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**CHATHAM ISLAND PIGEON
RECOVERY PROSPECTS:
REPORT ON A VISIT TO
CHATHAM ISLAND IN JULY 1990**

by

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CHATHAM ISLAND PIGEON RECOVERY PROSPECTS: REPORT ON A VISIT TO CHATHAM ISLAND IN JULY 1990

by

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ABSTRACT

The prospects of recovery of Chatham Island pigeon (*Parea*, *Hemiphaga novaeseelandiae chathamensis*), are outlined and recommendations made, based on a visit to Chatham Island in July 1990.

Recommendations are made for habitat management, scientific study, a captive breeding programme, and advocacy.

1. INTRODUCTION

At the invitation of the Canterbury Conservancy, we visited Chatham Island to review the status and recovery prospects of the Chatham Island pigeon (*Hemiphaga novaeseelandiae chathamensis*), and attempt to capture some birds for radio-tagging. Geordie Murman, Conservation Officer on Chatham Island assigned to the Chatham Island pigeon recovery programme, worked with us, shared his personal knowledge of the bird, and guided us around Chatham Island (Fig. 1). This visit, from 5 to 16 July 1990, followed recommendations made by the Chatham Island pigeon recovery group at a meeting in May 1990.

The Chatham Island pigeon (known as "parea" in the Moriori language) was once widespread on Chatham and Pitt Islands. The decline of the parea has now reached the stage where perhaps less than 40 birds persist in remnant forest areas, mainly in the south of the main Chatham Island. There are recent reports of two or three parea on Pitt Island, and these are possibly survivors of the unsuccessful transfers of 13 birds to South East Island in 1984 and 1985 by the former Wildlife Service.

According to the most recent survey data (compiled by Andy Grant, Canterbury Conservancy, from 1988 and 1989 records), most of the remaining parea live in the large blocks of forest in the far south of Chatham Island. The core areas are probably the lower Tuku Valley (7 birds recorded in 1988/89) and the Cascades area (about 15 birds assumed from previous knowledge). Unfortunately, access to the Cascades has not been permitted in recent years.

A draft recovery plan for the parea was prepared recently by Andy Grant (1990). It provides a more detailed background on the decline of the parea, possible causes for this, data on the birds captured for transfer to South East Island in 1984 and 1985, and results of the 1988/89 surveys on main Chatham Island.



Fig. 1. Localities on Chatham Island, Pitt Island, South East Island

2. AIMS OF JULY 1990 VISIT

The main purpose of our visit was to assess the prospects for the conservation of parea on the Chatham Islands and report to the Canterbury Conservancy (which includes the officers on the Chathams) with our views of the management and research actions required for the recovery of the subspecies. We have recently carried out intensive research on the ecology of kereru on the New Zealand mainland, and so are familiar with the habitat requirements and threats to this species.

Our secondary aim was to capture up to four parea for radio-tagging, which would greatly improve the ability to subsequently monitor their daily and seasonal movements, collect information on their diet, and locate and then protect their nests.

3. SUMMARY OF ACTIVITIES DURING VISIT

- 5 July: Arrive on Chatham Island -move to stay in the Tuanui's cottage at the Awatotara Valley.
- 6 July: Observations on parea in the Awatotara and Tuku Valleys to determine population status, record feeding activity, and try to locate regular flight-lines for mist-netting.
- 7 July: Observations on parea in the Awatotara Valley.
Visited Kawhaki Creek, near the Horns, to check for parea and to see the stage of fruiting of the few nikau there.
- 8 July: Observations in the Awatotara Valley to try to determine regular flight-lines for mist-netting.
- 9 July: Observations in the Awatotara and Tuku Valleys to determine population status while the weather was fine for the first (and last) time during our visit.
- 10 July: Set up two mist nets in the Awatotara Valley and caught two birds - "Hadlee" (895g, TX 1/1/2. sky blue leg jesses, K-8352) and "Floyd" (885g, pink leg jesses, K-8351). Visited the Tuku Valley to look for flight-lines.
- 11 July: Check of "Hadlee" in the Awatotara Valley.
Visited forest remnants at the north end of Chatham Island: Henga Bush, Nikau Bush, and Hapupu Historic Reserve.
- 12 July: Check of "Hadlee" in the Awatotara Valley.
Visited forest remnant on Pat Smith's property at the south-west corner of Te Whanga Lagoon, and kopi forest at Plum Tree on the western shore of the lagoon.
- 13 July: Joined for the day by Alan Munn, Field Centre Manager.
Check of "Hadlee" in the Awatotara Valley.
Visited Tuku Valley to assess population and look for potential capture sites.
- 14 July: Check of "Hadlee" in the Awatotara Valley.
Set one mist net near David Crockett's taiko capture site in the Tuku Valley and caught one bird -"Greenpeace" (765g, Tx 1/2/2. green leg jesses, K-8353).
- 15 July: Check of "Hadlee" in the Awatotara Valley and "Greenpeace" in the Tuku Valley. Probable sighting of "Floyd" in the Awatotara Valley.
- 16 July: Check of "Greenpeace" in the Tuku Valley and "Hadlee" in the Awatotara Valley. Both birds OK and transmitters functioning well.
Returned to Wellington.

4. STATUS AND DISTRIBUTION OF PAREA

We found that conspicuousness of parea varied considerably from day to day in relation to the weather conditions. In wet and windy weather the pigeons were very sedentary and difficult to find. On the few occasions when it was calm and fine, the birds were very conspicuous with many flights, display dives and chases. They also sun-bathed on prominent perches. On the fine, calm afternoon of 9 July we saw at least six different birds during a 30-minute observation watch in the Tuku, whereas we saw only two birds in an 80-minute watch from the same spot on the following afternoon, which was cold and windy. Kereru on the New Zealand mainland show similar behaviour, but the contrasts in weather conditions on the were more extreme than on the mainland and the changes in conspicuousness correspondingly more marked. In future, surveys of parea should be undertaken in spells of fine weather to get more accurate records of numbers and distribution.

We did not attempt to make a full census of parea on Chatham Island, but we did estimate, from prolonged observation spells at various vantage points, the numbers using one of the two "core" areas on the island - the lower Tuku Valley. We also made accurate counts in the Awatotara and Kawhaki Valleys. In the lower part of the Tuku Valley, i.e. below "Taiko Hill", we estimated that there were at least 10 birds on 9 July. This was a fine calm day, following a spell of bad weather, and so the birds were very conspicuous. Our count was probably fairly accurate even though we could only account for the precise location of six birds at any one time. On 6 July there were four birds in the Awatotara Valley - either two pairs, or more likely one pair and two single birds. At one stage, all four birds were seen simultaneously. On 7 July we saw a pair of parea near Kawhaki Creek, just north of the Horns.

Overall, we estimated a *minimum* of 16 birds in the south-west corner of Chatham Island - 4 in the Awatotara Valley, 10 in the lower Tuku, and 2 in the Kawhaki Valley.

5. FEEDING OBSERVATIONS

The three main foods of parea during July 1990 were fruit and foliage of hoho (*Pseudopanax chathamica*), and foliage of karamu (*Coprosma chathamica*). Observations of parea feeding on hoho made up 25 (63%) of 40 feeding observations in early July 1990. Of the 17 observations of feeding in hoho, where we were able to distinguish between fruit or foliage, 35% of food was fruit, either ripe (black) or unripe (green). Karamu foliage was seen being eaten on eight occasions (20%). Of minor importance were foliage of mahoe (*Melocytus ramiflorus*) (10%), flower buds of kopi (*Corynocarpus laevigatus*) (5%), and small galls growing on the branches of karamu (2%). Although some fruits of supplejack (*Ripogonum scandens*) and matipo (*Myrsine chathamica*) were available we did not see parea feeding on them. Neither did we see them feeding on clover foliage, commonly reported to be a food taken by parea at Tuku Valley. Most food was taken 2-7 m above the ground and out of reach of predators such as feral cats. We did flush a pair of parea feeding on the ground within the forest, but did not see what they had been eating.

6. BEHAVIOUR

About half of the birds we saw were in pairs. We saw birds doing display flights, short chases and head-bobbing displays. All these activities are associated with breeding in kereru on the New Zealand mainland. Despite this we did not see any sign of nesting during our visit and neither of the radio-transmitted birds showed any evidence of breeding in the two following months. Most nests of parea in the past have been found in January, but there is a record from Robert Holmes of a successful nest in August near 'the Horns' about 5 years ago (G. Murman pers. comm.)

We were impressed by the obvious differences between parea and kereru. We did not hear parea making the loud 'whooshing' flight noise which is so characteristic of kereru. We also noted the apparent use of display flights by parea to advertise their presence to their mate, and not merely as 'territorial' breeding displays. In the Awatotara Valley we heard parea making unusual wheezy grunts in a situation where three birds were close together (a pair and a single). We have not heard this kind of vocalisation from kereru.

These behavioural features, together with the large size (c.30% heavier than kereru) and distinctive plumage of parea lead us to recommend that the taxonomic differences between parea and kereru should be re-assessed using modern genetic techniques.

7. HABITAT

Parea are now mainly confined to remnant areas of native forest in the southern part of Chatham Island, although there have been recent reports of 3 birds on Pitt Island and there are still occasional sightings of individuals or pairs in forest patches in central and northern parts of Chatham Island. These sightings are probably of a few parea undertaking seasonal movements from southern parts of the island.

Much of the remaining forest in the south of Chatham Island consists of stands, which do not support parea. The birds which we saw were all in more diverse vegetation in valleys where the forest is of higher stature and contains species such as hoho, karamu, kopi, matipo, and supplejack. This association is hardly surprising since the parea is a fruit pigeon and all the above species provide fruit which parea are known to feed on. Some of them (e.g. hoho, karamu, mahoe) also have edible foliage. Other known foods of parea are the fruits of nikau (*Rhopastylis sapida*), kawakawa (*Macropiper exceulsum*) and *Cotoneaster chathamica*.

The vegetation of Chatham Island has been described, classified and ranked in recent surveys by Kelly (1983) and Given and Williams (1984). Our attention focused on the Awatotara and lower Tuku Valleys, where we observed and captured parea, and on various forest remnants to the north, some of which have been recently fenced and are potential parea habitat.

1. The Awatotara Valley (home to at least 4 parea) runs approximately east-west and adjoins the large Southern Tablelands block (including the Tuku Valley) to the south. The valley is small and confined and is still browsed by cattle, especially on the valley floor. The northern side is the least subject to browsing and contains supplejack, some kawakawa, a few young *Fuscica excorticata*, and a couple of specimens of *Astelia chathamica*. The predominant vegetation in the valley is karamu and hoho, with open areas of bracken, grass and *Cyathodes robusta* and dracophyllum on the ridges. There are several kopi trees, matipo

and some mahoe. We observed parea using mostly the valley upstream of the road, depending on wind direction. The valley is already partly fenced and the owner, Bruce Tuanui, expressed interest in the prospect of it being completely fenced to exclude stock and allow regeneration. This possibility should be actively pursued because the area holds a significant number of parea and is of manageable dimensions.

2. The lower Tuku Valley (home to at least 10 parea) is part of the largest reserve on Chatham Island (gifted by the Tuanui family). The vegetation is varied, consisting of dracophyllum on ridges and spurs, with hoho, karamu, matipo, supplejack, stands of kopi and some kawakawa and mahoe on valley floors and sides. The reserve is partly fenced, but is subject to serious browsing damage from wild sheep, possums, and a few wild cattle. Rooting damage by wild pigs is also very severe, with the ground under many kopi trees resembling a ploughed field caused by pigs searching for fallen fruit and seeds. Regeneration of species such as kawakawa and kopi is poor. Large areas of the valley are under dense cover of unpalatable tree-ferns. Ring-fencing of the lower part of the reserve (possibly using electric fencing within the forest) would make control of wild animals easier and permit regeneration of parea food species in this, the most significant area of habitat under Crown ownership which parea still occupy. The aim should be eradication of wild sheep, pigs and cattle from the Lower Tuku and maintenance of possums at the lowest possible level. Trapping for cats is already done in the Tuku Reserve to protect taiko. This should be continued to benefit parea as well. The lower valley of the Tuku immediately downstream of the reserve boundary has several remnant kopi and, if fenced and protected, could provide further good parea habitat eventually.
3. Maipito is a remnant patch of kopi near Waitangi. It is held under 3 titles and is grazed. There are extensive patches of large *Fuschia excorticata* shrubs (introduced from New Zealand) which apparently attract tui and parea in spring and summer to feed on nectar and fruits respectively. We saw no tui anywhere on Chatham Island during our stay. This patch at Maipito would be an excellent place during fuchsia flowering in October/November to check for tui survival on Chatham Island.
4. Henga Reserve is a remnant of kopi forest that was ring-fenced about 5 years ago. Regeneration is profuse, with a dense, head-high understorey of mahoe, matipo, kawakawa, kopi and karamu. No hoho or supplejack were seen. Although no parea have been seen here for many years the reserve has potential as habitat in future as it has a succession of fruiting species. A rank, grassy area on slopes outside the forest could be planted with other potential food plants (possibly including tree lucerne and fuchsia).
5. Nikau Bush (12 ha) is a forest remnant which was continuous down to the lagoon shore. However the lower part is deteriorating badly because Landcorp still allows grazing of this area. The upper part of the remnant (away from the lagoon) is a DOC reserve, ring-fenced about 5 years ago. The canopy is mainly kopi, but there is a large stand of nikau at the southern end. There is profuse regeneration (less dense than in Henga) despite recent slight damage from goat browse. There is no sign of pig rooting. The understorey (shoulder to head high) contains hoho, kopi, mahoe, karamu and some kawakawa. Supplejack and matipo are also present. Nikau seedlings are coming up under mature kopi and hoho more than 50 m from the nearest nikau, indicating dispersal by a bird

(possibly parea, since other birds are unlikely to swallow the large nuts). The mature nikau palms had green fruit and, in a few cases, recently ripened bright red fruit on full panicles. Many seeds were found beneath the mature nikau indicating that panicles had mostly dropped with full loads of fruit still uneaten. We concluded that a parea may have visited Nikau Bush in the past few years and dispersed some seeds, but that recent visits have been few or non-existent. (We were later told by Maika Mason that Keith Kamo had seen a single parea at Wharekauri every year until last year -perhaps this bird was the phantom nikau disperser at Nikau Bush, and now departed.) With its range of fruiting plants and excellent regeneration, Nikau Bush is good potential habitat for parea in future. Its value would be greatly enhanced if the adjacent Landcorp block running down to the lagoon was also fenced to exclude stock.

6. Hapupu Reserve is a 24-ha stand of kopi, reserved primarily to preserve Moriori dendroglyphs, that was fenced about 10 years ago. It has profuse regeneration of kopi and mahoe, with matipo trees on the edge of the stand. Very old, apparently dead, kopi trees within the reserve have sprouted from their bases, showing the recovery potential when grazing is excluded, even in apparently ruined forest. We noted kopi seedlings and saplings under adult kopi but not under isolated matipo - graphic evidence that kopi seeds are not being dispersed away from their parent trees because parea no longer visit Hapupu to eat the kopi fruit. The vegetation of Hapupu is lacking in diversity of potential parea foods compared with Nikau Bush.
7. Smiths Bush is a 30-ha patch of forest on Pat and Wendy Smith's property on the south-west shore of Te Whanga. It was ring-fenced about 6 years ago and is regenerating superbly. It has an even greater diversity of parea food plants than Nikau Bush (including kopi, hoho, mahoe, matipo, karamu, kawakawa, supplejack, nikau, ribbonwood and kowhai). A pair of parea apparently visit the Smith's property every summer, but spend most of their time in a small patch of degenerating kopi and in a gully outside the fenced area of forest. With its diversity of parea foods, we consider that the fenced area of Smith's bush could support several pairs of parea once the profusely regenerating understorey develops to full subcanopy. It could support some parea right now, given the succession of food plants, and it is probably the best potential site on Chatham Island for release of young parea and establishment of a new sub-population. Control of predators (cats, rats) would be necessary but quite feasible, given the good access to most parts of the patch. Pat Smith expressed a strong interest in parea conservation.

8. TRADITIONAL MOVEMENT

Our research on radio-tagged kereru in New Zealand has revealed that these birds are extremely conservative in their traditional use of seasonal feeding and breeding sites. They are capable of seasonal movements of up to 25 km between home ranges, but travel habitually to the same sites at approximately the same time each year. Some individuals have been observed at the same seasonal feeding sites for up to six successive years, often using precisely the same tree from one year to the next following a seasonal migration of several kilometres. Data supporting these statements are to be published (Clout, Gaze & Karl, in press).

We strongly suspect that parea on Island will be found to show similar conservatism in

their use of traditional feeding and breeding sites. The implication of this is that the remnant population of parea, now mainly confined to the far south of Chatham Island, is unlikely to suddenly start using the regenerating forest remnants at Henga, Nikau Bush, Te Whanga etc., because the remaining adult birds are likely to be locked into set patterns of behaviour. Even though these regenerating remnants are potentially better habitat than where the bulk of the population now live, parea are likely to take some time to 'rediscover' them. We therefore consider that a useful strategy would be to raise and release young parea in some of these forest patches, to form the basis for future sub-populations.

9. RECOMMENDATIONS

1. The lower Awatotara Valley, and the Tuku Valley downstream of the reserve should both be ring-fenced to exclude domestic stock and encourage regeneration. Bruce Tuanui (landowner) expressed a strong interest in this idea, to protect the remaining forest and help with parea conservation. Funds for fencing should be provided by DOC and covenants sought, with urgency, in response to the continuing goodwill shown by the Tuanui family.
2. The lower Tuku Valley, within the existing reserve, should be further protected from damage by wild sheep, cattle and pigs by a ring-fence (possibly electrified) within the forest. This would exclude these feral animals from the prime reserved habitat of the parea (containing at least 10 birds). All sheep, cattle and pigs should be removed from this area to aid forest regeneration, and intensive cat and possum control should also be pursued within the ring-fenced zone.
3. A full census of parea should be conducted during the summer of 1990/91, using a team of at least 6 expert ornithologists under DOC supervision. All known and likely areas should be surveyed in fine, calm weather over as short a period as possible, by placing observers at key vantage points where they can count the number of parea using defined areas of habitat. Such a survey is best done by sustained observation from fixed points rather than by 'bush bashing'.
4. The two radio-tagged parea (in the Awatotara and Tuku Valleys) should be monitored at least once a week while their transmitters continue to function, to check their location and feeding behaviour, and to discover any nests. The radio-tagged birds should be checked at midday and also in the evening or early morning to be certain of locating nests. Males incubate throughout the mid part of the day and females from evening through the night until early or mid-morning. The sex of parea is not discernible from plumage so we are uncertain of the sex of the radio-tagged birds at this stage. If any nests are found they should be protected by tree banding and local rat and cat control.
5. Two further parea should be captured and radio-tagged (one in the Tuku and one elsewhere) as opportunity permits, to learn more about seasonal movement patterns of parea and to discover nests for protection.
6. We endorse the recommendations in the draft recovery plan (Grant 1990) concerning captive rearing. A captive rearing facility for raising young parea should be established at a potential parea release site on Chatham Island. The property of Pat and Wendy Smith at Te Whanga would be an ideal site, provided their full agreement can be gained. Kereru should be brought from New Zealand

to act as foster parents for parea chicks, following trials in New Zealand to establish appropriate captive rearing techniques.

The method with least impact on productivity of the wild population would be to take eggs from wild nests and incubate them either artificially or under captive kereru. Wild parea are likely to re-lay within 7-10 days of removal of their egg, based on experience with kereru.

Young parea raised in captivity should be released near the rearing site after attachment of a small radio-transmitter to monitor subsequent movements. (Young kereru from wild nests have fledged successfully carrying radio transmitters.)

Procedures for release of young parea should be trialled immediately on captive-raised kereru at Mt Bruce, including transmitter attachment and monitoring of post-release behaviour and movements. (Little is known of post-fledging behaviour of wild kereru or any special requirements of young birds.)

Before the release of young parea to the wild, the release area should be subjected to intensive cat control to risk of predation.

7. The taxonomic status of the parea should be re-assessed by applying gel electrophoresis techniques to tissue samples collected from an existing frozen parea specimen held on Chatham Island. Results from this analysis should be compared with those from tissue samples collected from New Zealand kereru.
8. An education and information programme should be instituted on Chatham Island with the aim of involving Chatham Islanders in the parea recovery programme and its progress.
9. A scientist from Science & Research Division should be given responsibility for the research components of the parea recovery programme. This will ensure that the best possible scientific information is gathered as a basis for management and will permit local conservancy staff to devote more time to the practical tasks of parea management.

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