished report, Department of Conservation (unpublished report).

Bell, B.D.; Nilsson, R.J. 1992: A report on a visit to South East Island. Unpublished report, Department of Conservation, Wellington.

BirdLife International. 2000: *Threatened Birds of the World: The official source for birds on the IUCN Red List.* Lynx Edicions, Barcelona, and BirdLife International, Cambridge, UK.

Department of Conservation. 1992: Chatham petrel - Rangatira 1991/92 season - preliminary report. Unpublished report, Department of Conservation, Christchurch.

Department of Conservation. 1998: Chatham Island Threatened Species Recovery Group meeting minutes, Waitangi, Chatham Islands, March 1998. Unpublished report, Department of Conservation, Wellington.

Department of Conservation. 1999: Chatham Island Threatened Species Recovery Group meeting minutes, Chatham Islands, April 1999. Unpublished report, Department of Conservation, Wellington.

Gardner, P. 1998: Electronic burrow door trials on Motunau Island 1998/99 - an alternative management technique for Chatham petrels. Unpublished report, Lincoln University, Canterbury.

Gardner, P. 1999: Aspects of the breeding biology of the Chatham petrel (*Pterodroma axillaris*). Unpublished report, Department of Conservation, Wellington.

Gardner, P.; Wilson, K-J. 1999: Chatham petrel (*Pterodroma axillaris*) studies—breeding biology and burrow blockading. *Science for Conservation 131*.

Grant, A.D. 1988: Chatham Island Petrel (ranguru) position paper. Unpublished report, Department of Conservation, Christchurch.

IUCN Species Survival Commission. 1994: *IUCN Red List Categories*. IUCN, Gland, Switzerland.

Kennedy, E.S. 1993: Chatham petrel management strategy. Unpublished report, Department of Conservation, Christchurch.

Kennedy, E.S. 1994a: Chatham Island petrel recovery plan 1994–1998. Unpublished report, Department of Conservation, Christchurch.

Kennedy, E.S. 1994b: Interim report to the Chatham petrel recovery group on Chatham Island petrel management in the 1993/94 season. Unpublished report, Department of Conservation, Christchurch.

Kennedy, E.S.; Taylor, G.A. 1993: The 1991/92 survey of Chatham petrel *Pterodroma axillaris* Distribution and breeding on Rangatira, Chatham Islands. Unpublished report, Department of Conservation, Christchurch.

Marchant, S.; Higgins, P.J. (eds) 1990: *Handbook of Australian, New Zealand & Antarctic birds. Vol. 1: Ratites to ducks*. Oxford University Press, Melbourne.

Molloy, J.; Davis, A. 1994: *Setting priorities for the conservation of New Zealand's threatened plants and animals*. (2nd edn) Department of Conservation, Wellington.

Nilsson, R.; Kennedy, E; West, G. 1994: Birdlife of South East Island (Rangatira), Chatham Islands, New Zealand. *Notornis 41 (supplement)*: 109–126.

Taylor, G.A. 1991: Report on the Chatham Island taiko and Chatham Island petrel recovery programmes (1990/91). *Threatened species occasional publication 2*. Department of Conservation, Wellington.

Taylor, G.A. 1992: Interactions between Chatham petrels and broad-billed prions on Rangatira Island, 1990/91. Unpublished report, Department of Conservation, Christchurch.

Taylor, G.A. 1995: Chatham Island trip report (18 January–16 February 1995). Unpublished report, Department of Conservation, Wellington.

Taylor, G.A. 1998: Chatham Island trip report: 14 January–14 February 1998. Unpublished report, Department of Conservation, Wellington.

Taylor, G.A. 1999: Chatham Island trip report 4–9 October 1998. Unpublished report, Department of Conservation, Wellington.

Taylor, G.A. 2000: Action plan for seabird conservation in New Zealand. Part A: Threatened seabirds. *Threatened species occasional publication 16*. Department of Conservation, Wellington.

Tennyson, A.J.D.; Millener, P.R. 1994: Bird extinctions and fossil bones from Mangere Island, Chatham Islands. *Notornis 41 (supplement)*: 165–178.

Was, N.; Wilson, K-J. 1998: Burrow occupancy of broad-billed prions on South East Island. Unpublished report, Department of Conservation, Wellington.

Was, N.W.; Sullivan, W.J.; Wilson, K.-J. 2000: Burrow competition between broad-billed prions (*Pachyptila vittata*) and the endangered Chatham petrel (*Pterodroma axillaris*). *Science for Conservation 167*.

West, J.A. 1989: Chatham Island petrel survey. Unpublished report, Department of Conservation, Christchurch.

West, J.A. 1990: Chatham Island petrel survey, South East Island 5–26 January 1990. Unpublished report, Department of Conservation, Christchurch.

West, J.A.; Nilsson, R.J. 1994: Habitat use and burrow densities of burrow-nesting seabirds on South East Island, Chatham Islands, New Zealand. *Notornis 41 (supplement)*: 27–40.

Wilson, K-J. 2000: Trial of burrow flaps to protect petrel chicks. *Conservation Advisory Science Notes 313*.