Parea recovery plan

2001–2011

THREATENED SPECIES RECOVERY PLAN 39

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Cover: Parea (Chatham Island pigeon). (*Ian Flux*)

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

1. Introduction

The parea (Chatham Island pigeon) *Hemiphaga novaeseelandiae chathamensis* is usually recognised as a subspecies of the New Zealand pigeon *H. novaeseelandiae.* However, based on its markedly distinctive size, appearance, and bone structure, and its confinement to the Chatham Islands, parea may in future be regarded as a separate species (Millener & Powlesland in prep).

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

This plan sets out the recovery programme for parea over the next ten years (2001–2011). It is preceded by the first parea recovery plan, which set out its recovery actions from 1994 to 2000 (Grant 1993).

2. Past/present distribution and population numbers

Parea were formerly widespread and common on Rangatira, Mangere, Chatham, and Pitt Islands. Subfossil bones of parea have been found more frequently than bones of any other forest bird in dune deposits on Chatham Island (Atkinson & Millener 1991). The colonisation of the Chatham Islands by Europeans in the early 1800s saw large-scale clearance of forest and the introduction of browsing animals and mammalian predators. This caused a rapid decline in parea numbers. By 1938, few parea were seen in northern Chatham Island, but they were moderately plentiful in the more extensive areas of forest in the south (Fleming 1939). Parea were last sighted in the northern Chatham Island forests in 1975, although there are several recent records (see below). The population on Mangere disappeared very early as a result of virtually total removal of forest habitat and the introduction of cats in 1890 (Nilsson et al. 1994). Parea are thought to have disappeared from Rangatira last century, probably due to hunting and habitat destruction (Merton & Bell 1975). The time of parea population decline from Pitt Island is less clear, but Pitt Islanders recall that the population crashed following a large forest fire. Currently, about five parea are thought to be present on Pitt Island (S. King pers. comm.) and two on Rangatira (M. Bell pers. comm.)

The parea population on Chatham Island continued its gradual decline to its lowest level of about 40 birds in 1990, when they were confined to southern forest remnants (Grant 1993). Intensive habitat protection and predator control from 1987 to 1994 in the forests of southern Chatham Island led to an increase in numbers to about 150 birds by 1995 (Powlesland et al. 1995). Parea have

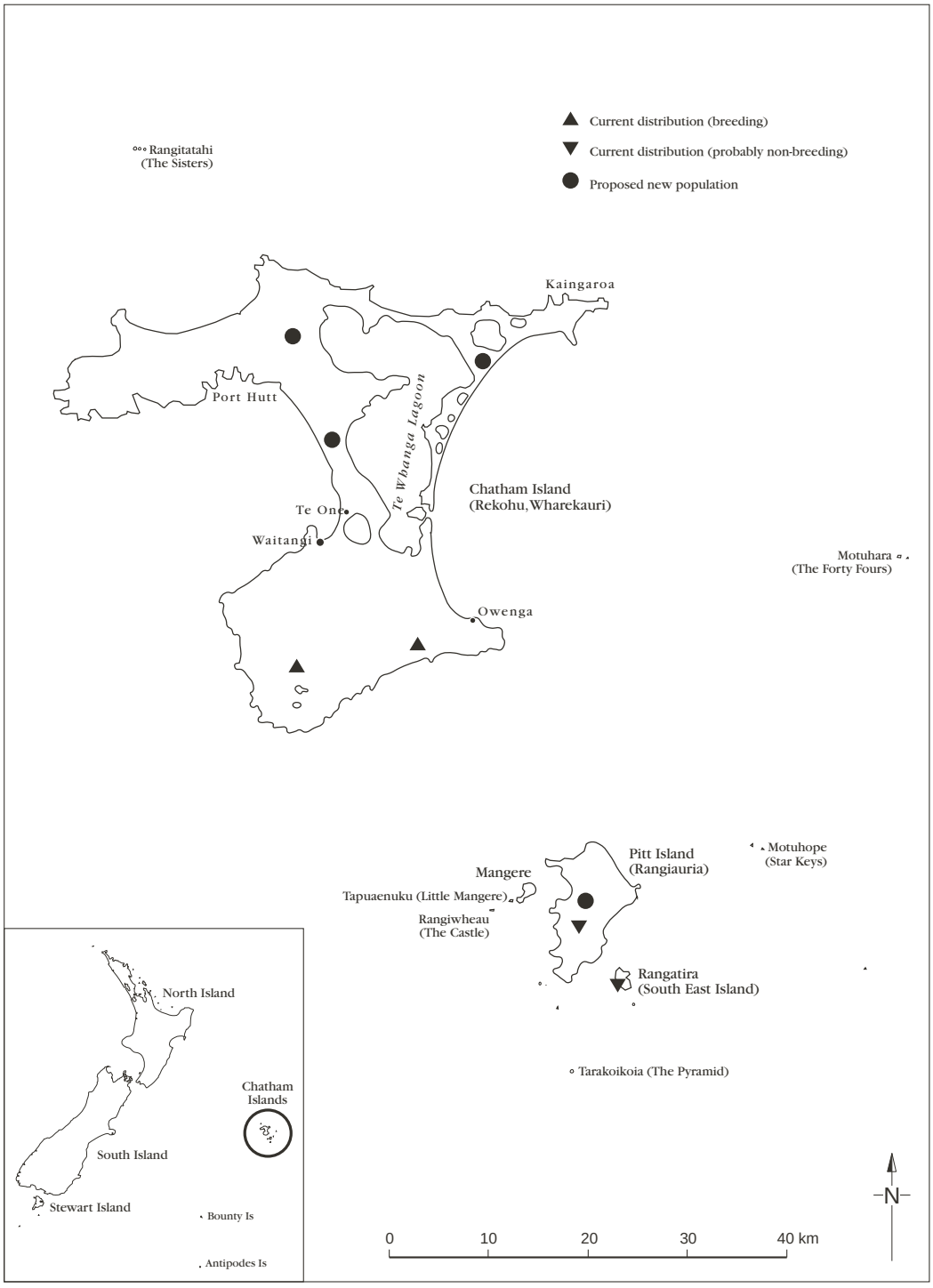

Figure 1. Distribution of parea, historic and current.

been reported using habitats in northern Chatham Island in 1993, on a number of occasions during 1997 (Johnson 1997), and more recently in 1999 (A. Baird pers. comm.).

Between 1994 and 1999, predator control continued to be undertaken in a small part of southern Chatham Island, primarily for the protection of taiko, but it was also intended to protect the parea population (Department of Conservation 1995). Habitat protection, including securing protected areas, fencing out domestic stock and reducing numbers of possum, pigs and feral stock, has continued in the southern forests, focused around the Awatotara and Tuku valleys. There was no formal monitoring of parea over this period, but the number of sightings of parea in southern Chatham Island indicated that the population was continuing to increase slowly (G. Taylor pers. comm.). During July and August 1999, a census of parea in southern Chatham Island was conducted. A total of 85 adult parea was counted in study areas in and around the Tuku and Awatotara Valleys, which was a 5% increase on the numbers found in those areas in December 1994. The number of pairs found had increased more dramatically, from 33 to 40 (21%). The number of parea in two areas further south, which are not currently protected (the Waipurua and Kawhaki Valleys), had decreased from six to three birds (Powlesland et al. 1999).

3. Cause of decline and present-day threats

The reasons for the decline of parea include:

- loss of forest habitat—burning and clearance for farmland, browsing by sheep, cattle and possums, removal of firewood, and the effects of wind in forests with their understorey removed by browsing animals;
- predation—from cats preying on adults and chicks, and probably rodents and possums preying on eggs and chicks;
- competition—from browsing animals, particularly possums, which compete with parea for food species;
- hunting—by people for food.

With the exception of hunting, the reasons for the parea decline in the past still threaten the population today. Lack of suitable areas of forest habitat, predation by cats, and competition with various browsers (compounded by the lack or rarity of a few important food types) are probably the most important factors that limit parea population recovery (Powlesland et al. 1996).

4. Species ecology and biology

The parea is one of the world's heaviest pigeons and is about one-fifth heavier than the NZ pigeon. Its plumage is more purple and pearl-grey than the NZ pigeon, which is green and bronze-red (Higgins & Davies 1996).

A comprehensive research programme from 1991 to 1994 provided information on parea ecology and breeding biology (Powlesland et al. 1993, 1994, 1995, 1996; Flux et al. 1998). Parea were found breeding in all months of the year, but nested predominantly during winter and spring (June-November). The timing of the nesting season, the proportion of pairs that bred, and productivity were shown to vary between the years of the research programme, in response to the abundance and quality of food available to parea.

Parea nests observed during this research were found at a mean height of 4 m, making them readily accessible to rats and cats. Productivity during 1991–94 was 0.86 fledglings per pair per annum, varying from 0.3 in 1993/94 to 1.5 fledglings per pair in 1992/93. The annual adult survival rate for 19 birds over three years was 0.96, giving a mean life expectancy of 24.5 years. Nestlings fledged at about 45 days of age, and became independent when 80–100 days old.

Observations of radio-tagged parea indicated that sustained flights of more than 3 km were rare, with most feeding forays over distances of only 0.5–2 km. This compares with the NZ pigeon, which occasionally flies 6–11 km to reach food sources (Clout et al. 1995).

Being a fruit-eating pigeon, the parea plays an important role in the dispersal of seeds. The Chatham Islands broadleaf forests are heavily dependent on parea to maintain forest replacement or regeneration processes.

5. Past conservation efforts

Until 1980, attention on parea conservation had primarily been limited to documenting their decline. Concern at the rapid decline in parea numbers led to an attempt to establish a secure population on Rangatira in 1983. Thirteen parea were translocated from the Cascades in southern Chatham Island to Rangatira. There was a high mortality rate during the transfer and only one pair attempted to breed, and they failed to establish a population (Butler & Merton 1992; M. Bell pers. comm.). When parea reached a population low of around 40 birds in 1990, planning for their recovery began in earnest, resulting in the production of a draft recovery plan (Grant 1993) and the start of a four-year research programme (Powlesland et al. 1993, 1994, 1995). Measures to recover the parea population are documented in Grant et al. (1997) and Department of Conservation (1995, 1996). These include fencing of forest reserves to exclude domestic stock, reduction in feral stock, possum and cat numbers within

reserves, protection of forest habitat as private covenants or as reserves, and monitoring of parea population numbers. These measures are still being implemented to varying degrees (Department of Conservation 1998, 1999; Powlesland et al. 1999). Reduction of cat numbers in coastal forest remnants in southern Chatham Island is currently occurring at lower levels than the mid-1990s. Between 1990 and 1994 there was an analogue captive breeding and small-scale release programme, using NZ pigeon, carried out at the National Wildlife Centre in the Wairarapa (Powlesland & Willans 1997).

6. Recovery goal

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

LONG-TERM GOAL

Restore sufficient areas of forest on Chatham, Pitt, and Mangere Islands so that parea have been re-established in a number of self-sustaining sub-populations that will require minimal management, and will re-establish their role as important seed dispersers in Chatham forest ecosystems.

TEN-YEAR GOAL

Protect the parea population in southern Chatham Island, and improve forest habitat on northern Chatham Island and Pitt Island to enable expansion or re-establishment of the parea population(s). Re-establish a viable population of parea on Pitt Island.

IF THE PAREA POPULATION REACHES AT LEAST 250 MATURE INDIVIDUALS, THIS WILL CHANGE THE IUCN CONSERVATION RANKING OF PAREA FROM ENDANGERED TO VULNERABLE.

7. Options for recovery

7.1 OPTION 1

No action

This option is not recommended. If there were no further management efforts apart from monitoring of population numbers and distribution, parea would decline in numbers, as they did in the past.

7.2 OPTION 2

Protect the Chatham Island parea population, and make no attempt to establish parea elsewhere in the Chatham group

This option is not recommended. Parea on Chatham Island would continue to benefit to some extent from the cat and possum control carried out for the protection of taiko in the Tuku valley. They would also benefit from the programme to fence stock out of forest areas. However, the re-instatement of parea to its former historic range, and its role as a key seed disperser within the Chatham Island forests would not occur. Forest regeneration on Pitt Island could be slowed by the lack of parea to disperse seeds of forest species.

7.3 OPTION 3 (PREFERRED OPTION)

Protect and restore parea habitat on Chatham, Pitt, and Mangere Islands, and re-establish parea on Pitt, Mangere, and Rangatira

This is the preferred option for recovery. It is essential that the southern Chatham Island population is protected, as it is the only self-sustaining population in existence. Protection and restoration of forest habitat in northern Chatham Island will provide habitat for the expansion of this population and may also provide food resources within the flying range of the southern population. This will allow an increase in the population based in southern Chatham Island. The establishment of a second population of parea within the Chathams group would improve the IUCN status of the species from Endangered to Vulnerable (BirdLife 2000), and thus meet this plan's ten-year objective. Re-establishment of parea on Pitt Island will require restoration of forest and reduction in numbers of cats. Restoration of forest on Mangere is a long-term aim, and as with Rangatira, Mangere would support a sub-population of parea from Pitt Island once parea are fully established there. These achievements will restore parea to their historic distribution.

7.4 OPTION 4

Establish parea populations in captivity or outside of the Chathams

This option is not recommended. Parea are endemic to the Chathams Islands and, with management measures to control threats such as restoration of forest habitat and reduction in predators numbers, there will be suitable habitat available to improve the status of the species without moving birds outside of the Chathams. Captive management is not considered necessary at this stage. The NZ pigeon has been held in captivity in New Zealand, providing information on captive management, breeding and release of fruit pigeons. This could be applied to parea should it ever become necessary to captive-breed parea.

8. Objectives for term of plan

The objectives for parea recovery for the term of this plan are:

1. Protect and enhance the parea population on Chatham Island.
2. Protect and restore areas of forest habitat on Mangere, and Chatham and Pitt Islands.
3. Establish a second self-sustaining parea population in the Chatham 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 PROTECT AND ENHANCE THE PAREA POPULATION ON CHATHAM ISLAND

Performance measures

(1) The parea population in southern Chatham Island is stable or increasing in size from a population level of approximately 150 birds

(2) A census of parea conducted in southern Chatham Island, following the methodology outlined in Powlesland et al. (1999), every 4–6 years, subject to available funding.

(3) A database of all reported parea sightings on Chatham Island established by 2002 and sightings analysed every 2–3 years to identify key sites used by parea and seasonal movements.

(4) A parea sub-population established and breeding successfully in at least one protected forest on Chatham Island, outside the current stronghold in southern Chatham, by 2011.

Explanation

Protection of the southern population is the top priority action for the conservation of parea as this is the only location where parea currently breed successfully. Maintenance of the southern Chatham Island population of at least 150 birds will provide a nucleus from which new populations can re-establish. Control of predator and competitor populations are essential actions, and monitoring must be carried out to ensure that this objective is being met. Reducing possum numbers to a level where 1 or less possum are caught per 100 trap night has been shown to benefit kereru in northern New Zealand forests (R. Pierce pers. comm.).

Actions required

Action 1.1 Undertake annual cat and possum control in the Tuku and Awatotara Valleys

Explanation

Control of predators (and competitors (Tisdall (1992)), particularly cats and possums in the Lower Tuku and Awatotara valleys is required to protect the parea population in southern Chatham Island. Cat control will benefit parea through protecting adults feeding on the ground and providing a degree of protection to nests sites, while possum control will reduce competition for fruit and the risk of possums preying on parea nest contents. Reductions of cat and possum populations are currently being undertaken as part of the taiko recovery programme, but traplines need to be extended down into the lower valleys if parea are to receive maximum benefit, and additional resources are required to undertake this work.

Priority

Essential

Responsibility

Chatham Island Area Office

Action 1.2 Monitor parea population numbers and distribution, including their dispersal from southern Chatham Island

Explanation

A programme of monitoring parea population numbers and distribution is required to assess the success of parea management, and whether the population is declining, stable or increasing. A census of parea numbers in the Awatotara, Tuku, and Waipurua valleys of southern Chatham Island was implemented in 1999 and it is recommended that this is repeated at five-yearly intervals (Powlesland et al. 1999). In addition, up to ten nests should be

monitored for chick production at approximately five-yearly intervals to determine the effectiveness of predator control. Census counts are best done in late July to early August in a year with good fruiting, from observation points on hill/ridge tops counting the number of pairs seen. A database for recording the spread of parea to other parts of Chatham Island is required. A calendar-survey has been distributed to all householders on Chatham and Pitt requesting records of all parea sightings between August 2000 and July 2001. Once returned, the results will require collation and analysis. This should provide useful information on parea distribution and seasonal movements on Chatham Island. As parea begin to spread beyond the southern Chatham area, monitoring of number of pairs and breeding activity should be extended to other sites regularly used by parea.

Priority
High

Responsibility
Chatham Island Area Office

Action 1.3 Expand cat and possum control to additional forest areas on Chatham Island

Explanation
As parea numbers increase in southern Chatham Island, birds will be forced to move to other areas of forest habitats. The expansion of cat and possum control to these new areas will be needed for parea to breed and establish successfully. Additional resources will be required to increase current levels of protection. Assessment of areas on Chatham Island for their suitability for parea is required to target future protection effort. Research by Powlesland et al. (1996) has shown that parea only breed in years when there is fruit of CI hoho available. By checking quantities of immature hoho fruit present in February each year, predictions can be made on parea breeding effort. While parea are expected to benefit the most from a sustained level of predator control, extra efforts could be made in years where there is likely to be a high nesting incidence among parea. This would maximise productivity, and assist the population to expand. New techniques, such as development of an effective cat bait or construction of predator-proof fences should be utilised where suitable to benefit parea. The control of possums will also be required in areas used by parea. An evaluation of priorities for possum control was undertaken in 1993 (Brown 1993), and again in 2000 (A. Couchman pers. comm.). Sites, either in reserves or on private land, that are currently being used by parea should be a high priority for possum control. The feasibility of eradicating possum from the Chatham Islands requires investigation, as total removal of possums would be the most effective long-term solution in controlling this pest.

Priority
Moderate

Responsibility
Chatham Island Area Office

OBJECTIVE 2 PROTECT AND RESTORE AREAS OF FOREST HABITAT ON MANGERE, AND CHATHAM AND PITT ISLANDS

Performance measures

(1) Sites where legal and/or physical protection would benefit parea identified by 2005 and appropriate mechanisms for progressing protection at each site implemented within the term of the plan.

(2) Reduction of stock to zero densities (or agreed levels in Waipaua) in protected areas identified as priority sites for parea.

(3) Reduction in possum densities to a catch rate of 1 possum or less per 100 trap nights in protected areas on Chatham Island identified as priority sites for parea. This rate may be increased if it is shown that parea populations are stable or increasing in the presence of higher possum densities.

(4) Planting of native species undertaken on Mangere, to at least the current level each year, using best practice to ensure a minimum survival rate of 70%.

Explanation

Significant recovery of the parea population can only be achieved with the restoration of sizeable areas of forest habitat on the Chatham Islands. Key areas of remnant habitat that are currently used by parea, or are likely to be suitable for parea to move into once the population expands, need to be identified and protected. Control of browsers and predators in key parea breeding habitat will be needed to meet this plan's ten-year and longer-term goals.

Actions required

Action 2.1 Identify key sites on Chatham and Pitt Islands requiring protection to benefit parea and initiate mechanisms to implement protection

Explanation

The parea population is currently concentrated in southern Chatham Island but, as the population expands, anecdotal reports suggest that parea are gradually moving into forest remnants elsewhere on Chatham Island. Significant areas of forest habitat on Chatham and Pitt Islands are in private ownership. The conservation of parea is dependent on protecting as much as possible of this habitat, as well as habitats in reserves. Identification of key habitat suitable for parea is required and mechanisms to protect those areas should be investigated. The results of the calendar-survey (Action 1.2) due to close in July 2001 will determine areas currently being visited by parea, and research conducted in the early 1990s will help identify other habitat suitable for parea (Powlesland et al. 1996, Tisdall 1992). Fencing domestic stock out of priority areas is urgently required to prevent further deterioration of the forest. Reduction of possum, pig, and feral stock densities is also needed. Covenants provide long-term legal protection to private forest habitats, and negotiations to secure private forest areas as covenants should continue. Resources need to be available to assist landowners to carry out key protection work themselves.

Priority
High

Responsibility
Chatham Island Area Office

Wellington Conservancy

Action 2.2 Control of introduced browsers in selected protected areas to benefit parea as resources allow

Explanation
*I*ntroduced browsers are a major threat to forest regeneration on Chatham and Pitt Islands. Browsers cause changes in forest composition and, by browsing the understorey, increase the effect of wind on regeneration and canopy health. The *Dracophyllum*-dominated forest of much of southern Chatham Island is thought to be induced by a combination of fire and browsers (Atkinson pers. comm.). Unless browser numbers are reduced, regeneration to a broad-leaf dominated forest, most suitable for parea, will not occur. To achieve the greatest benefit for parea, priority needs to be given to achieving zero-density of browsers in the southern Chatham Island forests. Fences will require regular inspection to ensure they are able to exclude domestic stock. Assessment of other areas on Chatham Island, particularly Rangaika Scenic Reserve and northern Chatham forest remnants, is required to target browser control to benefit parea.

Priority
High

Responsibility
Chatham Island Area Office

Action 2.3 Assess requirements for, and initiate, a planting programme on Chatham and Pitt Island for the benefit of parea as resources allow

Explanation
The preferential selection of trees palatable to browsers has seen the reduction in numbers of species important to parea such as CI matipo and CI hoho. Karamu, CI ribbonwood, CI mahoe, kowhai, and nikau have also been suggested as important to parea (Powlesland et al. 1993). Enhancement planting of these species to provide good year-round food supplies would assist parea recovery. Planting along the Te Whanga lakeshore has been proposed previously, and some planting of CI ribbonwood has been done in the lower Tuku valley. Further assessment is required to target the best sites for planting parea food trees. This could be integrated with an overall forest restoration plan for Chatham Island, and possibly Pitt Island, which addresses revegetation needs, opportunities and priorities.

Priority
Lower

Responsibility
Chatham Island Area Office

Action 2.4 Implement revegetation programme on Mangere each year

Explanation
The creation of further forest habitat on Mangere will provide a long-term opportunity for the expansion of the parea population. A programme of planting native species to restore forest habitat began in the 1970s and continues today. Around 7000 plants have been planted each year from 1995 to 2000. Species planted will create a native cover to facilitate natural forest regeneration. The more sensitive species can now be planted in the recently tracked dense flax areas of Douglas Basin. The harsh environment on Mangere means plantings require considerable maintenance to improve plant survival.

Priority
Lower

Responsibility
Chatham Island Area Office

OBJECTIVE 3. ESTABLISH A SECOND SELF-SUSTAINING PAREA POPULATION IN THE CHATHAM ISLANDS

Performance measures

(1) An assessment of the current parea population and habitat on Pitt and Rangatira, including management requirements to benefit parea, conducted by 2005.

(2) Information on transfer methodology used for NZ pigeon gathered, a transfer proposal prepared and a transfer of parea to Pitt Island initiated within the term of this plan.

(3) Conduct a minimum of one parea transfer, following best practice for transferring pigeons, to Pitt and/or Rangatira within the term of the plan, subject to funding.

Explanation
The re-establishment of a self-sustaining population of parea on Pitt Island will greatly improve its conservation status and restore it to a part of its historic range. Parea would also fill an important ecological role on Pitt Island as seed dispersers. Two parea have survived for many years on Rangatira, and this suggests that suitable habitat is available there. It is not certain if parea could survive as separate populations on either Rangatira or Mangere, but sub-

populations may be sustained from the Pitt Island population. Having two separate parea populations (Chatham Island and Pitt/Mangere/Rangatira) would reduce the risk of loss through a catastrophic event such as predator or disease invasion, or habitat loss from fire.

Actions required

Action 3.1 Assess the current parea population and the management requirements for forest habitat on Pitt Island to prepare for a transfer of parea

Explanation

An assessment of the current status of parea on Pitt, the suitability of the forest habitat and requirements for on-going management for parea should be undertaken. The sex ratio, age and breeding attempts of the few birds living on Pitt Island need to be determined before additional parea are released. This may explain why parea have failed to thrive on Pitt Island. Cats are the key predator of parea on Pitt Island, and reduction of cat numbers (particularly in the Waipaua Reserve) would be required before parea are released. The best long-term solution for parea on Pitt Island would be the total removal of cats. Continuing efforts to reduce domestic and feral stock and pigs from reserves will also be important for parea.

Priority

High

Responsibility

Chatham Island Area Office

Action 3.2 Investigate techniques used to transfer NZ pigeon

Explanation

Some research on relocation techniques for NZ pigeon has been carried out by Powlesland & Willans (1997). They trialed the 'hard' release of captive-reared NZ pigeon which were transferred from captivity and released immediately into the wild. They suggested further research be undertaken to determine whether wild-caught NZ pigeons would survive, remain and breed in habitat where pigeons are absent. Research conducted in other parts of New Zealand on transfer methods for NZ pigeon should be followed so that the results can be applied to the relocation of parea, e.g. transfer to Three Kings Islands.

Priority

Moderate

Responsibility

Wellington Conservancy

Action 3.3 Conduct transfer of parea to establish second parea population in the Chatham Islands

Explanation

Once an assessment of the Pitt Island parea population has been conducted and recommended management action initiated, a transfer proposal for Pitt can be prepared. This will provide details of transfer methodology, monitoring protocols following release and criteria for determining the need for follow-up transfers. Two parea have survived on Rangatira for over a decade, suggesting the habitat is suitable to support a small population. In northern New Zealand, pigeons can reach high numbers on small islands. While parea may eventually move between Pitt, Rangatira and Mangere it will take a long time for numbers on Pitt to build up to high enough levels to allow Rangatira or Mangere, to be colonised naturally. A transfer of parea to Rangatira would facilitate the establishment of small population that is secure from introduced predators. In the long term, Mangere should also provide suitable habitat for parea, although it may take some years for the forest habitat to regenerate sufficiently.

Priority

Moderate

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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