

SCIENCE AND RESEARCH INTERNAL REPORT NO.38

THE SADDLEBACK PROJECT.

**INTERIM REPORT ON THE 1988 TRANSFER FROM
STANLEY ISLAND TO KAPITI ISLAND AUGUST 1988.**

by

Tim Lovegrove

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February 1989

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The saddleback project. Interim report on the 1988 transfer from Stanley Island to Kapiti Island in August 1988.

Tim Lovegrove*

1. SCOPE OF REPORT AND INTRODUCTION

1.1 Scope of report

This report gives details of four visits to Stanley Island between June and November during which saddlebacks were selected and captured for the transfer to Kapiti Island. It also contains an account of the transfer itself, and the subsequent monitoring of the newly released birds on Kapiti during a six week period through to mid October.

This report is intended to fulfil the requirement of the Department Conservation that a report be submitted to the Director-General as one of the conditions of the permit issued to transfer saddlebacks to Kapiti. Another report will be written early next year giving further details of survival and breeding productivity for the newly-released birds, after their first summer on Kapiti Island.

1.2 Introduction

Three visits were made to Stanley (Kawitihi) Island in the Mercury Group between June and August 1988 to select and then transfer another batch of saddlebacks (*Creadion carunculatus*) to Kapiti Island. This transfer was the second of a series of three, in which birds that have been specially conditioned to use safe artificial roost and nest sites (see Figure 1) are being introduced to Kapiti. The third transfer will probably be carried out in 1993.

During the fourth visit to Stanley in early November the population was surveyed to assess the effects of removing the birds for the transfer, and nests were checked for possible signs of predation by moreporks (*Ninox novaeseelandiae*) and kiore (*Rattus exulans*). Nestlings of roost and nest box using pairs were also banded.

This work is being carried out as part of a wider study of the effects of predation by rats on the saddleback. Saddlebacks vanished from the mainland last century, and rats, probably Norway (*R. norvegicus*), but more especially ship rats (*R. rattus*) have been blamed for the decline. A previous investigation of three earlier transfers to Kapiti (where ship rats are absent) between 1981 and 1983, showed that the birds suffered heavy predation by Norway rats at their night-time roosts. Recent work on Stanley and Tiritiri Islands has shown that saddlebacks readily accept roost sites. On Kapiti these roost boxes only need to be fastened to trees at a height of one to two metres above the ground to give the birds adequate protection from the predominantly ground-inhabiting Norway rats.

The renewed effort to establish saddlebacks on Kapiti has involved shifting saddlebacks that are regular roost users as well as birds that have not previously been detected using boxes. These non-box-users are serving as a control for the roost box experiment, so that the survival of the two groups can be compared.

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In September 1987 43 birds were released on Kapiti. This batch included 19 roost box birds and 24 control birds. Although by October 1988 only eight of these birds remained, all eight were using roost boxes, and they were roosting in places where saddlebacks had only persisted for very short periods before, because of the severe effects of rat predation.

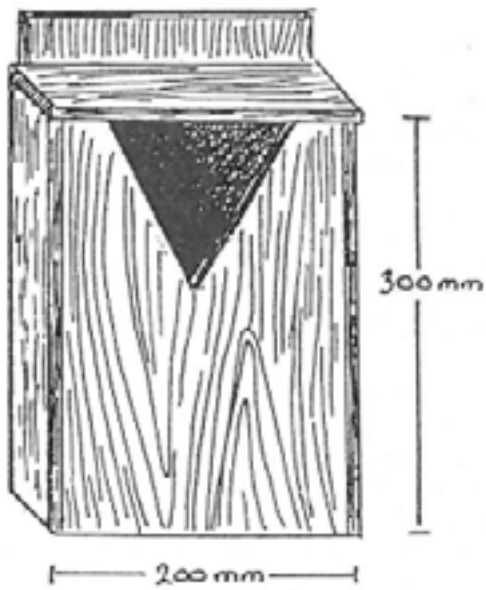
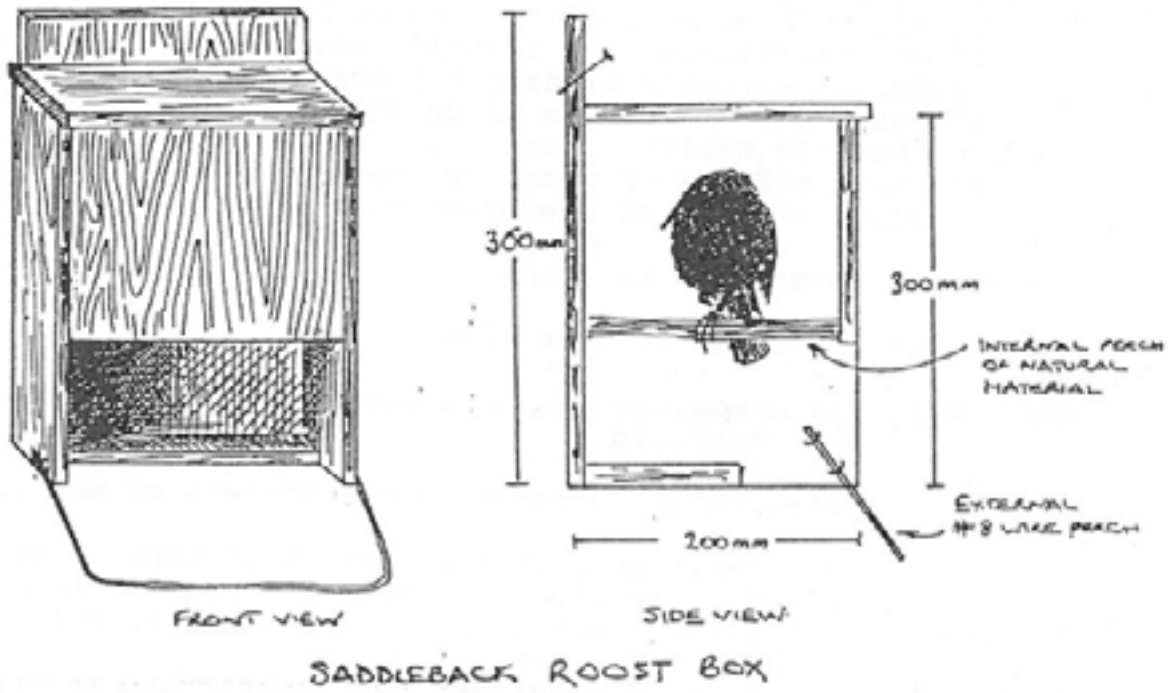
As a group the box-using birds have experienced much higher survival over the past year than any previous release of saddlebacks on Kapiti. The best previous annual survival figure was on the 1981 transfer, of which 17% remained after the first year. For the 1987 roost box birds survival is nearly twice that figure at 32%. This figure is close to that (i.e. about 40%) for transferred saddlebacks on the northern islands where kiore is the only rat.

Encouraged by the satisfactory survival on Kapiti of the first group of roost box birds, I decided to carry out the second transfer in August 1988. Similar numbers and proportions of birds were released this year. This year's batch of 39 included 13 roost box birds and 20 controls. The control was repeated again this year in an attempt to make the experiment statistically a little more robust. In addition to repeating the control I decided to refine the release procedure and test the benefits of holding some of the birds in an aviary on Kapiti before release, and feeding them for a period after release. The aim of the aviary treatment and extended feeding was to try to enhance survival immediately after release. This means that more birds might be alive at the end of the settling-in phase (i.e. the first few weeks) giving them better chances of adjusting to the unfamiliar habitat and increasing their chances of finding and using roost boxes. This in turn could result in more birds being alive during the summer, with the obvious benefits of potentially greater breeding output the new population.

This year's aviary treatment was prompted by poor initial survival after last year's transfer, because I found that by early November, barely six weeks the transfer, only 13 (30.2%) of the birds remained. Since there was no evidence that any bird had been preyed on by a rat during that period, I assumed the bulk of this rapid post-release mortality must have had something to do with the stress of transfer, and the birds failing to adjust quickly enough to their new habitat.

The aviary and extended feeding treatment has already shown its worth, because five weeks after the 1988 release, at least 24 (16.5%) of the 33 birds were known to be still alive. After the same period after last year's release only 13 out of 43 birds (30.2%) were known to be still alive.

FIGURE 1 KAPITI AND STANLEY ROOST AND NEST BOXES



NEST BOX

2. VISITS TO STANLEY ISLAND DURING 1988

2.1 Objectives of work on Stanley Island

- a) Colour band all known roost box using birds
- b) Assess frequency of box use by banded birds
- c) Map territories and identify pair bonds of banded birds
- d) Select suitable birds for transfer to Kapiti
- e) Capture 20 roost box birds and 20 control birds and transfer these to Kapiti Island
- f) Study effects of removing transfer birds from the population
- g) Study effects of predation by moreporks and kiore at nests

2.2 Brief itineraries of trips

2.2.1 Visit from 13-20 June 1988

Personnel: Tim Lovegrove (Zoology Department, University of Auckland)
 Paul Scofield (Zoology Department, University of Auckland)
 Alan Tennyson (Zoology Department, University of Auckland)
 Terry Hatch (Ornithological Society of New Zealand)

13 June	1420	Departed Whitianga with Neil Hopkins aboard "Maire"
	1630	Stanley landed on northern beach
15 June	1530	Brief visit by members of Hauraki Gulf Maritime Park Board per "Hauturu"
14-13 June		Checked roost and nest boxes, banded box using birds
20 June	0930	Departed Stanley from western beach.

2.2.2 Visit from 12-20 July 1988

For this trip we worked in with Craig Hodsell (DOC, Auckland) who, with a party three others visited Red Mercury to carry out a survey of the present status of little spotted kiwi. Transport costs were shared.

Personnel: Tim Lovegrove (UYA)
 Steve Boyle (Hauraki Gulf Maritime Park, Kawau)
 Stella Rowe (Ornithological Society, Hamilton)

12 July	0710	Departed Whitianga aboard "Maire"
	0930	Landed on northern beach at Stanley
12-19 July		Checked roost boxes, surveyed territories and pair bonds and banded box-using birds
16-17 July		Severe SE gales. Big swell delayed departure one day.
20 July	0930	Departed Stanley from western beach. Some difficulty picking up Red Mercury party because of huge swell.
	1300	Arrived at Whitianga

2.2.3 Visit From 16-23 August and the transfer to Kapiti

For this trip we worked in with Ian (of DOC, Auckland) who with Frank Thompson spent the week on Korapuki Island. Also on this trip were Graham Taylor and Sandra Higgins, who visited Double Island to carry out a general biological survey on this

rather little-known island. With the help of Ross Butterworth, a local crayfisherman GAT and SH were able to join us on Stanley Island for the last day. This was done to save time during our departure the following day during the saddleback transfer.

Personnel: Tim Lovegrove (UYA)
 Sandra Anderson (UYA)
 David Allen (UYA)
 Terry Greene (UYA)
 Gretchen Rasch (DOC, Rotorua)
 Andy Garrick (Garrick & Assoc., Rotorua)
 Lindsay Hatch (OSNZ, Pukekohe).

16 August 0710 Departed Whitianga aboard "Maire".
 0915 Arrived Double Is. landed GAT & SH on south side
 1000 Arrived Stanley landed onto northern beach
 pm Set up aviary and mistnet sites
 17 August Fresh W'erly - netted 8 control birds and one roost box bird on more sheltered eastern side of island
 18 August Gale - NW'erly - last 2 roost box birds handnetted am, moved nets
 19 August Calm - 6 roost box birds handnetted, 9 controls mistnetted
 20 August Showers - 6 roost birds handnetted, 3 controls mistnetted
 21 August Fresh SW'erly - last 2 roost box birds handnetted
 22 August Picked up GAT & SH from Double with Ross Butterworth
 23 August 1030 Departed Stanley For Whitianga
 1530 To Auckland per Air Coromandel Nomad with birds
 1615 Departed Auckland per Associated Air Cessna 302
 1800 Arrived Paraparaumu met by Peter McKenzie - night spent at McKenzie's at Waikanae
 24 August 0830 Crossed to Kapiti with Peter Daniel
 1030 20 birds released beside spring at Rangatira
 19 birds released into aviary at Rangatira
 6 Sept. 0830 Aviary birds released

2.2.4 Visit from 1-8 November 1988

We combined transport for this visit with Graham Taylor (DOC Regional Office, Auckland) and Alan Tennyson (Auckland University) who were carrying out another survey of Double Island. GAT and AT joined us on Stanley for the last day of the trip. Neil Hopkins brought them across on 7 November on the "Maire" after dropping Ian McFadden and party on Korapuki.

Personnel: Tim Lovegrove (UYA)
 Paul Scofield (UYA)
 Gillian Eller (OSNZ Auckland)
 Betty Seddon (OSNZ Cambridge)

1 Nov 0715 Departed Whitianga aboard "Maire"
 0915 Arrived Double dropped GAT & AT
 1000 Arrived Stanley -unloaded onto N landing
 2-7 Nov Checked roost and nest boxes, surveyed population, monitored nesting activity
 7 Nov 1030 GAT & AT arrived Stanley from Double per "Maire"
 8 Nov 1030 Departed Stanley. 1300 arrived Whitianga.

3. WORK ON STANLEY ISLAND FOR THE TRANSFER

3.1 Colour banding

By November 1988 a total of 139 saddlebacks had been individually colour banded and released on Stanley Island (see Tables 1 & 2). 23 these birds were captured last year and transferred to Kapiti, and 20 more were removed this year as part of the 1988 transfer to Kapiti. In addition to the total of 139 birds colour banded, 41 more were banded as part of the sample of control birds removed from the island in the two transfers. In total 84 birds have now been removed from Stanley and transferred to Kapiti for the roost box project.

In addition to the colour banded birds, 31 young were banded (with numbered metal bands only) during the 1987-88 and 1988-89 breeding seasons. Two of the 1987-88 birds have already been recaptured (one in a roost box, the other mistnetted) and colour banded, and at least one other was seen but not caught. None of these birds of known origin will be removed from Stanley in the transfers to Kapiti because I intend to monitor their future roost and nest box using behaviour.

Table 1 Banding totals

# colour banded and released on Stanley	139
# extras banded for transfer controls	41
# nestlings banded 87-88 & 88-89 seasons	31
Grand total birds banded	211

3.2 Checking use of roost boxes

On each visit to Stanley all of the roost and nest boxes were checked to determine how many of them were being used, and which ones were currently in use. Those boxes that had been used were cleaned out, so that fresh sign could easily be detected on the next trip. The use of roost and nest boxes between September 1986 and November 1988 is summarised in Table 3.

Last year the use of roost boxes ranged from about 17 to 73%, with the highest figure being that for the first check of the year in April-May. This figure is mainly a reflection of the length of time since the last check in October 1986. In addition there would have been quite a few juveniles using boxes for the first time. When they dispersed they would have used different boxes in various parts of island thus boosting the figure of overall box use.

The Figures for 1987-88 are similar with sign noted in 56% of the roost boxes during the first check of the year in June 1988. This dropped to about 19% in July, a figure which probably reflects the true level of roost box use.

Table 3. Summary of the use of roost and nest boxes by saddlebacks on Stanley Island, September 1986 - November 1988

	Sep & Oct 1986		Apr-May 1987		June 1987	
	#	%	#	%	#	%
ROOST BOXES						
Total # boxes	155		236		314	
# checked	146	94.2	236	100.0	311	99.0
# used as roosts	81	55.5	171	72.5	81	26.0
# containing nests	5	3.4	2	0.8	1	0.3
# not used	60	41.1	63	26.7	230	74.0
NEST BOXES						
Total #	44		60		77	
# checked	40	90.9	60	100.0	75	97.4
# with nests	18	45.0	17	28.3	0	0.0*
# with partly built nests	3	7.5	13	21.7	0	0.0*
# used as roosts	3	7.5	4	6.7	3	4.0
# not used	16	40.0	26	43.3	72	96.0*
	July-Aug '87		Sept. '87		Oct. '87	
	#	%	#	%	#	%
ROOST BOXES						
Total #	416		416		416	
# checked	416	100.0	416	100.0	416	100.0
# used as roosts	77	18.5	70	16.8	85	20.4
# containing nests	2	0.5	4	1.0	6	1.4
# not used	338	81.3	342	82.2	325	78.1
NEST BOXES						
Total #	81		81		81	
# checked	81	100.0	81	100.0	81	100.0
# with nests	2	2.5	3	3.7	20	24.7
# with partly built nests	5	6.2	7	8.6	7	8.6
# used as roosts	4	4.9	1	1.2	1	1.2
# not used	71	87.7	62	76.5	55	67.9
	June '88		July '88		Nov '88	
	#	%	#	%	#	%
ROOST BOXES						
Total #	420		420		420	
# checked	420	100.0	420	100.0	420	100.0
# used as roosts	237	56.4	79	18.8	125	29.7
# containing nests	10	2.4	0	0.0	12	2.9
# not used	173	41.2	341	81.2	283	67.4
NEST BOXES						
Total #	82		82		82	
# checked	82	100.0	82	100.0	82	100.0
# with nests	35	42.7	1	1.2	35	42.7
# with partly-built nests	3	3.7	0	0.0	10	12.2
# used as roosts	1	1.2	0	0.0	0	0.0
# not used	42	51.2	61	98.8	37	45.1

3.3 Checks of roost boxes at night

Checks were carried out at night by torchlight to determine which birds were using roost boxes, and the frequency of roost box use. Usually it was possible to check the boxes without waking the sleeping birds. The usual pattern was for each bird to have its "own" box, which it used every night. In most cases birds only shifted their roosts if they were disturbed e.g. if captured and handled there. Whenever an unbanded bird was found in a box, it was caught by hand in the box, banded, and then placed carefully back in the same box. By mid August 1988 all of the birds known to be using roost boxes had been banded. By then there were 40 known roost box users, and the group of 20 roost box birds captured for the transfer was taken from these.

3.7 Behaviour of birds caught at boxes

The total of 139 birds banded and released on Stanley during the two years included 30 that were mistnetted and 48 that were caught in roost boxes at night. Table 4 summarises resightings of banded birds and shows those banded at boxes and those known to have returned to boxes after banding.

During 1988 I concentrated on catching the roost box users at boxes because last year I found that at least 77% of them returned to roost boxes soon after being caught there. Originally I thought that interfering with the birds at night might cause too much disturbance. Indeed there are some birds that seem to be put off using roost for good when they are caught there at night, however most of them return as the figures show. The results were even better this year. Of the total of 25 new birds banded at roost boxes, 21 (84%) returned after being handled there. This increase over last year's Figure probably reflects the larger numbers of young birds that were banded at boxes compared with last year. Juveniles seem to be less easily put off roost sites than adults (see Table 5).

Table 5 Numbers of adults and Juveniles that returned to boxes after banding

Total # banded at boxes	44
# adults banded at boxes	16 %
% adults returned to boxes after banding	68.8%
# Juveniles banded at boxes	28
% juveniles returned to boxes after banding	85.7%

4. THE 1988 TRANSFER

4.1 Introduction

The 1988 was similar to that carried out last year in that both roost box using birds and non-box-using control birds were shifted to Kapiti. All but one of the roost box birds were handnetted at boxes, while all the controls and one roost box user were mistnetted. These birds are listed in Table 6.

Table 6. Details of saddlebacks transferred from Stanley to Kapiti August 1988

- Roost box conditioned birds -						
Date	Metal #	Colour comb.	Sex	Tarsus (mm)	Weight (g)	Locality
17/08/88	D 116172	YA-R	JM	40.5	75	Net 6 near 139R
18/08/88	D 116167	RA-Y	JM	40.8	72	Roost box 160
"	D 116165	WA-B	JM	41.4	78	Roost box 202
"	D 116162	BG-A	JM	42.2	74	Roost box 161
"	D 116164	YG-A	JF	37.9	60	Roost box 232
"	D 116178	WB-RA	JF	37.3	66	Roost box 167
19/08/88	D 141038	GA-Y	F	38.2	68	Roost box 16
"	D 116185	BW-RA	F	41.0	72	Roost box 406
"	D 116174	A-BB	JM	41.2	73	Roost box 384
"	D 116180	GY-RA	JF	39.3	65	Roost box 408
"	D 116177	WG-RA	F	38.8	60	Roost box 24
"	D 141096	RR-RA	F	40.2	69	Roost box 419
20/08/88	D 116158	WR-RA	M	41.1	85	Roost box 201
"	D 141041	GA-B	M	40.8	77	Roost box 125
"	D 141025	RA-B	M	41.2	81	Roost box 212
"	D 116183	GB-RA	JF	39.5	64	Roost box 356
"	D 116168	B-A	JM	41.6	68	Roost box 349
"	D 116163	RU-A	JM	41.3	74	Roost box 23
21/08/88	D 116173	Y-A	JM	42.6	72	Roost box 126
"	D 116170	YR-A	JM	41.6	70	Roost box 362
- Control birds -						
Date	Metal #	Colour comb.	Sex	Tarsus (mm)	Weight (g)	Locality
17/08/88	D 63701	RR-WA	JF	37.8	61	Net 4 near 420R
"	D 63702	RY-WA	M	42.3	83	"
"	D 63703	RW-WA	JM	40.4	71	"
"	D 63704	RG-WA	F	38.9	64	"
"	D 63705	RB-WA	F	38.6	64	"
"	D 63706	YR-WA	M	42.0	78	Net 3 NE of 417R
"	D 63707	YY-WA	JF	39.3	62	Net 2 spur at 417R
"	D 63708	YW-WA	F	37.8	68	Net 3
19/08/88	D 63709	YG-WA	JM	40.6	66	Net 10 SE terrace
"	D 63710	YB-WA	F	38.9	63	Net 11 SE terrace
"	D 63711	WR-WA	F	39.6	69	Net 11
"	D 63712	WY-WA	F	38.5	68	Net 7 near 129R
"	D 63713	WW-WA	M	41.2	74	Net 12 S summit
"	D 63714	WG-WA	F	38.6	68	" mate of WU?
"	D 63715	WB-WA	M	42.2	78	Net 7 mate of WY?
"	D 63716	GR-WA	M	41.3	85	Net 8 near 303R
"	D 63717	GY-WA	F	38.5	64	" mate of GR?
20/08/88	D 63718	GW-WA	JM	42.1	76	Net 10
"	D 63719	GG-WA	M	41.3	73	Net 15 above 71R
"	D 63720	GB-WA	JM	42.3	75	Net 16 near 17N

The major difference for the 1988 transfer was in the release technique. Half of the birds i.e. 10 box users and 10 controls were released directly on arrival at Kapiti, while the other half were held in an aviary for two weeks before being released. The aviary treatment was carried out in an attempt to reduce mortality associated with the stress of the transfer.

Next year I plan to release paired roost box birds, which have been homed as pairs in individual pre-release aviaries located in potential territories on Kapiti. A group of about 20 unpaired box users will serve as a control. I will probably not bring any more non box using control birds, because that part of the experiment should have served its purpose by then. Apart from carrying on with the ongoing test of the benefits of roost boxes, the experiment with paired birds could shed some light on the benefits of releasing established pairs. This would seem to be the logical way to release sedentary permanently pair-bonded birds such as saddlebacks. Such a technique for releases of endangered species has obvious practical application for birds such as the kokako, which share many Features with the saddleback.

The design of the three transfers could be summarised as follows:

1987	1988	1989
DIRECT RELEASE	DIRECT RELEASE	BIG AVIARY
24 controls	10 controls	20 unpaired box users
19 box users	9 box users	
	BIG AVIARY	LITTLE AVIARIES
	10 controls	c 6 pairs of box users
	9 box users	

4.2 Selecting the roost box birds

20 birds were selected from the group of 40 known box users on Stanley for the transfer. Most of the birds that were chosen were either adults in which only one bird of a pair was a box user, or unpaired juveniles. The 20 birds that were left behind on Stanley were mainly the roost box using pairs. It is important to the project that some breeding pairs remain on Stanley for it is these birds that train their young to use roost boxes, and thus help to keep the roost box using habit going in the Stanley Island population. By removing all of the roost box birds one could almost select box-using behaviour out of the population.

4.3 Catching the roost box birds

Since the rate of birds returning to roost boxes was so high I decided to concentrate on catching all the roost box birds for this year's transfer using the handnet method, which we employed successfully last year. Some refinements to this capture technique were made. We used the same #8 wire net frames as last year, however this time rather than using mesh, we used a heavier mesh (1 ½" fishing net mesh dyed black). The usual procedure was to fit each handnet individually the day before catching to ensure that it was a snug fit on each box. The nets were then removed so that the birds could enter the boxes at dusk to roost. Before dawn, while the birds were still asleep, we reattached the nets, and the catchers then waited nearby to let the birds emerge at the usual time.

Unfortunately it was too risky to go round the boxes the previous evening and fit all the nets after the birds had roosted, because there were thousands of petrels coming in, and there was always the risk that a petrel might get tangled in one of the nets overnight. To reduce stress while catching the birds, we always had only one handnet per person -so that the birds could be removed promptly once they fell into the nets. Thus with the handnet method of capture we were limited by the number in the party as to how many birds could be caught each morning.

4.4 Selecting and catching the control birds

Only birds that were hitherto unhandled and not known to use roost boxes were caught for the control group. We concentrated the mistnetting effort in those parts of the island (see Figure 2) where there were no roost boxes, to minimise the chances of catching birds that could have had some experience of roost boxes.

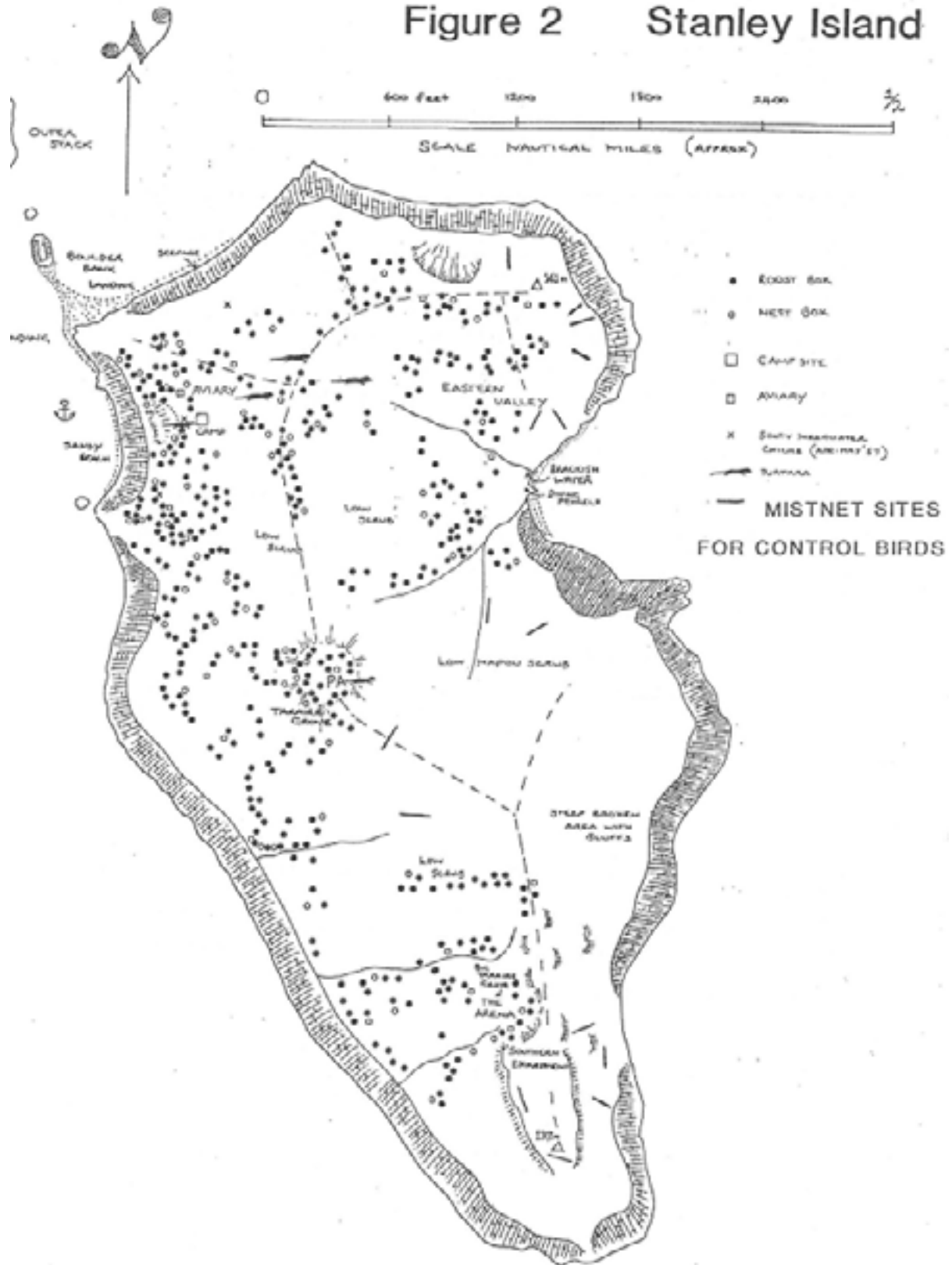
4.5 Birds in captivity

The 5m x 3m x 2m aviary built on Stanley in October 1306 was prepared for holding the birds in captivity using much the same procedures as used for saddleback transfers elsewhere. White shade cloth was attached to the inside of the netting to prevent the birds injuring their bills, and extra branches, foliage, leaf litter and rotted logs were provided. The birds were fed the usual captive saddleback diet of complan, jam mix, orange halves, crushed egg yolk, grated cheese, sultanas, Lobb's saddleback buns and invertebrates (from cultures of waxmoth larvae and mealworms).

Like last year's transfer the aviary was divided in two with a partition of two layers of black shade cloth. A zip door provided access through the shade cloth. Half of the aviary was set up with roost boxes for the roost box birds while the other half had perches in a dark corner for the control birds to roost on. The aviary at Kapiti, built in July 1988, was similar to that on Stanley.

The birds settled down well in captivity. The first foods taken (within an hour or two) were oranges and insects. After a couple of days most were readily taking the complan, jam and buns. Little interest was shown in the egg yolk, cheese or sultanas. Towards

Figure 2 Stanley Island



end of the time in captivity the birds seemed to lose interest in the oranges, and most of their feeding concentrated on the insect cultures, the rotted logs and leaf litter bagfuls provided (fresh bagfuls provided several times daily), and the complan, jam and buns. One bird (a juvenile male roost box bird, Y-A) died in the aviary on Stanley within 24 hours of capture. As with previous transfers deaths seem to occur within the first day of capture. Once the birds settle down into captivity survival is usually good. There were no losses during the actual transfer nor during the two week period of captivity on Kapiti.

Improvements were made to the transfer crates for this year's shift. Last year the birds arrived at Kapiti with their plumage covered in complan and jam mix, after the food containers had been tipped over. Previously the boxes had only one door through which the birds were fed and later released. This time small feeding alcoves were added. The birds quickly learned to reach through a wire grate to feed (see Figure 3).

4.6 The transfer

The weather was fine at Stanley on 23 August when we shifted the birds. Unfortunately it was rough at Kapiti, so a night was spent at Peter McKenzie's at Waikanae en route. Fortunately the weather settled the next morning and we were able to cross to Kapiti with Peter Daniel without difficulty. Even if we had arrived at Kapiti on the afternoon of 23/8 it would have been too late in the day to release the birds anyway, so the slight hitch with the weather was no problem. A direct air charter arranged with Air Coromandel from Whitianga to Paraparaumu had to be cancelled because the Air Coromandel Cessna 207 was not set up for IFR flying in poor visibility. Instead Air Coromandel flew us to Auckland, where we joined a scheduled associated Air Cessna 302 flight to Paraparaumu. The transfer and release went as follows:

Tuesday 23 August

0900-0945	Birds handnetted in aviary and placed in transfer crates
1030	Departed for Whitianga aboard "Maire", birds fed on way
1300	Arrived Whitianga, birds fed in crates
1500	Departed Air Coromandel Nomad for Auckland - arrived 1520
1615	Departed Auckland per Associated Air for Paraparaumu
1800	Arrived PRM - met by Peter Night spent at McKenzie's at Waikanae. Birds fed in transfer crates.

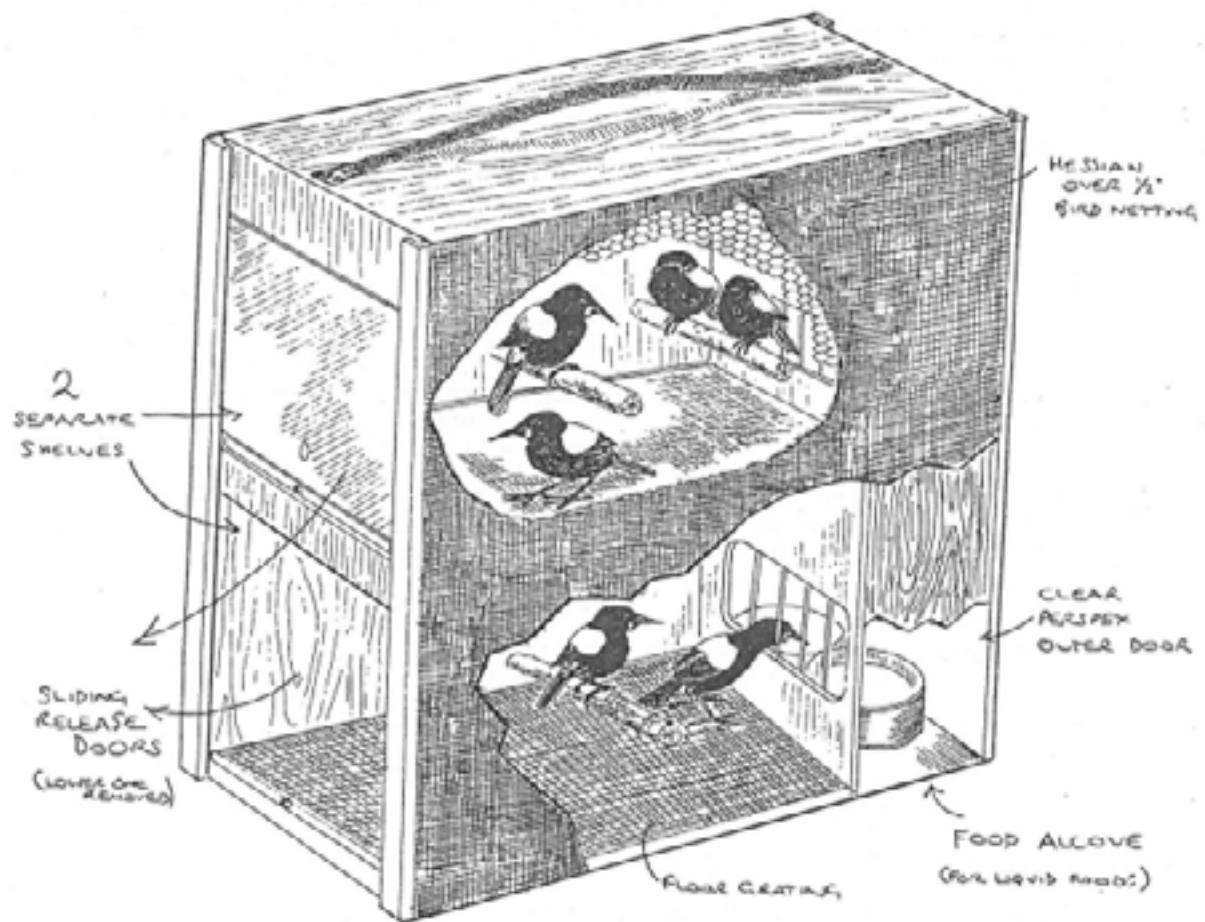
Wednesday 24 August

0830	Crossed to Kapiti with Peter Daniel Completed setting up aviary - released aviary birds into aviary, then released the other (direct release) birds c 100 m away beside the spring at 1030.
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Tuesday 6 September

0830	Released aviary birds
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Figure 3 Saddleback transfer crate



DIMENSIONS: APPROX. 760 x 650 x 280 mm

5. OBSERVATIONS ON KAPITI AFTER RELEASE

5.1 Introduction

I spent about seven weeks on Kapiti between 29 August and 14 October monitoring the survival and behaviour of the new birds. Part of this time was spent looking after the 19 aviary birds, which were released on 6 September, two weeks after the 20 birds which had been released directly. Resightings are summarised in Table 7.

Unfortunately one of the direct release birds succumbed very soon after release (see Table 7). On the first night it roosted in a vulnerable site on the ground amongst thick bracken. I found the well-chewed remains next morning. It had apparently been eaten by rat.

5.2 Feeding after release

A feeding table was set up for the direct release birds on 24 August at the release point, which was about 100 metres from the aviary. After a few days the food (jam mix, complan and buns) was moved to a place just in front of the aviary, where it was visible to the birds still in captivity. For a period of about six weeks just over half (53%) of the direct release birds regularly visited the feeding table. These birds that did not disperse quickly included even numbers of adults and juveniles. When the aviary birds were released they also visited the food. For the first two to three weeks after release about 75% of the aviary birds came in to take food. Some food was also left out in the aviary, and the doors were left open so that the birds could come and go as they wished. Several, including direct release birds which had not been in the aviary before, regularly went back in there for food. Although the birds had access to the aviary all the time, it appears that none went back in there to roost.

5.3 Dispersal

It was quite noticeable that the aviary birds dispersed more slowly than the direct release birds, because up to 18 of the 19 aviary birds (95%) were still being seen near the aviary after the first week (see Table 7). After the same period only 12 (63%) the direct release birds had been seen. After three weeks 17 (89%) of the aviary birds were still being seen, while 11 (58%) of the direct releases were seen. Five weeks after the releases of the two groups of birds the resighting rates were 14 (74%) and 11 (58%) respectively.

It took two to three weeks for the first birds to begin establishing territories. During the first week or two the birds were very silent. The level of loud territorial singing gradually increased as the birds began to settle in. The well established pair from last year's transfer, resident around the homestead interacted frequently with the new birds, by countersinging strongly and participating in territorial disputes. The old male was quick to take advantage of the food put out for the new birds. By 14 October about seven weeks after the direct release and five weeks after the aviary release, four pairs had established territories within about 500 metres of the aviary, and an adult female

Table 7 Resightings of birds from 1988 transfer on Kapiti

x bird resighted

r bird resighted and using roost box

Direct release birds - released on 24/8/88								
Col. comb.	- Weeks elapsed since release -							
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	
Control	RY-WA		r	x	r	r	x	x
	RG-WA	x	r	x	r	r	x	x
	YY-WA							
	YW-WA							
	YG-WA	x	x	x	x	x	x	x
	WR-WA	x	r	r	x	x	x	x
	WW-WA	x					x	x
	WG-WA	x	x	x	x	x	x	x
	GW-WA	x	x	x	x	x	x	x
	GG-WA	x	x	x		x	x	
Roost box	WR-WA							
	YA-R	x	x	x	r	r	x	x
	BU-RA	x						
	WG-RA	x	x	x	x	x	x	
	RA-Y	dead 25/8?						
	WA-B	x	r	r	x	x	x	
	BG-A	x	r	r	x	r	x	x
	RW-A							
	YG-A							
	GY-RA			x	x	r	x	
# seen	12	10	11	10	11	13	9	
Aviary birds - held in aviary until 6/9/88 then released								
Control	RR-WA			r	x	r	x	x
	RW-WA			x	x	x	x	x
	RB-WA			x	x	x	x	x
	YR-WA							
	YB-WA					r	x	x
	WY-WA				x	r	x	x
	WB-WA				x	x	x	x
	GR-WA				r	r	x	x
	GY-WA			x	x	x	r	r
	GB-WA			x	x	x	x	x
Roost box	GA-B			x	x	x	r	r
	YR-A			x	x			
	GA-Y			r	x			
	A-BB			x	r	r	x	
	RA-B			r	x	r	x	r
	B-A			r	x	x	x	x
	RR-RA			x	x	x	x	x
	WB-RA			x	x	x	x	x
	GB-RA			x	x	x	x	x
	# seen			18	17	17	16	15
Totals	31	29	29	27	28	29	24	

had formed a pair bond with an existing unpaired male from last year's transfer.

The new birds that had established territories by mid October had all done so within shouting distance of each other, within about 500 metres of the aviary. However some birds did disperse further, although by mid October it was not clear whether those birds had become site attached. Two were seen at Te Mimi nearly four kilometres south of the release point on 9 October. One of these birds, a juvenile female, was seen a week earlier about half way between the release point and Te Mimi. These observations suggested that it was still wandering.

None of the new birds had begun breeding by 14 October. However the breeding season for the existing pairs from last year's transfer was already well underway, because the homestead pair had already fledged their first brood by then.

5.4 Roost box use by new birds

Over 100 roost boxes were erected on the slopes near the aviary to maximise the chances of the new birds finding and using them. Some of the birds began using boxes the second night after release. Although the transfer included both roost box conditioned and non-box-using control birds, about even numbers of the two groups had used roost boxes by mid October, (i.e. 9 roost box birds and 8 controls had been noted using boxes). The proportions of the two groups using roost boxes will probably change as more of the birds disperse and establish territories. Last year the roost box birds tended to maintain their using habit when they dispersed, while the controls tended to move back into natural roost holes -despite roost boxes being available nearby.

6. OBSERVATIONS ON STANLEY ISLAND AFTER THE TRANSFER

6.1 Gaps in territories

In some cases roost box birds were removed from established pairs for the transfer, creating gaps in some of the territories. It seems take some time for everything to settle down again. In one of the territories where the male had been removed a neighbouring male moved in and bonded with the lone female. His previous mate was not found next door. In another territory where a female had been removed the male was often seen interacting with a neighbouring female of an established pair. This female and her usual mate already had large nestlings. In two other territories where males were removed the females were not found, and other birds did not seem to have claimed the territories.

There were still quite a few wandering immature birds on Stanley. It is likely that some of these birds will fill the remaining territorial gaps during the summer.

6.2 Breeding

By the first week of November breeding was well under way on Stanley. Some pairs already had fledged broods by 1 November, while late or failed nesters were just starting new nests. 39 of the 41 nests found were built in nest or roost boxes. (Breeding during the first parts of the last two seasons is summarised in Table 8).

At least 8 nests had failed by early November. Three of these nests appeared either to have never been incubated or to have contained infertile clutches, because they contained intact cold eggs. The other five nests appeared to have all suffered predation by kiore, because in all five nests fragments of eggshells were found mixed up with the nest lining - a characteristic sign of rat predation.

Last year it appeared that four nests were preyed on by moreporks. This year, in an attempt to reduce the level of predation by moreporks, I shifted many of the nest boxes, which had previously been erected in rather exposed sites, into more secluded places. This might have helped to make them less obvious targets for moreporks, because it appeared that none of the nests had been robbed by moreporks.

The timing of the 1988-89 season looks as though it is going to be similar to last season. However the mean clutch size appears to be greater this year with more three egg clutches, (cf mean clutch sizes in Table 8). In addition to the four three egg clutches noted in nests, another nest contained three large nestlings and a fledged brood of three young was noted.

Table 8 Summary of saddleback breeding on Stanley for the first parts of the 1987—88 and 1988-89 seasons.

Details	1987-88	1988-89
# nests found	29	41
# nests active	24	18
# nests partly built	5	3
# nests in nest boxes	24	36
# nests in roost boxes	4	3
# nests in natural sites	1	2
# nests failed (by 27/10/87 & 7/11/88)	7	8
- # abandoned during incubation	3	3
- # preyed on by moreporks	4	0
- # preyed on by kiore	0	5
# nests where clutch size known	18	11
- # with 2 eggs	16	7
- # with 3 eggs	2	4
- mean clutch size	2.1	2.4
# nests with 1 nestling	4	0
# nests with 2 nestlings	7	10
# nests with 3 nestlings	0	1
# nestlings banded	10	21
# broods fledged (by 27/10/87 & 7/11/88)	2	7

7. SUMMARY AND CONCLUSIONS

- 7.1 This report gives details of four visits to Stanley Island between June and November 1988, and the second transfer of roost box conditioned saddlebacks to Kapiti Island.
- 7.2 The major objectives of the visits to Stanley were to check roost and nest boxes, and to band and select suitable roost box using birds for the transfer to Kapiti Island.
- 7.3 The roost box birds were captured at dawn at their roost boxes while the non-box-using control birds were mistnetted. All were held for a few days in the aviary on Stanley, where they were fed various artificial foods, and given time to adjust to captivity.
- 7.4 The birds were flown from Whitianga to Paraparaumu. The actual shift took just over 24 hours from the time the birds were caught in the aviary at Stanley, to the time that they were either released or placed in the aviary at Kapiti.
- 7.5 The release technique for the 1988 transfer differed from that of 1987 in that half of the birds were released directly, while the other half were held in an aviary for two weeks then released. In addition all were given supplementary food after release.
- 7.6 The aviary treatment and extended supplementary feeding were designed to try to reduce the high initial post-release mortality which seems to have been a regular feature of previous transfers. The modified release technique already seems to have given some benefit, because five weeks after the 1988 transfer initial survival was double that of the 1987 transfer.
- 7.7 The newly-released birds began using roost boxes from about the second day after release. At least 17 birds were known to have used roost boxes by mid October. This total included 9 roost box birds and 8 control birds. Last year the roost box birds tended to maintain their long-established box using behaviour when they dispersed while the controls tended to move back to natural holes.
- 7.8 By mid October four new pairs had established territories within about 500 metres of the release point on Kapiti. None of the new birds had begun breeding by then, although one established pair from the 1987 transfer had already fledged two young.
- 7.9 In early November on Stanley Island there were still some gaps in territories created by removing the transfer birds in August. There were plenty of surplus birds to fill these gaps. Breeding on Stanley was well advanced. 41 nests were found. The timing was about the same as last year, however clutch sizes were on average a little larger. It could be a more productive breeding year.

8. ACKNOWLEDGEMENTS

I am very grateful for the help of all the volunteers who have participated in the project. Thanks also to Neil Hopkins for providing transport to the island, for storing equipment in Whitianga, and for making "Maire" e fr overnight accomodation before departures for Stanley. I am also grateful to the Hauraki Gulf Maritime Park Board for permission to work on Stanley Island, to the Department of Conservation for financial support, and to the New Zealand Lottery Board, whose grants have funded the entire field and transfer programme.

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14/11/88