Translocation of
whiteheads/popokatea (*Mohoua albicilla*)
from Tiritiri Matangi Island, Hauraki Gulf
to the Cascade Kauri Park, Waitakere Ranges
22 – 27 August 2004

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October 2004

Introduction

This is a report on the translocation of whiteheads/popokatea (*Mohoua albicilla*) from Tiritiri Matangi Island, Hauraki Gulf to the Auckland Regional Council (ARC) Cascade Kauri Park, Waitakere Ranges, which took place from Sunday 22 - Friday 27 August 2004. 55 birds (27 female and 28 male) were released into the park in the afternoon of Friday 27 August. This was the first translocation of a species, as part of the Ark in the Park community restoration project.

The translocation was approved following disease screening carried out by Kevin Parker, Auckland University – refer to the Auckland Regional Council (ARC) commissioned "Report on a whitehead (popokatea, *Mohoua albicilla*) survey on Tiritiri Matangi Island, January 2003". This was done to ensure that no diseases would be newly introduced to the Waitakere Ranges with the birds.

Background

ARK IN THE PARK

This is an Open Sanctuary based in the Cascade Kauri Park, currently with over 600 ha of predator controlled forest (aiming to incorporate over 2000 ha) mostly thanks to volunteers. The project is a Forest and Bird, Waitakere Branch "Auckland Naturally" project partnered by the Auckland Regional Council. The aim is to re-create a Waitakere forest where long lost species can resume their place in the eco-system.

REASONS FOR THE TRANSLOCATION

- To re-establish whiteheads in the Waitakere Ranges, the remnant part of Te Wao Nui a Tiriwa the great forest of Tiriwa, of Te Kawerau a Maki
- To enhance public awareness for conservation of this and other species, through public participation in conservation management of the population.
- To enhance research opportunities on aspects of forest ecology and ecological restoration in the Waitakere Ranges Regional Parkland.

This translocation will allow the establishment of whiteheads into a large area of managed habitat within its former range. Whiteheads were present throughout Auckland and Northland until the late 19th century, but apart from the natural population of Little Barrier Island and populations from translocations to Tiritiri Matangi in 1990 & 1991 and Hunua in 2002, the bird is locally extinct in Auckland and Northland.

Many of the whiteheads recently released to the Hunua Ranges, rapidly dispersed from the large kokako management block where predator control is concentrated. Predator control in the Ark in the Park covers over 600 ha with a buffer zone around the park where a number of private land holders have bait stations and stoat traps. Four additional areas of intensive predator control are also part of the nearby ranges. These include the Forest and Bird reserve Matuku, the ARC Arataki visitor centre, La Trobe track and on Lone Kauri Rd, totalling some 550ha. The additional "safe zones" act as a safety backup if the birds disperse widely.

Transferring whiteheads to the Ark in the Park site in comparison to the Hunua Range transfer, may give information relevant to further releases of this species or to the

development and shape of protected urban and semi-urban "green corridors". Successful establishment will give an additional source of whiteheads for transfer to other managed sites in Auckland and Northland.

CONTEXT OF THE TRANSLOCATION

The reintroduction of whiteheads can be seen as part of the ARC focus for the Waitakere ranges of maintaining and enhancing the natural heritage features in partnership with the community and interest groups (Regional Parks Management Plan 2003). It meets with Objective 24.2.1. in the Management Plan "A network of Mainland Islands in the region will help to ensure the survival of a representative range of native fauna and flora on the Auckland mainland and aid the release and establishment of a number of species formerly present but now locally extinct."

Proposed future translocations to the Ark in the Park, both medium and long term, include North Island robin, bellbird, yellow crowned kakariki, and kokako. The site is listed by the hihi/stitchbird recovery group as having "excellent areas of habitat" and potentially suitable for a mainland translocation (Hihi Recovery Group Meeting 2003, Minutes). The Pae o te Rangi regional park farmland, along with the lower Waitakere River valley, has been assessed by the pateke/brown teal recovery group and is recognised that to offer "desirable habitat diversity" (S. O'Connor pers. comm.).

A kaka breeding and release programme by Auckland Zoo could assist in establishing a breeding population at the Cascades, where kaka have been prospecting for nest sites for the past 45 years. A release programme would be similar to that at Mt Bruce, and the Zoo have established a working relationship with the Ark in the Park. New Zealand falcon may also be released, but as they are occasional visitors, they may self-establish when prey species increase as has happened in the Northern Te Urewera mainland island.

POTENTIAL CONSERVATION OUTCOMES

Whiteheads are not an endangered species and persist in several of the central and southern North Island forests. However, by the establishment of a viable population of whiteheads in a new forest area, the outlook for the threatened long tailed cuckoo can be improved; whiteheads being the sole North Island host species for this cuckoo.

The introduction of whiteheads will improve dispersal of local small fruiting flora. Small berries can be a significant part of the whitehead's diet and the Waitakere ranges are missing several species of the small bush birds which previously would have performed this role eg hihi, kakariki, bellbird.

Another beneficial conservation outcome of establishing the species is as conservation advocates. Many schools and tertiary institutions currently use the Waitakere Ranges as an open classroom and in the easily accessible mainland island-type sanctuary of the Ark the Park, the values of conservation will be more apparent. Having a conspicuous, vocal, flocking bird species return after being locally extinct for some 120 years to a forest visited currently by more than a million visitors annually to forest areas of the Waitakere Ranges, will show the potential of restoration efforts.

Whiteheads may self-establish closer to suburban areas and give yet more service as conservation advocates if, for example, the Waitakere City Twin Streams project

creates suitable protected habitat, linked to the Waitakere Ranges. The Ark in the Park site shares a ridge with part of the upper catchment of the Opanuku stream, a major component of the Twin Streams project.

LONG TERM PLAN

Year 1 (2004): Successful transfer of up to 60 Whiteheads to the release area. Survival of sufficient numbers (50%) of transferred birds in the core management area, and evidence of successful breeding during the first (2004-2005) summer.
Year 2: Evidence for recruitment of locally-bred young into breeding population in spring 2005, and small increase in numbers of breeding pairs/groups during the 2005-2006 summer.
Year 3: If deemed necessary, possible second translocation of a further 40 birds to be undertaken in autumn 2006. Further evidence of recruitment and increase in population size.
Year 4: Further evidence of recruitment and increase in population size.
Year 5: If deemed necessary, possible third translocation of a further 40 birds in autumn 2008. Further evidence of recruitment and increase in population size.

Translocation Methods

PERSONNEL

A core group of twelve people were involved with the capture of the birds on Tiritiri Matangi Island with logistical support from DoC rangers Ray and Barbara Walter. The catching team was: Sandra Jack (Manager, Ark in the Park), Mark Bellingham (Massey University and Ark in the Park), Troy Makan (Massey University), Rose Thorogood (University of Auckland), Todd Jenkinson (Auckland Zoo), Sharon Alderson and Morag Fordham (both Supporters of Tiritiri Matangi - SOTM), and the following supporters/volunteers for Ark in the Park: Mike Alford, Judy Woodcock, Amelia Geary, Mark Wilson, and Val Lyon. Additional help came in the form of John Sumich and Yvonne Pivac (Ark in the Park) on the Thursday, along with Kevin Parker (University of Auckland) who assisted with catching the birds in the aviary and the transfer of them to the park.

CAPTURE SITES AND METHODS

The first day (Sunday) was spent organising gear and food, readying the aviary and demonstrating mist netting for those in the group unfamiliar with the methods to be used. On Monday, the group split into three teams of up to 4 people, led by Sandra Jack, Rose Thorogood and Troy Makan. Mark Bellingham generally remained in the aviary area for banding purposes. Days generally consisted of approximately 3 hours catching in the morning, returning to the bunkhouse for lunch, then another 3 hours catching in the afternoon. Catching was stopped at approximately 4pm so that birds would have a chance to settle into the aviary before dark.

Birds were mist-netted using lure calls in the approved areas as stated in the permit. These included: along the walking section of the Ridge track above Bush 3 and 4 and also nearby suitable areas to the east of the track; areas near to the “road” Ridge track in Daisy Bush, Bush 3 and 4, and Apple Bush; areas alongside and near the Cable

track and around Fisherman's Bay; and also around the top perimeter of Bush 22. (See attached map).

Despite windy and showery conditions, 15 birds were mist netted on Monday 23rd August - 7 males and 8 females (not including one female which died during banding that day). By the end of Tuesday 24th August (the weather had improved and was relatively fine) we had 13 females and 27 males. These figures do not include one female caught on Monday, banded M-RY, then found dead in the aviary on Tuesday (the band combination was re-used on that day for another female bird). Wednesday we focused on capturing a further 13 females to even the sex ratio. Thursday we captured one further male and two further females (total of 28 males and 28 females) giving us a combined total of 56 birds. Due to the loss of one further female (found on the day of the transfer) we ended up with a total of 55 birds (28 male and 27 female) for the translocation.

BYCATCH

Other species caught at the nets varied, depending on the area where the net was set. A number of nets had a by catch of mainly bellbirds with a few other species being caught in very low numbers (hihi and saddleback). Nets in the Bush 22 area caught a number of hihi and other nets caught hihi in reasonable numbers. Hihi and bellbird were the predominant by catch. Total recorded by catch as follows: hihi/stitchbird 29, bellbird 35, saddleback 7, North Island robin 3, tui 3, grey warbler 1, wood pigeon 1, blackbird 1, kakariki 1.

BANDING PROCEDURE

Captured whiteheads were carried singly in a black cotton bird bag from the capture location to the aviary entrance area. The birds were weighed, wing length was measured and birds were banded and released into the aviary. Mark Bellingham carried out the banding, except one bird which was banded by Sandra Jack - see attached banding schedule.

The sex of the birds was determined by weight and wing measurements (Gill & McLean, 1986). Brief notes were made on the birds' plumage and leg colour. Age was not estimated. The birds were individually colour banded using combinations of one numbered metal band and three B-sized celluloid butt bands.

CAPTIVE HUSBANDRY

The aviary was furnished with available greenery mostly fivefinger *(Pseudopanax arboreus*) tied to existing branches, as there were very few fruiting plants available at the time), and rotten logs were placed on the aviary floor. Substantial quantities of fresh leaf litter were gathered and renewed initially and then renewed daily as necessary (around 2 – 3 sackfuls of leaf litter were "replaced" each day). Food was provided *ad libitum* and consisted of mealworms, wax moth larvae, "saddleback cake", jam and Complan mixes, grated cheese, and fresh fruit (apples, oranges, seedless grapes, tomato, kiwifruit).

Food was placed in small tins along a wooden board and held in place with nails. Up to four of these boards were put in a variety of places, at different heights around the aviary, as the number of birds increased. Fresh water was provided in large plastic pot plant bases on the ground, with rocks placed in the bases to provide perches. The food and water were refreshed 4 - 5 times daily. (Thanks to Tim Lovegrove, ARC Conservation Scientist for his help and advice).

TRANSFER

Firstly, foliage was removed to assist with the capture of birds in the aviary. The birds were then captured using hand nets starting at approximately 8.30am on the morning of the 27 August. Catching of the birds took approximately 45 minutes. The darkest area of the aviary was closed off using a roll down shade cloth "door". As the birds preferred the light they moved between the two corners of the aviary where Sandra Jack and Kevin Parker stood with nets. The transfer boxes and additional three helpers were also in the aviary nearest the exit so the birds were concentrated at one end and relatively easy to catch. They were marked off against the banding sheet and placed in the approved transfer boxes (5 boxes, divided in half, with up to 12 birds per box). Fresh water and a mixture of mealworms and predominantly wax moth larvae were provided in the boxes.

Once all the birds had been caught we searched for the one missing bird and found it dead on the aviary floor.
Note: To make the capture process as efficient as possible, birds previously caught in the same areas on the island were unable to be kept together in the same transfer box. For the same reason, birds were not weighed before being put into the transfer boxes.

The boxes were left in the aviary until 10.15am when they were moved by ute to the wharf and placed on a private launch which took them to Gulf Harbour. Upon arrival further mealworms were added to the food trays in all boxes as food given post-catch had been mostly consumed. This was done in the back of the ARC van with the doors and windows closed.

NOTE: all doors and windows needed to be kept shut while food trays were added to, in case a bird escaped. The van quickly became warm and had to be cooled down frequently with the opening of doors, after each box was finished. Towels were draped over the outside windows to shield the interior from the winter sun. The situation would have been more extreme in summer and shade would need to be sought.

We left Gulf Harbour at approximately 11.45 and travelled to the Cascade Kauri Park (with the occasional accompaniment of whitehead song) where we parked the van in the ranger depot shed, in the shade.

RELEASE

At approximately 1.30 we transported the boxes to the release site (5 minutes from the ranger station) and carried them to the grassy release area by hand. Speeches were given (10-15 minutes), then all 55 birds were released at once, by a number of children and young people (with some assistance from adults). Approximately 100 well wishers were in attendance. The birds quickly formed groups and called to each

other in nearby trees. They stayed in the release area for some time and some could be heard in nearby bush a few hours later.

Discussion

Tiritiri Matangi Island was an ideal source for the translocation because the birds were relatively abundant and areas for catching were easily accessible. The reduced travelling time and stress through having the island and release site so close, were also invaluable. Unfortunately two birds died in the aviary, one from an unknown cause and the other most likely as a result of not feeding in the aviary situation. A further bird died as a result of escaping in the entrance area of the aviary (where banding was being carried out). It injured itself on bare metal mesh which elsewhere is covered with shade cloth.

The remaining captive birds seemed to do fairly well in the aviary situation, feeding well and preferring the wax moth larvae and mealworms. If the aviary was increased in size, the extra room would certainly be beneficial to any future captive birds. The transfer to the Waitakeres went smoothly and there was no further mortality. The release itself was particularly successful with the birds staying in the release area for some time, with plenty of calling to be heard.

Aviary Upgrade on Tiritiri Matangi Island

There appears to be a need to increase the size of the holding aviary on Tiritiri Matangi Island. This would allow more space for the captured birds and also reduce problems associated with the number of birds able to be held in the aviary. It could also help alleviate stress for the birds during the aviary capturing process.

Also, the majority of the internal mesh in the main aviary has been covered with shade cloth (usually with a gap between the shade cloth and the mesh). This was done following the saddleback transfer to Karori Sanctuary, where one bird injured it's beak on the bare mesh. However there are still a few smaller areas of mesh that need to be covered, including the mesh on the doors facing into the entrance area to the aviary.

Bird Deaths

One female whitehead unfortunately died following an escape from being handled for banding on the 23/08 (she weighed 15g – the only female recorded with this weight). Banding and measuring took place in the entrance area. The bird flew into the bare mesh on the door leading outside and it was thought that this was the cause for its demise. It is recommended that shade cloth be added to these areas in a way that allows a small "impact" gap between the cloth and the mesh.

The other two birds that died during the transfer process were both females who were found dead on the ground in the aviary. The first female was a 13g mature bird who weighed one gram less when found dead. She was captured on the 23/08 and was found dead in the aviary the following day. The other female was captured on the 23/08 (also weighing 13g) and was found dead on the day of transfer (27/08) and was

not weighed. All three birds were frozen by Barbara Walter and donated to Brian Gill at the Auckland Museum.

NOTE: Weights of birds captured and weighed were as follows…

Female	2	12g
	1	12.5g
	17	13g*
	1	13.5g
	8	14g
	1	15g**
	30	Total number of females

* two birds, both weighing 13g, died
** this bird was found dead in the aviary on the day of the translocation

Male	6	16g
	16	17g
	3	18g
	3	19g
	28	Total number of males

Monitoring

No formal monitoring has been carried out as yet. Birds have been seen by volunteers and ARC staff indicating a number of the released whiteheads remain in the general release area (as at late October 2004).

The status of the released birds will be determined through roll-call monitoring of colour-banded and unbanded birds. In addition twice yearly monitoring of flock sizes and locations will be carried out to map the range of the species. When their numbers increase sufficiently, our density monitoring programme for other bird species (initiated in December 2002) will provide information on their population size and spread.

Media

Media were sent an email and written info pack regarding the release (handled by Simon Roche, ARC). Media coverage was not as forthcoming as anticipated. This may have been due to a lack of lead up time between contacting media and the release. In the future, direct media contact will be made in person with a follow up of info packs in an effort to increase coverage of the event and the Ark In The Park project. Dates for future transfers would be indicated in advance to important guests eg. Minister of Conservation, to avoid clashes with other events.

Volunteer and Public Participation

Volunteers from the Ark In The Park project assisted with the capture of birds over 6 days on Tiritiri Matangi Island as well as the release of the birds on Friday 27 August 2004. Children and young volunteers were organised to physically release the birds (with a little help from adults). There was open access to the release site at the Cascades Kauri Park on the day. Due to a need to keep numbers relatively low to avoid stressing the birds, and also for catering reasons, the general public were not informed of the exact release details. However any public in the area on the day were readily able to experience the release. Volunteers were also responsible for organising substantial refreshments as well as providing informal information to the public on the day.

There is the ongoing opportunity for volunteers to be further involved in aspects of the management programme in the Ark in the Park area, or as walkers on the several walks, which traverse the area. With the success of the release, the public will eventually see whiteheads elsewhere in the Waitakere Ranges Regional Park.

Conclusion

The translocation of whiteheads from Tiritiri Matangi Island to the Cascade Kauri Park marks a significant and exciting first step for the Ark in the Park restoration project. The translocation process went smoothly thanks to help and support from a great number of people (see below). The release itself was a spiritual and emotional experience particularly for volunteers who have helped control predators in the area over the past two years with such success, enabling this translocation to take place. To be involved in the return of whiteheads to the Waitakeres was a fantastic experience and a milestone on which to continue the success of the project.

Acknowledgements

I would like to take this opportunity to thank the following people:
John Sumich, Karen Colgan and all the volunteers of Ark in the Park whose hard work and dedication brought the project to this point, Rosalie Stamp and the Department of Conservation, Tim Lovegrove and the Heritage Section of the ARC, Tiritiri Matangi Island DOC rangers Ray and Barbara Walter, Supporters of Tiritiri Matangi Island, Mark Bellingham (Massey Uni and Ark in the Park), John Sumich (Ark in the Park) Troy Makan (Massey Uni), Rose Thorogood (Auckland Uni), Todd Jenkinson (Auckland Zoo), Sharon Alderson and Morag Fordham (both Tiri supporters), Mike Alford, Judy Woodcock, Amelia Geary, Mark Wilson, Val Lyon and Yvonne Pivac (all Ark in the Park volunteers who came to Tiritiri Matangi Island), Kevin Parker (Auckland Uni), Su Sinclair (ARC ranger and organiser of the release end of the translocation), Riki Bennet and Jason Duff (ARC rangers at the Cascades Kauri Park), Bruce Andrell and the rest of the ARC Western Parks team, David Pattemore, Nic Beveridge and Kevin Hackwell (Forest and Bird) and the wonderful Ark in the Park volunteers that helped to make the release day such a success.

References

Primarily refer to the:
Translocation Proposal and the Post-release Reports – both written by the Ark in the Park for the Department of Conservation.

Gill, B.J. & Veitch, C.R. 1990. Measurements of Bush Birds on Little Barrier Island, New Zealand. Pp 141-145 in *Notornis* No. 37 1990.

Gill, B.J. & McLean, I.G. 1986. Morphometrics of the whitehead *Mohoua albicilla* on Little Barrier Island, New Zealand. Pp 267-271 in *New Zealand Journal of Zoology*, Vol 13, 1986.

Lovegrove, T.G. & Veitch, C.R. 1994. Translocating Wild Forest Birds. Pp 23-35 in *Ecological Management*, No. 2, July 1994. Department of Conservation publication.

Lovegrove, T.G. 2003. Translocation of whiteheads (*Mohoua albicilla*) from Tiritiri Matangi Island to the Hunua Ranges Regional Parkland, 6-12 April 2003. Auckland Regional Council, (Heritage Department) Publication 2003.

McLean, I.G. & Gill, B.J. 1988. Breeding of an Island-endemic Bird: the New Zealand Whitehead *Mohoua albicilla*; Pachycephalinae. Pp 177-182 in *Emu* 88.

Parker, K. 2003. Report on a whitehead (popokatea, *Mohoua albicilla*) survey on Tiritiri Matangi Island, January 2003. Report to the Heritage Department, Auckland Regional Council, February 2003.

Attachments

Costs

Food provided for the whiteheads

Banding Record

Map of Tiritiri Matangi Island showing mist net sites

Photocopy of grid chart plotting birds weight vs. wing length for sex determination

Copy of DoC Permit - Authority to Capture, Handle, Transfer and Release Absolutely Protected Wildlife

Costs

Description	**Approved Budget**	**Actual Costs**
Transport (ferry ex city/GH) 14 people	$200	Covered by ARC (Approx. $15 per person)
Vehicle running costs (Gulf Harbour to Waitakere)	$620	Used ARC van
Accommodation (Tiritiri Matangi Island)	$800	Not charged
Food for catching party (and some for the birds eg. Jam, honey, fruit etc)	$1000	$534.77 maximum*
Bird Food (mealworms and wax moth larvae)	$400	Paid for by ARC
Mist nets (10 x $200)	$2000	Borrowed from SOTM and DOC
Colour bands (Size B celluloid @ $40/100)	$200	Supplied by ARC
<u>Additional items</u>: 5 Large pest proof containers	-	$49.95
Black calico fabric and cord for bird bags	-	$22.00
Pay for Manager for four days	-	$544.00
TOTAL	**$5220**	**$1150.72**

* approximately half of the food costs were re-imbursed by members of the catching party.

Food provided for the whiteheads

- Invertebrates
  5000 waxmoth larvae (*Galleria mellonella*)
  12000 mealworms (*Tenebrio molitor*)
  - were supplied by Biosuppliers plus an additional 2000 mealworms were provided by Creatures Unlimited (Brian Lawton).
  All the waxmoth larvae were eaten and the majority of mealworms were also eaten (12000 may have been sufficient).

- Saddleback Cake
  One cake was made and provided (not all of it was used although the whiteheads were seen eating it*).
  Ingredients and method:
  Cream 200g butter with 1 cup sugar, add 3 eggs and beat, then add approx 2 ½ cups flour and 2 ½ tsp baking powder. Add 1 cup of pre-soaked sultanas. Mix and spread into a lined baking tin and bake for about 30 minutes in a moderate oven. Cut into squares when cool.

- Complan and Jam Mixes
  The Complan and jam mixes were made up following the Nectar and Jam mix recipes used for saddlebacks (see Lovegrove & Veitch, 1994).
  Complan (Nectar) Mix:
  1 litre water, 6 tbsp Complan (vanilla), 4 tbsp Farex (plain), 1 tbsp honey – stir together until smooth. Keep refrigerated.
  Jam Mix:
  1 litre water mixed with 2 tbsp red plum jam. Keep refrigerated.
  Whiteheads were seen to eat these foods but not in any significant amount.

- Variety of fruit
  Oranges, apple, tomato and imported seedless grapes were cut up small and provided. These were nibbled at but not taken in any significant amount.

- Grated cheese
  Mild cheese was grated and provided – this was also nibbled at*.

- Forest fruits
  Freshly cut fivefinger (*Pseudopanax arboreus*) branches were offered – fruiting plants were not abundant at the time of the translocation. It is unclear how much of this food was taken.

- Forest litter
  A substantial number of sackfuls of leaf litter were gathered on the Sunday and put onto the floor of the aviary. Then 2- 3 sackfuls of leaf litter were removed from the aviary and replaced with fresh litter everyday. The birds were often seen searching for invertebrates amongst the leaf litter.

- Water
  Water was placed in 450mm plastic planter pot bases and refreshed several times daily. Rocks were placed in the water to provide perches.

*NOTE: Generally the whiteheads preferred the mealworms and waxmoth larvae to the other foods provided. However on the afternoon of Wednesday 25th, one piece of saddleback cake and one "plate" of cheese had been eaten. Usually though, only small amounts were taken.