

Translocation of  
**whiteheads/popokatea (*Mohoua albicilla*)**  
from Tiritiri Matangi Island, Hauraki Gulf  
to the Cascade Kauri Park, Waitakere Ranges and Motuora Island  
13-20 April 2008



PHOTO: Geoff Moon

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## *Introduction*

This report summarises the joint translocation of whiteheads/popokatea (*Mohoua albicilla*) from Tiritiri Matangi Island, Hauraki Gulf to the Cascade Kauri Park, Waitakere Ranges, and Motuora Island, Hauraki Gulf, which took place from Sunday 13 to Sunday 20 April 2008.

Fifty birds (20 females and 30 males) were released into Cascade Kauri Park on the afternoon of Sunday 20 April. This was the second translocation of whitehead, as part of the Ark in the Park community restoration project.

Forty one birds (18 females and 23 males) were released on Motuora on the afternoon of Sunday 20 April. This was the second translocation of a forest bird species to the island, the first being North Island brown kiwi under the Operation Nest Egg Programme.

## *Background*

### ARK IN THE PARK

This is an Open Sanctuary based in the Cascade Kauri Park, currently with over 1100 ha of predator controlled forest (aiming to incorporate over 2000 ha) mostly thanks to volunteer efforts. The project is a Forest and Bird, Waitakere Branch “Auckland Naturally” project partnered by the Auckland Regional Council who manage the Waitakere parkland. The aim is to restore the forest area so that existing and long lost species can resume their place in the eco-system.

### MOTUORA ISLAND

Motuora is an 80 ha island 5 km off the mainland in the Hauraki Gulf, between Kawau Island and Whangaparaoa Peninsula. It is a public recreational reserve jointly managed by DOC and the Motuora Restoration Society (MRS), an entirely voluntary organisation, set up in 1995. Since 1990, Motuora has been the site of a community-based restoration programme. Flora and fauna introductions of species likely to have been on the island prior to forest clearance and farming are taking place to restore the island's biological communities.

## *Reasons for the Translocation*

### ARK IN THE PARK

- To enhance the potential for re-establishment of 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 advocacy including public participation in conservation management of the population both within and outside the Ark area.
- To enhance research opportunities on whitehead establishment and other 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 19<sup>th</sup> 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".

#### MOTUORA ISLAND

- To re-establish the whitehead in a key part of its former range on the mainland in the Rodney District.
- To provide a site for the possible re-establishment of the threatened long-tailed cuckoo (*Eudynamys taitensis*).
- To enhance public awareness for conservation of this and other species, through public participation in conservation management on Motuora Island.
- To enhance research opportunities on aspects of forest ecology and ecological restoration on Motuora Island.

### *Context of the Translocation*

#### ARK IN THE PARK

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.”

#### MOTUORA ISLAND

This translocation provides an opportunity to re-establish the whitehead in a well protected area within its former range, increasing the species range since its disappearance from Northland in the late 1800’s.

Proposed future translocations of forest birds include North Island robin, red crowned kakariki, long tailed cuckoo and possibly North Island saddleback.

Common diving petrels were translocated to Motuora in 2007 with further translocations planned annually from 2008-2010. Fluttering shearwater, Pycroft's petrel, white faced storm petrel, flesh footed shearwater and sooty shearwater are other proposed burrowing seabird translocations from 2010 onwards.

## *Potential Conservation Outcomes*

### ARK IN THE PARK

Whiteheads are not an endangered species and persist in several of the central and southern North Island forests. However, the establishment of a viable population of whiteheads might provide opportunities for the threatened long tailed cuckoo to establish, 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 easily accessible mainland island sanctuaries conservation values 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.

### MOTUORA ISLAND

The forest bird community of Motuora is depauperate and missing many species dependent on the diversity of resources provided by a mature and unmodified coastal forest ecosystem. Whitehead will assist the dispersal of small fruiting native species.

Once the whitehead population is sufficiently established an introduction of long-tailed cuckoos is planned to restore that species to part of their former range. Self-introduction is considered unlikely because adult birds seem to return to their natal territories.

Whitehead are a vocal and visible species because of their flocking habit. This provides satisfying involvement for volunteers conducting monitoring and may increase interest and awareness of island ecology and future restoration initiatives on Motuora.

## *Long Term Plan*

### ARK IN THE PARK

Year 1 (2003): Successful transfer of up to 40 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.

### MOTUORA ISLAND

Year 1 (2008): Successful transfer of 41 whiteheads to the release area. Survival of 50% of transferred birds and evidence of successful breeding during the 2008-2009 summer.

Year 2 (2009): Evidence of recruitment of locally-bred young into breeding population in spring 2009 and a small increase in numbers of breeding pairs/groups during the 2009/2010 summer.

Year 3: If genetic research suggests low genetic diversity then a second translocation of a further 40 birds will be undertaken in autumn 2010. Further evidence of recruitment and increase in population size.

Year 4: 2011; further evidence of recruitment and increase in population size.

Year 5: 2012; assessment of success of translocations, and review of feasibility of future translocations if 2008 and 2010 translocations fail.

## *Capture, Processing and Captivity*

### PERSONNEL

Twelve people were involved with the capture of the birds on Tiritiri Matangi Island with logistical support from DoC rangers Jennifer Haslam and David Jenkins. The catching team was Mike Anderson, Kit Brown, Karen Colgan, Sandra Jack, Morag Fordham, Simon Fordham, Sharen Graham, Stacey Hill, Matt Mannington, Leigh Marshall, Kevin Parker and Su Sinclair.

### CAPTURE SITES AND METHODS

Sunday the 14 of April was spent organising gear and food, readying the aviary and demonstrating mist netting for those in the group unfamiliar with the methods. The group split then into 4 teams of up to 3 people. One bird was captured late on the evening on the 13; however it was released as we were reluctant to keep a single bird alone in the aviary. We were unable to mist net on the 14 due to high wind and heavy rain, and inclement weather caused disruption on most days. However, the general approach was to start catching at approximately 0700 and finish by 1600, thereby

allowing captured birds sufficient time to settle in the aviary before dark. Birds were mist-netted using lure calls.

Catch areas varied according to the prevailing wind and rain conditions and included the Ridge track above Bush 3 and 4 and 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; near the aviaries and around the top perimeter of Bush 22.

Twenty five birds were captured on the 15 of April, 36 birds on the 16, 32 birds on the 17 and 4 on the 18th. Measurements suggest that 40 females and 53 males were captured comprising a total of 62 adult and 31 juvenile birds (Table 1). One bird was released on the 16 after removal of a faulty band, and a second bird was released on the 17 after a health check revealed crusty skin on the belly and vent areas. All equipment associated with the second released bird was cleaned before use on any other birds.

### BYCATCH

Bycatch was not recorded but is inevitable on densely populated Tiritiri Matangi and species including bellbirds, kakariki, robins, saddleback, hihi were captured. All bycatch was immediately released.

### BANDING PROCEDURE

Captured whiteheads were carried singly in a black cotton bird bag from the capture location to the aviary entrance area. They were then weighed using Pesola scales and removed from the bag so a blood sample could be taken from the brachial vein on the wing for health and genetic analyses. Blood sampling is the first procedure carried out as this allows sufficient time when processing to ensure that bleeding ceases before the bird is released in the aviary. The unflattened wing chord was then measured to the nearest millimetre. When plotted against weight this provides a reliable indication of sex (Gill & McLean, 1986) (Figure 1; Table 1). Age was estimated based on plumage and moult patterns.

The birds were then individually colour banded using combinations of one numbered metal band and three B-sized celluloid butt bands. Finally, a cloacal swab was taken from each bird and a general check of plumage and body condition was conducted. Birds were then released into the aviary. Individual black bags were then reweighed, and checked for faecal samples to test for the presence of *Coccidia*.

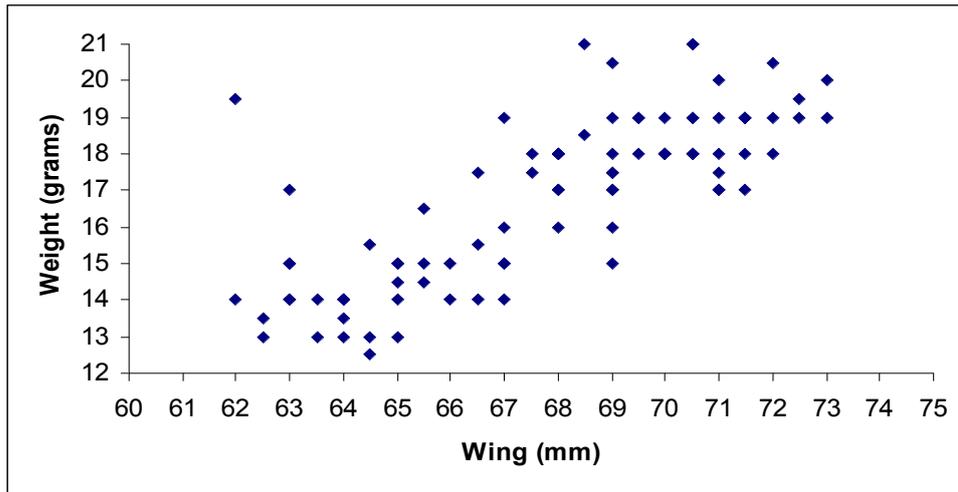


Fig 1. Plot of weight (grams) versus wing length (mm) for the 2008 Tiritiri Matangi to Motuora and Waitakere whitehead translocation.

**DISEASE SCREENING**

A sub sample of 40 blood smears were individually screened for blood parasites by Rosemary Baraclough, Massey University. Cloacal samples were pooled into groups of 10 and cultured by Gribbles Veterinary Pathology for *Salmonella* and *Yersinia* spp. Faecal samples were individually screened by Gribbles for Coccidia. Birds were held in aviaries on Tiritiri Matangi until initial results were received from Gribbles, and then translocated following discussion with Kate McInnes (Department of Conservation) and John Potter (Auckland Zoo). It was initially planned to hold all birds until disease screening results were received. However, birds were translocated based on results from the first 60 birds, and initial results from the remaining 31. This was due to welfare concerns, particularly for birds held in the tent aviary, and because of the inclement weather.

No blood parasites, Salmonella or Yersinia was detected in any of the translocated birds. Coccidia was detected in 26 of 82 birds tested, although it is likely that 7 of the positive results are spurious, being due to Klossia-like oocysts that probably occur in invertebrates eaten by whiteheads and passed out with faeces. Table One summarises the Coccidia results.

Table Two. Coccidia Results from the 2008 Tiritiri Matangi to Motuora and Waitakere whitehead translocation.

<b>Coccidia and Cryptosporida scoring guide</b>	<b>Number of birds with parasites</b>
Negative	58
No sample	9 birds
Spurious result due to Klossia-like oocysts	7 birds
Present in very small numbers	10
Light to moderate numbers	4
Moderate to heavy numbers	1
High to extremely high numbers	2

## CAPTIVE HUSBANDRY

Three aviaries including the permanent Tiritiri aviary, a small portable hard frame (shade cloth over timber) aviary (approximately 2.5 m long x 2 m high x 1 m wide with a safely door) and a portable tent aviary (divided into three flights), were furnished with large amounts of foliage, leaf litter, branches, tree fern fronds and rotten logs. Aviary floors were covered with substantial quantities of fresh leaf litter which was renewed daily (around 2 – 3 sackfuls of leaf litter were added each day). Additional foliage was also provided as necessary. Food was provided *ad libitum* and consisted of mealworms, wax moth larvae, “saddleback cake”, jam and Complian mixes and fresh fruit (apples, oranges). Natural food, (primarily karo fruit with some Coprosma, Pseudopanax and Muehlenbeckia fruit) was also provided.

Food was placed in small tins along wooden boards 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. Fresh water was provided in several 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.

## *Transferring the Birds*

Foliage was removed to assist with the capture of aviary birds. The birds were then captured using hand nets starting at approximately 8.30am on the morning of the 20 April. Catching of the birds took approximately 45 minutes. Transfer boxes and additional helpers were also in aviaries nearest the exit so the birds were concentrated at one end and relatively easy to catch. Birds were weighed and marked off against the banding sheet and placed in either wooden double ended transfer boxes (5-6 birds in each end) or in cardboard cat carry boxes (3 birds per box). Fresh water and a mixture of mealworms and wax moth larvae were provided in the boxes.

## ARK IN THE PARK

A chartered sailing of 360 Discovery took the birds to Gulf Harbour accompanied by Sandra Jack. A number of vehicles met Sandra at Gulf Harbour and the birds were transported to the Cascade Kauri Park (with the occasional accompaniment of whitehead song) and released at approximately 2pm.

## MOTUORA ISLAND

The Department of Conservation semi inflatable boat transported birds in transfer boxes and personnel to Motuora Island.

## *Releasing the Birds*

### ARK IN THE PARK

The transfer boxes were carried by hand from the Cascade Kauri Park's main Carpark, down the Whatitiri Track and over the Waitakere stream to a small clearing a few minutes along the track. A short speech was given and then all 51 birds were released at once, by volunteers. Approximately 50 well wishers were in attendance. The birds stayed in the area for some time calling to each other in nearby trees.

## MOTUORA ISLAND

All birds were released at the same site in Macrocarpa Bay 50 metres up the mown access track from the high water mark. The birds quickly formed several noisy flocks and then dispersed.

## *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.

Whiteheads are a relatively robust species that are easy to capture and maintain in captivity. However, we make the following points for future translocations;

- The kokako tent aviary proved to be inferior to the large main aviary and small hard aviary as it is too low, too small and moves too much in the wind. As a result, birds in the tent aviary did not settle as readily as those in the other aviaries. The particular tent design used is very poor for the daily management of captive birds, and we strongly recommend that they are not used for either whiteheads, nor for any other species in the future. The small portable hard aviary built by Ark in the Park volunteers on the island is a much better alternative.
- Live invertebrates are the favoured food of captive whiteheads. However, it is always critical to provide a variety of food options to cater for fussy birds. Providing large amounts of fresh natural foliage and leaf litter is also essential as it provides additional foraging opportunities and behavioural enrichment for captive birds
- The disease screening results were largely negative, the only detections being of Coccidia, for which there is no transmission risk. Given the large amount of baseline disease data existing for the Tiritiri Matangi whitehead population (C. 200 birds screened 2007-2008) we suggest that a risk analysis be undertaken for future whitehead translocations. This will provide for more efficient targeted disease screening.
- Initial analysis of the data showed that on average adults lost weight in captivity, with the birds that were held the longest (5 days) losing the most weight. In contrast juveniles gained weight in captivity (K. Parker, unpublished data). These results are currently being compared to previous translocations. While there are other factors that could have contributed to the weight loss (e.g. weather and seasonal effects) we still consider it to have important implications for deciding future quarantine periods.
- The combination of poor weather and the large number of birds targeted (100) provided many logistical challenges and we suggest that if this number of birds is targeted in the future that only very experienced translocation teams are permitted to do so.

## *Monitoring*

### ARK IN THE PARK

No formal post release monitoring has been carried out to date however a “site occupancy” monitoring method is currently being investigated to specifically monitor whitehead numbers during the 08/09 breeding season. Information on the status of the released birds may be gathered through our regular bird surveys.

### MOTUORA ISLAND

Nine volunteers undertook monitoring on Saturday 7 and Sunday 8 June 2008 by groups of two people searching specified areas of the island. Strong easterly wind conditions were affecting the eastern coastline and bush areas. Ten individual band combinations were recorded from mature coastal vegetated areas on east and west coasts and birds were frequently seen in the garden of the rangers' residence.

## *Media*

Media coverage included:

- “Whitehead come home to Motuora” - Dept of Conservation press release on the DoC website - <http://www.doc.govt.nz/templates/news.aspx?id=46327>
- “Teens Lend a Hand” – article on the front page of the Nor-West News, Thursday 24 April 2008.

## *Volunteer and Public Participation*

Volunteers from the Ark in the Park project and Motuora Restoration Society assisted with the capture of birds on Tiritiri Matangi Island as well as the releases at both sites.

## *Conclusion*

There have been considerable benefits of this joint translocation with the Ark in the Park restoration project and Motuora Island Restoration Society from cost and resources benefits to minimising impact on flora and fauna on Tiritiri.

The translocation of whiteheads from Tiritiri Matangi Island to Motuora Island is very significant as this is the first forest bird species introduction identified in the Motuora Native Species Introduction Plan, the plan guiding all introductions up until 2017.

This further introduction to the Cascade Kauri Park marks another significant and exciting 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 contributed enormously.

## *Acknowledgements*

- Richard Griffiths and Carl MacLeod (DOC Auckland Area Office), DOC Warkworth.
- Representatives from Ngati Manuhiri, Kawerau a Maki and Ngati Paoa.
- Kate McInnes (Dept of Conservation) and John Potter (NZCCM) for their guidance regarding disease screening and quarantine procedures.
- Motuora Restoration Society Committee and volunteers and Ark in the Park committee and volunteers.

## References

Primarily refer to the:

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## Appendices

1. Costs
2. Food provided for the whiteheads
3. Banding records
4. Media releases

## *Appendix 1*

### *Costs*

<b>Description</b>	<b>Actual Costs Shared Between ARK and Motuora</b>
Food for team and birds	956.10
Ferry tickets	150.00
Biosuppliers Ltd meal worms etc	2299.05
Dept of Conservation leg bands	157.95
Gribbles Veterinary disease screening	2349.00
Hardware and assorted items	218.68
Contract manager	4600.