Chatham Island oystercatcher recovery plan

2001–2011

THREATENED SPECIES RECOVERY PLAN 38

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Cover: Chatham Island oystercatcher. (*Alan Wright*)

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 Island oystercatcher, and with an interest in its conservation has been established. The purpose of the Chatham Island Oystercatcher 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 Island oystercatcher are welcome and should be directed to the recovery group via the Wellington Conservancy office of the Department.

1. Introduction

The Chatham Island oystercatcher *Haematopus chathamensis* is the rarest oystercatcher species in the world. It is endemic to the Chatham Islands, and lives on the rocky coastlines and sandy beaches there.

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

This plan sets out the recovery programme for CI oystercatcher over the next ten years (2001–2011). It is preceded by a draft recovery plan (Davis 1989a), and a revised draft recovery plan covering the period 1994 to 1998 (Grant 1993). CI oystercatcher conservation needs were also covered in a management strategy prepared for Chatham Island threatened species (Grant 1991).

2. Past/present distribution and population numbers

The historic distribution, including the distribution of CI oystercatchers during the period 1970 to 1989 has been documented by Baker (1973), Best (1987), Davis (1988, 1989b), and Schmechel & O'Connor (1999). CI oystercatchers were present in many of the coastal areas of Rangatira, Mangere, Pitt, and Chatham Islands, with a pair being observed during the 1970s on the Star Keys (B. Bell pers. comm.). S. Sawyer (pers. comm.) has observed them more recently on the Star Keys and Murumurus. Best (1987), Davis (1988, 1989b), and Page (1992) recorded the distribution of CI oystercatcher in the late 1980s to early 1990s, and a thorough account of the oystercatcher's current distribution in more recent times is available in Schmechel (1999). Figure 1 shows the distribution of CI oystercatcher recorded during the comprehensive census conducted in December 1998.

Population surveys of CI oystercatchers carried out between 1986 and 1996 have estimated numbers of oystercatchers to be between 65 and 120 adults, including 30–45 breeding pairs (Best 1987; Davis 1988, 1989b; Page 1992; Sawyer 1993, 1994; F. Schmechel pers. comm.). The 1998 survey recorded 142 adult CI oystercatchers, including 34 confirmed breeding pairs (and seven additional suspected breeding pairs). This is 20 to 40 more individual adults than has ever been counted or estimated previously (Schmechel 1999). Best (1987) and Davis (1988) proposed that there had been a decline in CI oystercatcher numbers from the 1970s to the 1980s, based on the loss of oystercatchers from various locations on Chatham Island, and the observed loss of breeding pairs on Rangatira during this period. However, it is debatable whether CI oystercatcher numbers continued to decline until the mid 1990s

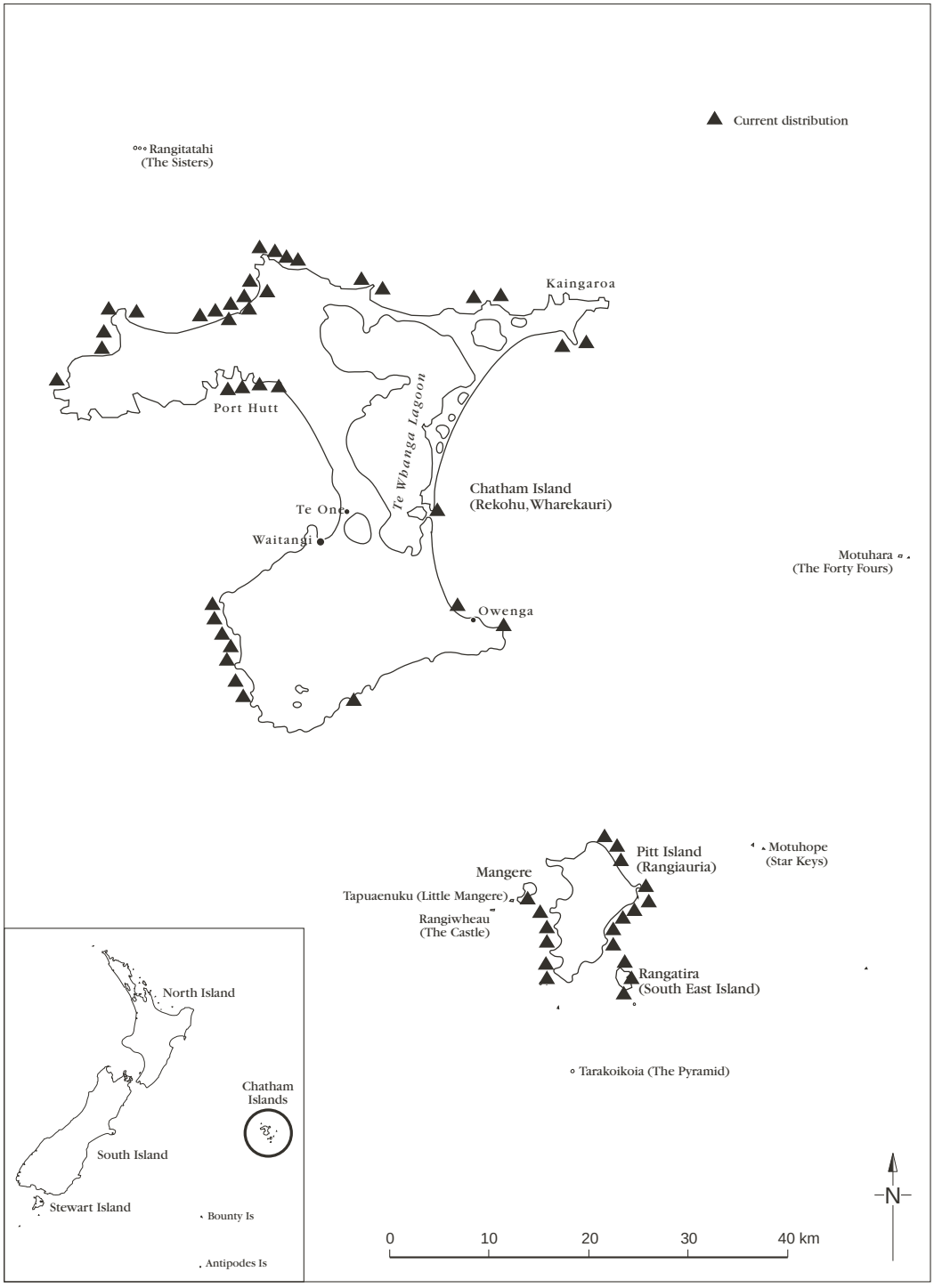

Figure 1. Distribution of CI oystercatcher in 1998 (after Schmechel 1999).

when there was a noticeable increase in CI oystercatcher pairs breeding in northern Chatham Island, or whether, in fact, their population had remained stable in numbers until this time (Schmechel & O'Connor 1999). Differences in survey methods used in the last twelve years make it difficult to determine whether the increase in numbers was the result of actual changes in the population or differing survey techniques.

A comparison of the number of adult oystercatchers recorded in areas that have been counted most consistently since 1987 indicates a doubling in numbers on northern Chatham Island (and expansion to peripheral areas), an increase on Pitt Island, and decrease on southern Chatham Island and Rangatira. The 1998 census recorded around 66% of birds on Chatham Island, 24% on Pitt Island, and 10% on Rangatira and Mangere Islands. These figures highlight the importance of Chatham Island for CI oystercatchers. At least 58% of oystercatchers recorded during the census were members of breeding pairs (confirmed or suspected territorial pairs), although this is likely to be an underestimate, as many birds were of unknown status. While the 1998 census recorded 34–41 oystercatcher pairs (Schmechel & O'Connor 1999), more intensive monitoring over the 1999/2000 season indicated that the total breeding population was in excess of 50 pairs (Moore et al. 2000).

3. Cause of decline and present-day threats

Five factors appear to be threatening the CI oystercatcher population and have led to its endangered status (Davis 1988; Grant 1993; F. Schmechel pers. comm.).

3.1 PREDATION

Cats, rats, hedgehogs, pigs, weka, black backed gulls, harriers, and possums are potential predators of CI oystercatcher eggs and young chicks, with cats also possibly preying on adults. Video work in 1999/2000 in the north of the Chathams recorded three predation events on film (2 cat, 1 weka) and several close calls of predators sniffing or handling eggs, or nearly trampling nests (cat, weka, harrier, possum, sheep, cattle, human) (Moore et al. 2000). In addition, predation by skuas takes place on Rangatira, Mangere, and Pitt Island during the breeding season, and predation by gulls has been observed on Rangatira (A. Davis pers. comm.). Spur-wing plover were suspected of preying on a clutch of CI oystercatcher eggs on Chatham Island (F. Schmechel pers.comm.).

3.2 HABITAT MODIFICATION

Changes in coastal vegetation appear to have had an adverse effect on oystercatcher breeding in northern locations on Chatham Island. In sites where marram (*Ammophila arenaria*) has established, the beach profile has become steeper and the dune face has moved closer to the high water mark than occurs where dunes are covered in native dune vegetation. CI oystercatchers prefer to nest in more open areas, and the establishment of marram appears to have forced the oystercatchers to nest further down the beach where the likelihood of losing nests to spring tides or storm surges is greatly increased. Marram also creates a relatively dense vegetation cover that can conceal predators approaching the oystercatcher nests.

3.3 NATURAL DISASTERS

CI oystercatcher nests are vulnerable to spring tides and storm surges. Losses from natural events become significant when combined with nest losses from human-induced causes. Inundation of nests was the most significant cause of nest loss among CI oystercatchers breeding on northern Chatham Islands during the 1994–97 breeding seasons (Schmechel 1998) and in 1998/99 (Bell 1999, O'Connor 1999). These losses are probably linked to habitat modifications where the dense marram growth appear to have forced the oystercatchers to nest further down the beach than they would otherwise.

3.4 DISTURBANCE

CI oystercatchers are sensitive to disturbance during nesting. When nesting birds are disturbed by people or farm stock, the eggs and chicks are vulnerable to predators, or the eggs or chicks can die from chilling or overheating. Dogs also disturb CI oystercatchers and could prey on adult birds as well as eggs and chicks.

3.5 VEHICLES AND TRAMPLING BY STOCK

Domestic sheep and cattle regularly use the beaches in northern Chatham Island, and have been implicated in the death of at least one chick by trampling. Vehicles, especially quads may also run over CI oystercatcher nests.

4. Species ecology and biology

The CI oystercatcher is recognised as a separate species of oystercatcher (Turbott 1990). It is most similar in appearance to the pied phase of the variable oystercatcher, being a fairly large oystercatcher. There is sexual dimorphism in body and bill size, with females having a longer thinner bill and being slightly larger in body size. These features are distinguishable when a pair is seen together in the field.

The breeding biology of CI oystercatcher is similar to that of other oystercatcher species (Davis 1988). It forms monogamous long-term pair bonds, is strongly territorial during the breeding season, and many pairs remain in their breeding territories year round. However, some oystercatchers move to other areas at the completion of breeding each year and will form small flocks. Some pairs build bulky nests, while other pairs have a simple scrape in the sand or soil. They lay two or three eggs and the sexes share incubation and chick-rearing. Some fledglings remain in their natal territory for many months after fledging.

CI oystercatcher diet consists primarily of a range of common shore platform macroinvertebrates, including limpets, paua, chitons, whelks, crustacea, and worms.

CI oystercatcher habitat in the southern part of its range (Rangatira, Mangere and Pitt Islands) and in southern Chatham Island is dominated by rocky habitats with extensive rocky platforms. Habitat in the northern part of the CI oystercatcher range is a mix of extensive sandy beaches and rock platforms. Low dunes behind the beaches are common in the northern locations, while high rock cliffs are a more common backdrop to the southern locations. Best (1987) and Davis (1988) recorded that during the 1980s CI oystercatchers mainly used volcanic rock platforms, sandy beaches associated with rock platforms, and/or stream mouths rather than other types of coastal habitat. However, at times when the population was supposedly larger than this, CI oystercatcher had also occupied schist and sedimentary shore platform areas (Baker 1973). This led to the conclusion by Davis (1988) that CI oystercatcher optimal habitat appeared to be volcanic rock shore platforms, and the extent of this habitat type could be a limiting factor for the carrying capacity of the population. More recent work by F. Schmechel (pers.comm.) recorded CI oystercatchers making exclusive use of sandy beach habitats for breeding territories. Pairs only using sandy beaches were recorded to have higher productivity than pairs using other habitat types for breeding. The 1998 census found that CI oystercatchers selected intertidal rocky habitats (79% use; 40% availability). The use of sandy beaches was similar to the availability of this habitat type (21% use; 25% availability).

Small numbers of pied oystercatchers (*H. finschi*) may occasionally visit the Chatham Islands, but have not been recorded interacting with CI oystercatchers. Reported sightings of pied oystercatchers in the Chatham Islands have been in paddocks or lagoon habitats. These habitats are only occasionally used by CI oystercatchers, mostly by non-breeding or juvenile birds.

Information on CI oystercatcher population dynamics is documented by Davis (1988), and will be available shortly in thesis form from a three-year research project undertaken by F. Schmechel (pers.comm.). These studies show that CI oystercatcher productivity is low, with low hatching success compared to fledging success. From 1994/95 to 1997/98, CI oystercatchers in northern Chatham Island had a hatching success averaging 30% for clutches (a clutch was defined successful if at least one egg hatched), although hatching success varied considerably from year to year. The same study recorded fledging success averaging 66% (a successful fledging was where at least one chick survived to fly; Schmechel 1998). This compares with the pied oystercatcher, where the breeding success on farmland for the period 1988–96 was 29.2% (ratio of number of eggs laid to number of young fledged; Sagar & Geddes unpublished data). Hatching success for pied oystercatchers (ratio of number of eggs laid to number of chicks hatched) was 49.2%, and 59.4% of these chicks survived to fledge. The northern Chatham Island sub-population seems to have the greatest potential to achieve high productivity (in the absence of predators and with improved habitat conditions).

CI oystercatchers begin breeding from three years of age (Davis 1988), unlike pied oystercatchers, which begin breeding when 4–6 years old (Sagar & Geddes unpublished data). Adult CI oystercatchers living on Rangatira and Mangere Islands have an estimated 90% per annum survivorship, which compares favourably with the pied oystercatcher annual rate of 88% (Sagar & Geddes unpublished data). The survivorship of adult CI oystercatchers from Chatham or Pitt Island is unknown. Recoveries of colour-banded CI oystercatchers on Rangatira, Mangere, and Pitt Islands has shown that CI oystercatchers are long-lived birds (Davis 1989b).

5. Past conservation efforts

Apart from research by Baker (1973) on the taxonomy of CI oystercatcher, which also revealed some information on the species distribution, this species received very little attention until the work of Best (1987) and Davis (1988, 1989b). These studies provided valuable information on the CI oystercatcher, and brought the species' plight to the attention of conservation managers. Following the first draft recovery plan recommendations (Davis 1989b), various management techniques were implemented for the northern population during the 1991/92, and 1992/93 breeding seasons in an attempt to increase CI oystercatcher productivity. The main techniques used were artificial incubation, fencing-out of stock, predator control, and movement of nests to secure sites (Sawyer 1993, 1994). Their effect in improving CI oystercatcher productivity was patchy, and possibly did not increase productivity beyond what would have happened with no management intervention (F. Schmechel pers.comm.). Intensive control of predators and protection of 16 CI oystercatcher nests in parts of northern Chatham Island was undertaken in the 1997/98 and 1998/99 breeding seasons (Bell 1998, Bell 1999, O'Connor 1999).

Conservation efforts in 1998/99 achieved a significant increase in productivity (1.125 chicks/pair compared with 0.1 chicks/pair among ten further CI oystercatcher pairs that were not managed). In 1999/2000, 25 chicks were produced from 16 pairs in managed areas (1.6 chicks/pair) and none from 9 pairs in unmanaged areas in northern Chatham island (Moore et al. 2000).

Page (1992) undertook a population census on Chatham Island in 1991, and sporadic monitoring of CI oystercatcher occurred on Rangatira and Mangere during the early to mid 1990s. However, it was not until December 1998 that a comprehensive census of most of the coastal areas of the Chatham Islands was carried out (Schmechel & O'Connor 1999).

F. Schmechel (pers. comm.) completed research on CI oystercatcher breeding biology and habitat use in 1998. This research focused on the CI oystercatcher population on northern Chatham Island.

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 2010, which is when this plan expires.

LONG-TERM GOAL

To restore the natural ecology of the Chatham Islands' coastal area so that the CI oystercatcher population requires minimal management to maintain an overall population of at least 250 individuals.

TEN-YEAR GOAL

To improve CI oystercatcher productivity and adult survivorship so as to facilitate an increase in their total population to reach a minimum of 250 individuals.

THIS WILL CHANGE THE IUCN CONSERVATION RANKING OF CHATHAM ISLAND OYSTERCATCHER FROM ENDANGERED TO VULNERABLE.

7. Options for recovery

7.1 OPTION 1

Do nothing

This option is not recommended. If there were no further recovery efforts for CI oystercatcher there is a risk that the CI oystercatcher population would decline. While oystercatchers could persist at very low numbers for many years, the species would be extremely vulnerable to extinction. Also, the opportunities for the species recovery would become more limited.

7.2 OPTION 2 (PREFERRED OPTION)

Manage the CI oystercatcher population within the Chatham Islands to increase the total population size, both in terms of numbers of breeding pairs and the non-breeding pool of birds

This is the preferred option for recovery. An increase in the population numbers of CI oystercatcher would improve the species conservation status from endangered to vulnerable. This increase in numbers should be spread over the various sub-populations in the Chatham Islands. It is also important that the total number of breeding pairs in established territories is maintained or increased, and that there are sufficient non-breeding birds ('floaters') to replace lost breeding birds. This option requires protection of breeding CI oystercatcher, their nests and chicks on Chatham and Pitt Islands from potential predators, trampling by stock, and flooding of nests from the sea. Improving habitat quality for breeding pairs through such actions appears to be the best strategy to increase the CI oystercatcher population since population modelling by F. Schmechel (pers. comm.) indicates that, in the absence of 'good' breeding territories into which pairs can recruit and successfully raise offspring, productivity must be raised much higher to achieve population increases.

7.3 OPTION 3

Establish CI oystercatcher populations in captivity

This option is not recommended. Captive management is not considered necessary for CI oystercatcher at this stage. Pied oystercatchers have been held in captivity in New Zealand, but no breeding occurred. This option should only be considered if a major disaster threatens the species at a number of locations within the Chathams group.

8. Objectives for term of plan

The objectives for CI oystercatcher recovery for the term of this plan are:

1. Increase CI oystercatcher productivity, and improve or maintain adult survivorship on Pitt and Chatham Islands.
2. Investigate CI oystercatcher population dynamics and monitor population trends.
3. Restore selected areas of dune habitat for CI oystercatcher.
4. Protect CI oystercatcher habitat on Rangatira and Mangere Islands.

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. INCREASE CI OYSTERCATCHER PRODUCTIVITY, AND IMPROVE OR MAINTAIN ADULT SURVIVORSHIP ON PITT AND CHATHAM ISLANDS

Performance measures

(1) CI oystercatcher productivity improved to an average of at least 1.0 chicks/pair/annum for a minimum of 16 managed pairs over the term of the plan (number of pairs targeted may be revised if research suggests this level is likely to be insufficient to ensure ten-year goal is met).

(2) Cat numbers are reduced in managed areas, over the term of the plan, to a level where predation of adult birds does not threaten CI oystercatcher recovery (target level of adult survival required is to be determined using information gained during current research).

Explanation

The key threats to CI oystercatchers are predators, disturbance from dogs, stock and people, and marram invasion, which increases flooding from the sea. Protecting nests, and thus increasing hatching success, is the highest priority because all threats impinge on this stage of breeding. Hatching and fledging success is very low in unmanaged areas, and at the chick stage, the main threat is likely to be predators, hence predator control is necessary throughout the breeding season to maximise productivity. Manipulation of nests and eggs will also be undertaken if required to increase productivity. During the 1999/2000 season, 16 breeding pairs were activity managed to improve productivity and adult survival. The current research programme, being implemented in

conjunction with management, should provide important information to assist with setting realistic targets for productivity and adult survival that will ensure the ten -year goal of this plan can be met.

Actions required

Action 1.1 Control cats and weka at selected CI oystercatcher breeding areas using current best practice

Explanation

Cats are believed to be key predators of CI oystercatcher. The removal of high numbers of cats from a site in northern Chatham Island during the 1998/99 season is likely to have been the key reason why CI oystercatcher achieved such a high productivity rate, although storms characteristic of this coastline were less severe that year. The results of the research on predation events at CI oystercatcher nests will direct the extent to which cat control should be implemented in the future. Weka have been detected preying on CI oystercatcher eggs. Weka control has been undertaken in parts of the northern Chatham Island oystercatcher breeding area, and needs to continue. A fence to deter weka and possum movement onto the beach has been installed to protect CI oystercatcher breeding areas at Tioriori. This fence may also deter movement of hedgehogs. Ongoing national developments, such as the development of cat baits and options for predator-proof fencing in coastal areas, should be tracked and integrated into the programme as they gain acceptance as best practice.

Priority

Essential

Responsibility

Chatham Island Area Office

Action 1.2 Minimise destruction of nests and disturbance of breeding CI oystercatcher from domestic stock, dogs and people in managed areas

Explanation

Signs are in place to warn people of the threat they pose by motorbiking, walking, or letting dogs roam about breeding CI oystercatcher territories. Key breeding areas in the northern Chatham Island have been fenced to keep stock out, and a regular maintenance programme is required to keep stock from entering CI oystercatcher breeding areas through damaged fences. Trampling by stock is an important cause of egg (and possibly chick) loss among CI oystercatcher breeding in northern Chatham Islands, and probably parts of southern Chatham Island. Other oystercatcher breeding areas on Chatham and Pitt Islands should be considered for fencing. Education of the community about the oystercatcher's plight and its management programme should continue to increase peoples' awareness of the threats to breeding oystercatchers.

Priority

Essential

Responsibility
Chatham Island Area Office

Action 1.3 Monitor breeding activity of all CI oystercatcher pairs in managed areas

Explanation
Monitoring of all breeding activity in managed areas is required each breeding season to determine productivity and adult survival to see if management actions are being effective in protecting oystercatchers. Monitoring will also enable managers to target intervention such as erecting portable fences for stock exclusion and shifting nests to higher ground. Current best practice will be followed to ensure consistency of data collection and record keeping for all oystercatcher monitoring and predator control work, between different observers and years.

Priority
Essential

Responsibility
Chatham Island Area Office

Science & Research Unit

Action 1.4 Protect CI oystercatcher nests from high seas and manipulate eggs to improve hatching success in managed areas

Explanation
A technique used to enhance productivity among CI oystercatcher in northern Chatham Island has been to gradually move whole nests to safer locations where storm tides are less likely to wash them away. Car tyres are used to provide elevated nesting sites for the oystercatchers and these can then be dragged higher up the beach. When nests are moved, records will be made for analysis to determine if there is a subsequent turnover of adult birds in association with nest failure at that location. This may show whether moving nests closer to dune vegetation increases the risk of adults being preyed on. The research programme that began in 1999/2000 will investigate this technique, comparing its effectiveness with that of undertaking predator control. In addition to moving nests, when a large storm is predicted, attempts may be made to salvage eggs considered to be at high risk by removing the eggs for artificial incubation, replacing with dummy eggs and then returning them to the nest once the storm is over. Protocols are required to provide criteria for the movement of nests and salvage of eggs. Additional information on CI oystercatcher egg biology, including sensitivity to chilling and over-heating, laying intervals and egg weight loss needs to be documented for CI oystercatcher to improve artificial incubation techniques. These should be collected in conjunction with the current research programme. Other egg manipulation, such as fostering salvaged eggs if the nest was destroyed and the pair did not resume incubation, using other pairs that have lost or have infertile eggs, can also be considered to boost productivity.

Priority
High

Responsibility
Chatham Island Area Office

Action 1.5 Assess and refine current management techniques to protect CI oystercatchers in managed areas

Explanation
The success of earlier management on CI oystercatcher in northern Chatham Island has been variable, and further work is required to determine which suite of techniques is the most effective at protecting CI oystercatchers and increasing their productivity and survival rates. A research project investigating the effectiveness of different nest protection regimes commenced in the 1999/2000 season. Video surveillance of nests and territories will be used in this research. This should allow managers to target the main causes of breeding failure. It is important that this research covers CI oystercatchers in southern areas as well as northern areas of their range, as the causes of breeding failure may differ in the presence of different predator suites and habitat types.

Priority
High

Responsibility
Chatham Island Area Office

Science & Research Unit

Action 1.6 Expand cat and weka control to other CI oystercatcher breeding areas on Chatham Island and on Pitt Island

Explanation
Although there is a concentration of CI oystercatcher breeding in the northern Chatham Island, in 1998/99 at least 18 pairs attempted to breed around southern Chatham and on Pitt Island. Protection of nests, chicks and adult birds from predators in these areas will be necessary to bring about the recommended increase in total population numbers. It may also be important that genetic diversity in the population is maximised by ensuring birds on Pitt Island and southern Chatham Island have opportunities to successfully produce offspring and that these are recruited into the population. The extent to which cat and weka control is undertaken in these areas will depend on the results of research testing the effectiveness of various management methods on oystercatcher breeding success. The area between Points Durham and Gap on the southern coast of Chatham Island has a concentration of breeding CI oystercatcher, and may be an effective area to protect. This is now an urgent priority as the number of pairs between these Points has dropped from a potential of six in 1998/99 to three known pairs in 1999/2000.

Priority
Moderate

Responsibility
Chatham Island Area Office

Action 1.7 Promote the eradication of cats and weka from Pitt Island

Explanation
Opinions are polarised on the option of eradication of cats and weka from Pitt Island. This would be the best long-term solution for the oystercatchers on Pitt, providing a significant area of habitat free from one of the major threats that oystercatchers currently face. Pitt Island appears to be a significant gathering site for oystercatchers (including breeding birds) in the off season, including birds from Chatham, Rangatira, and Mangere. A group of 19 birds was seen at Tupuangi Lagoon, and groups of up to 14 birds were seen along the North Head coast in June 2000 (S. O'Connor, pers. comm.). Eradication of either predator could only be undertaken with the full support of the Pitt Island community. Because there are differing views, it is important that the issue be kept on the table for ongoing debate. Meetings of the Chatham Island Conservation Board and the Pitt Island Reserves Committee would be the most suitable venues for discussion of this issue.

Priority
Moderate

Responsibility
Chatham Island Area Office

OBJECTIVE 2. MONITOR CI OYSTERCATCHER POPULATION TRENDS AND INVESTIGATE ASPECTS OF THEIR POPULATION DYNAMICS

Performance measures

(1) A complete census, throughout the CI oystercatcher range, conducted in 2003 and 2008, using methodology outlined in Schmechel (1999).

(2) Annual surveys conducted of core CI oystercatcher breeding territories, using areas and methodology outlined in Schmechel (1999).

(3) Detailed knowledge of CI oystercatcher adult survival, productivity, chick recruitment, and dispersal gained by 2005.

Explanation
The success of the management actions to improve habitat and control predators of CI oystercatcher can only be reliably assessed by monitoring trends within the oystercatcher population. It will be important to have a measure of the number of breeding territories and their productivity in order to assess success in meeting the recovery goals. A five-yearly census of the total population will be conducted to provide information on complete population numbers and distribution, while annual monitoring of a subset of the population will assist in determining aspects such as annual productivity and

territory occupation rate. A research project initiated in 1999/2000 and due to be completed in 2005 will provide detailed information on a number of key aspects of CI oystercatcher population dynamics.

Action 2.1 Undertake complete population census every five years

Explanation

A complete census of the CI oystercatcher population in the entire Chatham Island group is required on a five-yearly basis to determine trends in the overall population. The most recent survey was completed in December 1998, and should be repeated again in 2003 and 2008. The census needs to cover all accessible areas of coastline of the Chatham group, including locations where oystercatcher have not been found previously, as an increase in population numbers may mean new habitat areas are occupied. A protocol for conducting a census has been developed by Schmechel (1999) and should be followed for future censuses. The protocol covers the timing of the census, training of census participants, ways to access various sections of the Chatham coast, the time period to allow for the census, information to be recorded and standard forms to be completed by census participants.

Priority

Essential

Responsibility

Chatham Island Area Office

Action 2.2 Undertake survey of core CI oystercatcher territories each December

Explanation

Survey of breeding pairs and their productivity has in the past been sporadic. Annual surveys are required in key CI oystercatcher breeding areas, including Rangatira, Mangere, and Pitt Islands, the northern beaches on Chatham Island and a portion of accessible coastline on the south coast of Chatham Island. This is needed to monitor CI oystercatcher population and breeding trends. Information on habitat use, numbers of breeding pairs, non-territorial birds (referred to as 'floaters'), productivity and adult survivorship, including stability of the pair bond and territory occupation, can be obtained during these surveys, especially if combined with colour-banding. It would not be necessary to monitor all territories, but it is recommended that a mix of preferred or consistently used territories, and 'transient' territories are regularly monitored (Schmechel 1999). Monitoring information could be used to determine the success of the various management measures. Schmechel (1999) proposed a protocol for undertaking these partial surveys (including listing key areas to survey, the times of year to survey these areas, and the information to be collected). This protocol should be followed to ensure surveys are undertaken on a regular basis and that there is consistency of data collection between different observers and years.

Priority

High

Responsibility
Chatham Island Area Office

Action 2.3 Implement current research project on CI oystercatcher population dynamics, particularly adult survival, chick recruitment and dispersal, by 2005

Explanation
Information is required on survivorship of juveniles, breeding and non-breeding adults, survival and turnover of adult breeding pairs, age of first recruitment into the breeding population, age structure of the population, and the ratio of breeding birds to non-breeding birds. The rate of occupancy of breeding territories, dispersal of juveniles and movement of oystercatchers between the islands in the Chatham group also needs investigating. To obtain this level of population information, CI oystercatchers will need to be individually marked. A banding protocol is required to ensure that problems experiences in the past, with colour marking harming CI oystercatchers, are avoided. The protocol should include the necessity to remove all colour bands once research or monitoring no longer requires birds to be individually marked. Population modelling and sensitivity analysis to assess how sensitive the population is to potential losses of breeding birds is required.

Priority
High

Responsibility
Chatham Island Area Office

Action 2.4 Undertake a study of oystercatcher productivity patterns in different habitat types within the term of this plan

Explanation
Differences in productivity among CI oystercatchers between varying habitat types require analysis. Habitat restoration may be a key component to the long-term recovery of CI oystercatchers, and it will be important to understand the dynamics of habitat quality in determining where and how to manage this. Information on productivity, including time to fledging (which is an indication of habitat quality), occupancy of breeding sites over time, and recruitment will give clues to the dynamics of habitat and productivity interactions among CI oystercatchers. Monitoring nests using video surveillance will assist in understanding the primary causes of low productivity. This will be covered by the current research project.

Priority
High

Responsibility
Chatham Island Area Office

Action 2.5 Determine level of genetic variation between sub-populations of CI oystercatcher

Explanation

The degree of genetic diversity and mixing among the CI oystercatcher sub populations requires investigation. Information of genetic variation, together with an understanding of dispersal and recruitment patterns will determine whether current management is sufficient to maintain the viability of the whole population, or whether particular sub-populations will require additional management.

Priority

Moderate

Responsibility

Chatham Island Area Office

OBJECTIVE 3. RESTORE SELECTED AREAS OF DUNE HABITAT FOR CI OYSTERCATCHER

Performance measures

Determine methodology and identify sites for dune restoration to improve CI oystercatcher productivity on Chatham and Pitt Islands within the term of this plan.

Explanation

The combined CI oystercatcher population is unlikely to increase substantially in numbers beyond its current level of 142 birds unless their habitat continues to be improved on Chatham and Pitt Islands. In many areas the establishment of marram has caused a deterioration in the quality of CI oystercatcher breeding habitat. Marram growth causes the beach profile to steepen, which forces oystercatchers to nest further down the beach where the likelihood of losing nests to high tides or storm surges is greatly increased. Marram also creates a relatively dense vegetation which conceals predators approaching oystercatcher nests. Restoration of natural dune profiles and native vegetation would improve oystercatcher productivity.

Actions required

Action 3.1 Select site(s) and conduct trial to restore natural dune profile and vegetation in northern Chatham Island

Explanation

Restoring dune systems on Chatham and Pitt Islands should improve CI oystercatcher productivity. A trial will be conducted to test feasibility and develop methodology for restoring a dune area. A critical component will be managing the potential problem of removal of vegetation possibly causing 'sand blows' that might destroy fences and allow stock access. This trial will facilitate the selection of sites and development of methodology for future dune restoration

in the Chatham Islands. A longer-term solution to enable larger scale dune restoration could include setting up a Chatham Beachcare group.

Priority
High

Responsibility
Chatham Island Area Office

Science & Research Unit

OBJECTIVE 4. PROTECT CI OYSTERCATCHER HABITAT ON RANGATIRA AND MANGERE ISLANDS

Performance measures

Numbers of CI oystercatcher breeding pairs on Rangatira or Mangere continue to be maintained at current levels, and productivity is stable or increasing over the term of the plan.

Explanation
Rangatira and Mangere are free of mammalian predators, weka, domestic stock and dogs, and are relatively undisturbed by people. The long-term future of CI oystercatcher is made more secure by maintaining populations on these Nature Reserves, which are free of introduced predators. Monitoring of population numbers on Rangatira over the last two decades has shown that the CI oystercatcher population has declined in numbers, although the cause of this decline is not apparent. Disturbance from people could be a contributing factor. Visits to coastal areas on these two islands should be restricted to essential work only.

Actions required

Action 4.1 Implement quarantine measures and restrict visitors to Rangatira and Mangere

Explanation
The introduction of predators, especially rodents and cats, and alien diseases to Rangatira and Mangere must be prevented to provide CI oystercatcher with secure breeding habitat, relatively free of disturbance. The risk of habitat loss or deterioration due to human disturbance, the introduction of invasive plant species or disease, or fire must also be mitigated against. Quarantine measures have been in place on Rangatira and Mangere 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 and Mangere are Nature Reserves and all entry is by permit only. They are fragile islands and easily damaged by people. People can disturb oystercatchers, causing the birds to leave their nests and chicks, which then become vulnerable to predation by skuas and gulls. Currently, numbers permitted entry are restricted and this needs to continue. Prevention of illegal entry needs to be rigorously enforced.

Priority
High

Responsibility
Chatham Island 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**.

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