



Dawn Chorus

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Information

Getting to Tiritiri Matangi

360 Discovery™, which is operated by Kawau Kat Cruises, operates a regular ferry service.

**BOOKINGS ARE ESSENTIAL!
AND AVAILABLE ONLY FROM:**

360 Discovery Bookings
on **0800 888 006** or
www.360discovery.co.nz

Departs: Every day **Wednesday to Sunday** from Pier Three, Quay Street, Downtown Auckland City at 9:00 am and from Pier Z, Gulf Harbour at 9:50 am, arriving at Tiritiri at 10.15am.

Returns: From Tiritiri at 3.30pm, arriving Gulf Harbour at 4:00 pm and Pier Three at 4:50 pm.

Includes: Return ferry to Tiritiri Matangi plus approximately 5 hrs on the island.

Weather Cancellations: Please call 0800 FANTAIL (0800 326 8245) after 7am on the morning of sailing to confirm if the vessel is sailing.

Prices:

Ex Akl: Adult \$66.00 Child \$29.00

Senior/ Student/ Backpacker \$59.00

Ex GH: Adult \$39.00 Child \$19.50

Senior/ Student/ Backpacker \$34.00

NB. There is an extra \$3pp fuel surcharge on all bookings

Guided Walks:

Adult \$5.00: Child \$2.50

Discounts available to the Supporters of Tiritiri Matangi (SoTM) on special supporter weekends

School Visits

Schools wishing to visit Tiritiri should first visit our website:

**www.tiritirimatangi.org.nz/
SchoolVisits.htm**

where you can download the school guidelines. Then contact Mary-Ann either by telephone 09 476 0010 or e-mail: manager@tiritirimatangi.org.nz.

Advance bookings are essential.

Overnight Visits

Overnight bookings can now be made on line. To find out more and/or make a booking go to www.doc.govt.nz/tiritiribunkhouse

Those who are "internet averse" can still make a booking by phone by contacting the Warkworth Area Office 09 425 7812 (a small booking fee will apply).

Supporters doing official volunteer work like guiding or working in the shop, should book their accommodation through the guiding coordinator to obtain free accommodation.

This volunteer work has to be at the request of the guiding & shop manager or the Supporters' committee.



Upcoming Events 2009

January 24 – 26

Working Weekend (Anniversary)

February 6th

Waitangi Day Picnic –
50 spaces available

February 6th and 7th

Adults' non-working weekend

March 16th

AGM at Kohia Teachers' Centre

April 18th and 19th

Families' weekend

May 30th, 31st and 1st June

Working weekend

July 25th 26th

Families' weekend

August 23rd

Kowhai day picnic,
50 spaces available

If you wish to attend one of these exciting days or weekends they can be booked **ONLY** by contacting Mary-Ann at the shop on Tiritiri Matangi, telephone 09 476 0010 or e-mail manager@tiritirimatangi.org.nz

Prices:

Ex Akl: Adult \$38.00 Child \$20.00

Ex. Gulf Harbour \$22.00 \$14.00

For non event days please contact 360 Discovery Bookings.

Contact Details

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The opinions of contributors expressed in Dawn Chorus do not necessarily reflect the views of the Supporters of Tiritiri Matangi Inc.

The big news in the last quarter has of course been the translocation of three kokako. This was the culmination of a lot of effort by many people, and in particular Morag Fordham, Elizabeth Milne, Anne Rimmer and Liz Garrett. All have given freely of their precious time and endured some trying conditions. Various DoC staff also contributed greatly.

What is particularly important about the release is that there has been some uncertainty as to the future of kokako on Tiritiri. At a recent committee meeting, though, we reaffirmed our belief that kokako must stay on the island. While species recovery is an important goal, perhaps as important is that Tiritiri is probably the most accessible place for the public to see these special birds. It's important

that New Zealanders get to see our rare fauna – and therefore to back recovery efforts. We accept this means an ongoing role and commitment by the Supporters towards sustaining kokako on the island, but believe this support is vital.

Dawn Chorus has become a key part of our communication to members and others, and in recent years has reached new heights of quality and professionalism under editor Paul Colgrave's care. Sadly, this is Paul's last Dawn Chorus, as he has had to step down for business reasons. Everyone I have talked to has had nothing but praise for the superb quality of this publication, now of a standard rivalling other better-resourced publications. We thank you, Paul, for doing such an

outstanding job.

So... is anyone interested in taking over the mantle? If you are, or just want to ask some questions, please contact me or any of the Committee.

Also, we have had no luck in locating a replacement treasurer. Bill Mancer has kindly filled in for the time being, and will do the annual accounts for us – but we still need one! The work is not onerous, as David Meldrum, our superb bookkeeper, takes care of banking and bill payments – it's about two hours a month, plus a bit more in January. Again, please contact me if you're interested.

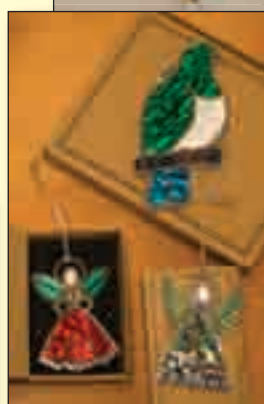
Finally, thanks to everyone who has participated in the brainstorming and come forth with ideas. Over the next month we'll be bringing these together into a draft outline

The Tiri Gift Shop

Christmas greetings from the Tiritiri Matangi Island shop. We have some beautiful new items for Xmas plus all the ones you already know.

For your tree or as a gift – pohutukawa and silver fern angels in boxes, \$15. A boxed Kereru \$23. Coat, cup or key hooks with fantail, kiwi, saddleback, pukeko or pohutukawa, \$12 to \$24. A beautiful Kevin Kilsby espresso cup and saucer, \$32 in cabbage tree, nikau or pohutukawa (lime green and red – very funky) designs. There is a small square plate to match for \$24 and tiles for \$19. A range of Porteous art tiles for \$60. The beaded Xmas native NZ bird decorations pictured last issue are still available and look beautiful on the tree.

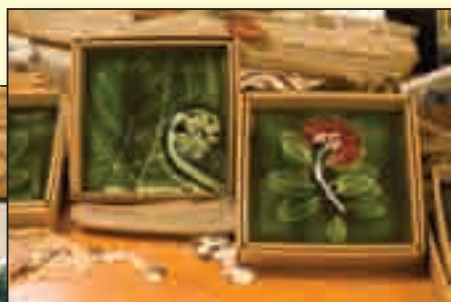
To order you can either phone the island Wednesday to Sunday, weather permitting, on 09 476 0010, or email manager@tiritirimatangi.org.nz We look forward to hearing from you.



Waitangi Day Picnic

This is our traditional Supporters' day picnic. It is a great opportunity to visit the island, especially if you haven't been for a while, and to catch up with other supporters. We have 50 places booked on the ferry. 360 Discovery have again given us a very good rate – ex Auckland, adult \$38, child \$20; ex Gulf Harbour, adult \$22, child \$14, there may still be a \$3 fuel surcharge. For bookings please either email or phone Mary-Ann – 476 0010 or email manager@tiritirimatangi.org.nz

Lots of juvenile birds, good weather (!?), good company, good food and even a chance for a swim. Hope to see you there.



New Kokako for Tiri

by Anne Rimmer

In the May 2008 issue of the Dawn Chorus, Bradley Smith reported on catching kokako to be taken off Tiri. Now, new birds have been brought on to improve the gene pool of Tiri's precious kokako population.

On August 30th, 2008, three new kokako were released on Tiri in a public release. Two of these birds had been caught in the Pureora Forest, in an exercise initiated and funded by the Supporters of Tiritiri Matangi, while the third is the last captive-reared bird that carries the rare Taranaki genes.

Morag Fordham organised the kokako-catching trip to Waipapa in the Pureora Forest Park, which lies between Lake Taupo and Te Kuiti. In the 1970s Pureora was the site of anti-forestry protests when protestors occupied platforms built in the treetops to protect the trees from being felled. Their actions led to a government-imposed logging moratorium and, eventually, the end of native forest logging in the Park. DOC now administers the park, whose remaining forest is truly astounding in its height and majesty. Yet, despite thirty years of predator control, with bait stations on a 150m grid, this forest was largely silent - a huge contrast to the constant bird-song on Tiri. In my week there I saw only a few robins and tomtits.

The team included DOC staff from as far afield as Napier, Opotiki and Ohakune, four Tiri Supporters (Elizabeth Milne, Liz Garrett, Anne Rimmer and Morag) plus other volunteers. Kokako-catching expert Tertia Thurley was contracted by SOTM to lead the group, with Jane Haxton (DOC) in charge of a second team. The presence of so many DOC personnel was partly because they wanted to learn catching and banding techniques from Tertia. DOC also provided two vehicles.

At the Pureora Field Centre, DOC has taken over the old forestry buildings, and the Kokako team was comfortably housed in the fire station. Though it was bitterly cold, there was a good wood-stove, and we worked our way through a mountain of wood.

The best time to catch kokako is at dawn, so early starts were required. Everyone stumbled out of bed at 4:30am, and sat, numbly munching through their breakfasts, shivering in the predawn chill. One morning a hoar frost covered everything in white, and even at 10am white frost lingered

in the shade. When it hailed one day the hailstones remained lying on the ground.

Setting out at 5:30am, we drove for 30 minutes, then hiked into the forest for a further 30 minutes or more, as the dawn broke. Several fine mist-nets were set up in clearings where they could be raised up 25 metres in the tall podocarp forest. Tertia uses a slingshot to send up the first fine line into the tree-tops to haul up the lines which support the net. Each net was put up in a known kokako's territory and carefully placed to maximise the likelihood of a bird flying straight into it.

One net was located over a swamp in a gully, which made for wet, cold feet, especially when a robin flew into the net, and two of us had to stand in the water, patiently untangling the tiny bird from the fine mesh, a process which took about 30 minutes. Tiny birds get far more tangled in the mesh than do kokako which could be released in a few seconds after the net was lowered.

The nets are so precious that the mesh may be cut only as a last resort. We made four tiny cuts to rescue the robin, and later Tertia taught us how to mend them again. The repair must be as fine as the original mesh, since the whole point of mist netting is that the birds don't see the net before they fly into it.

When everything was ready, we hunkered down amongst the lush ferns to wait. There's a lot of standing around in this job, and to keep warm, I was wearing thermal underwear and three layers of polar fleece under a good coat. We all brought thermoses holding hot tea or soup.

Tapes of kokako calls, some of them distress calls, attracted the birds, and many were seen over the ten-day period but only two were caught. We had hoped to catch six, but it was not to be; some canny birds skirted the clearings, and some hit the net and bounced out again.

The two caught birds were held in a special tent-aviary which had three



The fine mist net is ready to be hauled high into the tree tops. Nicole Sutton, Morag Fordham and Tertia Thurley.

These stately trees at Pureora Forest Park were saved through the actions of anti-logging protesters in the 1970s.





Mary Gray, a volunteer from Boundary Stream, holds the first kokako immediately after it was released from the mist net.

compartments attractively decorated with branches bearing berries, and leaf-litter on the floor. A feeding station offered a tempting selection of fruits, vegetables and meal worms, while bowls held sweet diluted jam, known as 'jam water'. Amazingly, the newly-caught birds were willing to feed while being held in our hands. They fiercely struck at a fresh banana, taking great bites of it with their sharp beaks, and drank deeply from the jam water, and from Wombaroo Mix, a special high-protein parrot food. This initial feeding gives them a great energy boost after the shock of being captured.

The two Pureora kokako were driven up to Auckland Zoo for disease-screening before release, while Poutama, the kokako that carries half-Taranaki genes, was flown up from Mt Bruce.

Anne Rimmer and Jane Haxton work to free a robin thoroughly entangled in the net.

The purpose of this release was to introduce a greater diversity of genes to Tiri, where the small population of kokako is largely descended from one breeding pair (Te Koha Waiata and Cloudsley Shovell). DOC's Kokako Recovery Group also intends Tiri to be the reservoir of the remaining Taranaki genes which are extinct in the wild. Including last season's chick, Naki, there are now five "Taranaki" kokako and in the future, some of these kokako bred on Tiri will be released in the Taranaki area.

All three birds were released on August 30th at the main junction on the Ridge Road (where the Cable Track, Emergency Landing Track and others intersect). They were in good shape, looking bright and feisty, and were shown around to the appreciative crowd of some 60 people by Morag, and Hazel Speed from DOC. Offered jam

water and banana, they ate and drank eagerly. It seemed a good omen that, rather than fleeing when released, the birds remained in the vicinity eating leaves as the crowd dispersed.

There are now 19-21 kokako on Tiri. Two other Pureora kokako (Waipapa and Mawhero, both females) had been caught and brought to Tiri in October 2007, and three other captive-reared Taranaki birds (Te Rae and Pukaha, both females, and Paraninihi, a male) were released at the end of June 2007.

With the addition of this new blood it will be interesting to see what pairings ensue, and whether the kokako song on Tiri (which is thought to be rather limited at present) becomes richer.

The three new birds are: Poutama, OM-W, male, Crown, GM-G, male, and Pureora, GM-R, female.



The short Totara Walk near the Pureora Field Centre gives a taste of the forest.

In the chilly dawn, Tertia Thurley, the team leader, plays kokako calls to entice the birds into the net.



The bellbird family tree, malaria infec

I come to stay on Tiritiri Matangi Island every now and then to wander through the forest, put coloured leg-bands on, and take blood samples from bellbirds. In addition to completely falling in love with this charming little bird, I am studying their genetic diversity in a part of the genome that codes for disease resistance, the Major Histocompatibility Complex (MHC) genes.

A relatively new branch of immune system studies has shown that it may be possible to make a connection between MHC genes and the avian malaria infections. Can we see natural selection in host-parasite relationships at work? How well adapted is the bellbird to malaria? As a starting place, however, I will be visiting several locations in the North and South Island (Table 1) to try to piece together a more complete picture of the bellbird genetic background and family tree. At the same time, I will map out geographic patterns in their malaria infections (See Box 1).

The Study System: host-parasite-resistance genes. Our host species, a charismatic little passerine, the bellbird, is a very common endemic bird throughout New Zealand, which makes

them a good study model for looking at genetic adaptations and natural selection (Fig. 1). The parasite is avian malaria. It too, is common throughout the country and we are all in the beginning stages of understanding New Zealand malaria lineages. Avian malaria has been shown in experimental manipulations to cause symptoms anywhere from death to a few days of fatigue and low appetite during initial infection. And finally, the MHC genes are perfect for this kind of study on immune competence because they directly code for resistance to disease.

Some necessary jargon regarding the Major Histocompatibility Complex (MHC). Before you read on, I want to explain that a key feature of my study is to compare MHC genes among bellbird populations. But what exactly are MHC genes? Well, they are a part of the genome that codes for the MHC molecule, whose major function is to adhere to foreign chemicals, or antigens, that may pose a threat to the immune system (Fig. 2). It is good to understand that the particular region of the MHC that binds to a foreign antigen is called the peptide binding region, or PBR. The PBR is a truly fascinating complex



Figure 1. A good study system for trying to understand how wild birds adapt to parasites.

that operates in you and I as well as the bellbirds, say for example, when we deal with a flu. There are thousands and thousands of PBRs in your cells, and they vary like an arsenal of combination locks. When you match one of those combinations (of genes) with your flu bug, you can trap that bug, set off an immune response and with any luck, get better in a few days, and become resistant. In order to be completely resistant to a novel pathogen, you must have the genes to combat it. We will learn how the bellbird genetic resistance arsenal varies among populations geographically.



Figure 2. Major histocompatibility complex (MHC) molecule with a foreign antigen (like malaria) trapped in its peptide binding region (PBR).

Box 1. RESEARCH OBJECTIVES

1. Ascertain the number of MHC alleles in each bellbird population

2. Reconstruct host evolutionary history & phylogeny

3. Document geographic variation in malaria prevalence & parasitemia

4. Understand seasonal variation in immediate health status & parasitemia

No. of bellbirds**	Malaria	History	Population
Remnant Islands			
50	unknown	Bottleneck?	Poor Knights
170 (122)	unknown	Bottleneck?	Little Barrier
250 (212)	50 % (Barnardough)	Bottleneck?	Tiritiri Matangi
Mainland Island			
150 (79)	23 % (Barnardough)	Founded in 2005	Tennison
Mainland			
50	TBA	Outbred	Barrow's Point
50	TBA	Outbred	Kaikoura
50	6 % (Dunrock & Tompkins)	Outbred	Dunrobin
Sub-Antarctic Island			
50	TBA	Isolated	Auckland Islands

* Malaria diagnostics, body condition, WBCs, & anaemia data are collected from all birds.

** Number of birds captured to date in **BOLD font**.

Table 1. The bellbird populations involved in this study can be characterized by 1) remnant populations of the extirpation area in the north, 2) recently founded mainland island within the extirpation area, 3) long-term mainland North Island and South Island, 4) long-term separation sub-Antarctic populations.



Where did all the bellbirds go? As many of you know, the bellbird was extirpated from the Auckland and Northland regions after rapid population declines, which began in about the 1860s. They completely disappeared! And no-one knows exactly why! A combination of disease and restriction in habitat coupled with a fast incursion of predatory mammals is suspect.

All was not lost, as remnant populations persisted on offshore islands, including Tiritiri & Little Barrier Island. Just imagine the loss of genetic information that must have happened? We can get a rough idea of the extent of that genetic loss by comparing the remnant island populations to long-term mainland populations in the non-extirpated areas. I will be targeting three main regions of the DNA to do just that. Those regions are MHC, neutral non-coding introns of the regular genome, and mitochondrial DNA which is passed from mother to daughter in a matrilineal family tree.

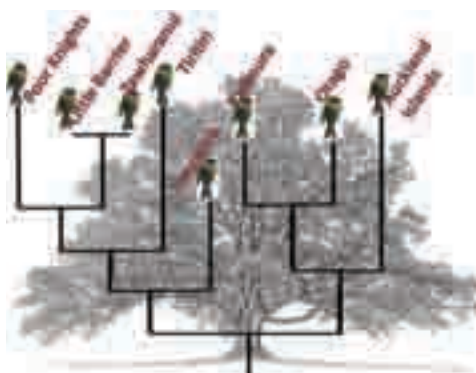


Figure 3. This is a hypothetical phylogenetic tree based on mitochondrial DNA analysis, which will begin next year. The North & South Islands might cluster separately. Knowing whether this is true or not, will help us better understand discrepancies in MHC gene pools.

It gets even better... an incredible success story brought on by successful predator eradication programs, is that Tawharanui came back into the picture for bellbirds in 2005. Bellbirds flying over from Little Barrier Island began to settle down and raise families in the Tawharanui 'mainland island' over the past three years. This gives us a fantastic and unique opportunity to study recent naturally selected 'founder' populations of New Zealand passerines in re-established habitats... information good for comparisons with 'artificially' selected translocated founders.

A phylogeographic research approach. That means we consider geographic patterns in MHC and malaria infections in light of the phylogeny and historical demography of multiple host populations. We know that Darwinian selection pressure acts directly on the MHC and that it is very good at adapting to disease... but it is practically useless for tracing a family tree (or phylogeny). MHC is too variable. The branches of the MHC tree get chopped off, copied and grafted back in other places at such an alarming rate that the grafting history essentially gets erased. Comparisons of geographically disperse bellbird populations will help put MHC variation in perspective by using the 'big picture'. This is accomplished by assessing neutral genetic drift, historical and recent bottlenecks caused by population declines, and the family trees.

By taking this exciting phylogeographic approach - No, really, it is very exciting! - I should be able to illuminate more on the biological significance of MHC variation. Once that part is better understood, then we can explore the specific malaria lineages and any

specific associations with MHC genes of the New Zealand bellbird.

Some of my hypothetical scenarios. As I have alluded, at this stage it is difficult to predict MHC diversity and frequencies of malaria infections. We simply do not know enough about these things in New Zealand birds yet. To avoid making a lot of erroneous assumptions, my Stage I Hypotheses are very simple and exploratory in nature. These hypotheses do, however, have a rigorous experimental design because of the inter-population comparisons. Here, you can browse through a hypothetical phylogenetic tree (Fig. 3) and some inter-population comparisons relevant to the Hauraki Gulf that test demographic influences that shape MHC diversity (See Figs. 4a-c).



Figure 4a. This is a classic genetic viability hypothesis of bottlenecked versus outbred populations where MHC diversity is thought to be lower in 'bottlenecks'. Bellbirds in the remnant Hauraki Gulf islands might have lower MHC diversity than long-term mainland birds outside of the extirpation area.



Figure 4b. A first task is to figure out if there really are any bottlenecks. And we will know that with the microsatellite data by this time next year. Tiritiri could well be a relatively more severe bottleneck than Little Barrier. The hypothesis as it stands is that Tiritiri bellbirds will have lower MHC diversity based on demographic effects... but, what happens if they just happen to have higher parasite frequencies? Will that selection pressure result in higher MHC diversity?

Tiritiri Matangi, Taa Taatou Koorero – Our



The Supporters' vision to have a Visitors Centre with inspiring displays depicting the Island history has been on our agenda for many years.

In October the interpretation component of this project was installed after a two year process of design and consultation and the generous support of grants from the ASB Community Trust and The Lion Foundation. The Department of Conservation funded the design costs of this project.

With the display space at a premium, as the centre has a number of uses including our shelter for inclement weather, the interpretation had to be compact, durable and timeless. This was managed by design features of dioramas and effective use of wall panels to tell the Tiri story. The use of diorama means that a visual scene can say 1000 words, and gives the public a view of 'behind the scene' look at bird monitoring and a night time scene, subjects that you would not see on a day trip to the Island. Graphics have been drawn of the bush and coastline views around of the island by artist Chris Gaskin.





Features of the display include a timeline covering the human occupation of Tiritiri Matangi from Maori until the present day. Display cases below this wall will have artefacts from the various periods including lighthouse keepers' order books, a lighthouse lamp, and cable from when the lighthouse was powered from the mainland. Tree planting plans of the island together with early documents from the Supporters of Tiritiri Matangi, will also be on display. This area also has a large relief map depicting the geographical features of the Island, enabling people to view where they have been or where to go on the Island.

We have a Children's area with audio visual and touch screen computer technology relating to species found on the island. These features can be further developed to include future translocations of species. There are also books, puzzles and games to encourage learning in conservation topics. With 5000 visitors in school groups each year, it is important that

we promote activities to enhance students' experiences while on Tiritiri.

The third display is of the natural world, including insects, reptiles and the sea birds around Tiri. This area shows the results of revegetation on the island together with management of species.

Supporters of Tiritiri Matangi are extremely proud of this new display and know it will heighten public awareness of community conservation projects, and what can be achieved by groups of individuals. Tiri has over 30,000 visitors per annum, ranging from the general public arriving on the ferry, to people in their own boats, and special interest groups. Our display has something for all ages and interests. It is 'Our Story'.

Thank-you to the following organisations and people for their grants and donations:



ASB Community Trust
The Lion Foundation
Department of Conservation,
Photographers-

Simon Fordham

Anne Rimmer

Gareth Eyres- Exposure

Vision Technology Solutions

A special thanks to the following SoTM Sub Committee members for their commitment to this project:

Simon Fordham, Margaret Chappell,
Maria Galbraith, Ray Walter,
Cathy Catto.

The bellbird family tree, malaria infections & MHC

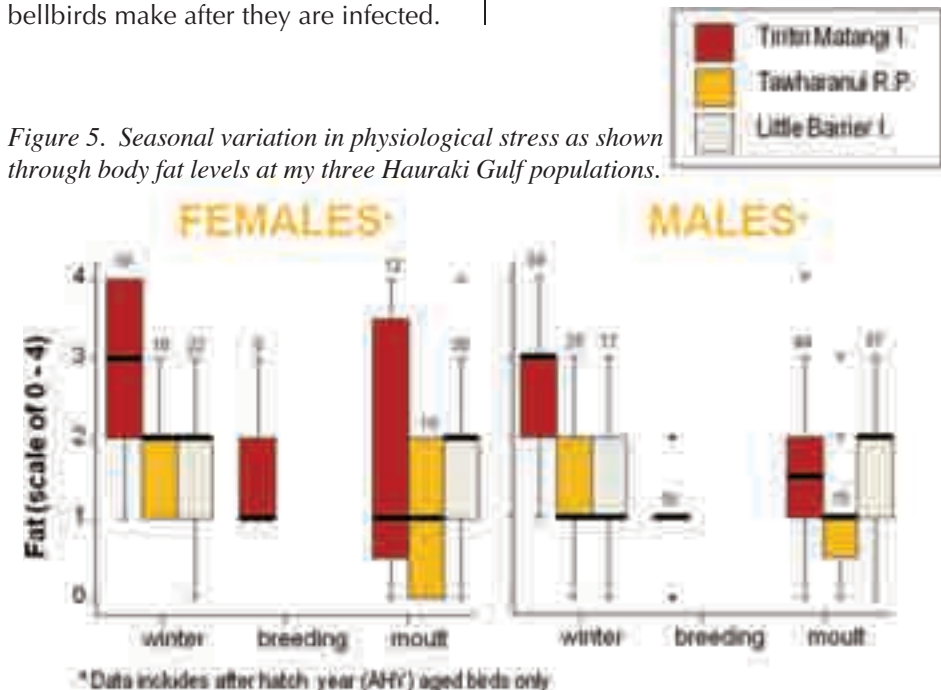
Continued from Page 7...



Figure 4c. And finally, in the recent Little Barrier to Tawharanui emigration scenario I am hypothesizing changes in MHC alleles from source to founder population. Also, we can see how quickly disease adaptation (or MHC evolution) can occur by looking for variation of MHC alleles among successive cohorts. How fast are the bellbirds at Tawharanui adapting to a new set of pathogens?

What have we learned over the first year of this study? In the Hauraki Gulf populations, so far it looks like fat levels are significantly highest at Tiritiri, but more data will be collected over this next breeding season at all three locations (Fig. 5). Fat levels & body condition indices can be proxies to environmental stressors. It is plausible that fat levels will correlate with parasitemia levels. Fat and body condition, however, have a complicated relationship with malaria and depend on a number of factors, like stage of virulence in the population, stage of infection in the individual, and reproductive choices, or trade-offs the bellbirds make after they are infected.

Figure 5. Seasonal variation in physiological stress as shown through body fat levels at my three Hauraki Gulf populations.



	Little Barrier N=38	Tiritiri N=30	Tawharanui N=39
Malaria frequency in population	11%	15%	26%
Parasitemia level**	<0.1	<0.1	0.4
Polychromasia index**	51.0	78.8	25.9
WBCs**	56.3	34.8	43.4

* Data includes after hatched year (AHY) aged birds
** Number (x1000) per 1000 erythrocytes (n = 10 frames/field at 1000x)

Table 2. Malaria infections in 100 Hauraki Gulf bellbirds during the post-breeding season of 2008.

Table 2 shows you some initial malaria results from blood film microscopy. So far, malaria prevalence seems to be highest at Tawharanui and lowest at Little Barrier and there appears to be a declining trend as you get further away from the coastline. Consider these results with caution. All results are not complete. I have a few hundred more samples to go through, so it is important to note that these preliminary estimates might change. A recent study has shown that over 50% of the bellbirds on Tiritiri had avian malaria (Barraclough 2008). Also, DNA fingerprinting for malaria strains (to be completed by this time next year) will have higher detection rates than blood film microscopy.

In 2008, parasitemia (the density of malaria cells in a host's blood stream) appears highest at Tawharanui, yet it is the Tiritiri birds that appear to be suffering from anaemia as indicated by polychromasia. That said, I had watched Tiritiri bellbird parents who had both tested positive for malaria build and successfully raise three broods during 2007-2008 summer!

Things to come. By this time next year, I can send you another update on this research. Specific to the Hauraki Gulf, we will know about seasonal fluctuations (breeding-moult-winter periods) in bellbird parasitemia, body condition, and other immediate health measures. Also, we will have answers about the relative microsatellite genetic variation at Tiritiri, Tawharanui, and Little Barrier. My thesis as a whole, will carry on for another 3 years mainly in the lab with the tricky tricky MHC!

This study builds upon current research in passerine MHC genes by combining population history with disease resistance and contemporary disease status. I sincerely hope that my findings will contribute to conservation where the disease resistance and movements of passerine populations is concerned (see Box 2).

Box 2. Contributions Of This Research

1. Assess the role of demographic versus pathogenic effects on genetic variation
2. Assess genetic viability in small populations & potential for increasing diversity
3. Understand geographic patterns of malaria
4. Provide baseline information on genetics and pathogens associated with natural movements of a New Zealand songbird

A closing word regarding the bellbirds. Despite their ubiquity and possibly drab appearance, bellbirds are a dynamic highly social bird you will not tire of once you are hooked. If you watch long enough while sitting on the edge of a forest track you might see and hear them staking out their territories, going on dates, sipping nectar or carrying yummy insects in their mouths, and doing all sorts of wild and wonderful things. My fieldwork on Tiritiri is coming to a close this January 2009, but I would love to come out and say hi every now and then!

Tiri Book Revised Edition 2009

Good news: The Tiri book, "Tiritiri Matangi: a Model of Conservation" by Anne Rimmer is to be reprinted in a revised edition. Originally published in 2004, and reprinted less than a year later, the book has already sold about 2500 copies.

For a while it looked like this valuable book may go out of print, but, in a generous gesture, the publisher, Random House NZ, has agreed to print a further 1000 copies

at a lower than usual margin. At the present rate of sales that's a four-year supply of books for the Tiri shop and for the author.

Anne Rimmer gives "Tiri Talks" to service groups in the Auckland area. Her PowerPoint presentation uses illustrations from her book, and she usually sells a few copies of the book after the talk. Anne has spoken to over 100 groups so far, and already has bookings for next year. She enjoys

public speaking, and is glad to be able to spread the conservation message through the talks. Some groups then arrange a trip to Tiri, which increases revenue to the island.

If your group would like an illustrated talk about Tiritiri Matangi, please contact Anne Rimmer. Phone: (09) 478 6142 Email: rimmer@ihug.co.nz.



Tiri's *Lighthouse*

"When Jennifer Haslam was a young girl, the Tiri light was a brilliant 11 million candlepower. The philanthropist and former Mayor of Auckland, Sir Ernest Davis, had donated this powerful light to increase Tiri's visibility in the Gulf. However his generous gift had unexpected repercussions for residents of Auckland's North Shore who found it almost impossible to sleep with the light beam sweeping across their bedroom walls.

In desperation, the sleep-deprived Jennifer developed an unusual form of speed reading. - Flash! Quickly read a sentence. Digest it for 15 seconds in the dark. Flash! Capture the next sentence. ... Finally Jen's mother made thick black-out curtains for her daughter's bedroom windows - just a few weeks before the authorities downgraded the brightest light in the Southern Hemisphere, and put it onto a diesel generator, following the third and final breaking of the power cable to the mainland by a boat's anchor.

Tiri continued to beckon to the adult Jennifer Haslam who came, first as a guide, and then from 2005-2008 as DOC Ranger."

Jennifer Haslam surveys Tiri from the lighthouse platform in 2007



Early spring again saw wonderful displays of kowhai (*Sophora microphylla*) and clematis (*Clematis paniculata*). The kowhai trees lining the sides of the upper Wharf Rd were especially delightful; some of the them were almost swamped by a tide of feeding tuis. The kowhai flowers are now undergoing pod formation and their elongating styles create a quite different display.

Many other trees are now flowering, mainly featuring smaller, less conspicuous blossoms. Notable are hangehange (*Geniostoma*

ligustrifolium) whose distinctive perfume (usually described as spicy or curry-like) can readily be detected. Karo (*Pittosporum crassifolium*) has tiny deep scarlet flowers. Male flowers are still present, female flowers are developing into new fruit. Pohutukawa (*Metrosideros excelsa*) has masses of flowerbuds and will soon treat us to another crimson display. Flax (*Phormium tenax*) is raising its flower stalks with their developing flower buds. The first cabbage tree (*Cordyline australis*) flowers are opening, crowded together on their much branched flower heads.



Kowhai, pods developing from elongating styles



Karo, male flowers (tiny dark crimson flowers)

These are a group of small to medium sized trees on Tiritiri Matangi and they all belong in Araliaceae (the ivy family). Commonly known as araliads they form a large family of 55 genera containing several hundred species of trees, shrubs, vines and a few herbs. On Tiritiri Matangi they are represented by the genera *Meryta*, *Schefflera* and *Pseudopanax*, giving us four species to consider.

1.
Puka (*Meryta sinclairii*)
Meryta = to furl sails, roll up (describing the bunched appearance of flowers and fruit).

Andrew Sinclair (1794 – 1861) naval surgeon / naturalist

Meryta is mainly a Pacific Island genus of about 30 species of evergreen shrubs and small trees. Our single species is endemic and is easily distinguished by its large leaves. Puka is dioecious (sexes on separate plants) and occurs naturally on the Three Kings and Hen and Chicken Islands and the northern tip of the North Island. Two trees can be seen above the bunkhouse near the gum trees.

2.
Pate (*Schefflera digitata*)
J.C. Scheffler, 18th century botanist
digitata = finger like parts (adult leaves have 7 – 10 fingered leaflets on a long stalk).

The genus contains about 150 tropical and subtropical species. Pate, our single species, is endemic. Pate has been described as dioecious, however it seems that the flowers are male when they first open and do not become female until much later with the stigmas developing after the anthers and petals have fallen. A fine specimen of pate can be seen from the Ridge Rd, growing near the sign for the cottonwood tree.

An introduced species of Schefflera is present in many Auckland gardens, the popular Queensland umbrella tree (*Schefflera actinophylla*).

and perhaps a panacea

by Warren Brewer



Puka with fruit



Pate flowering



Houpara fruit

3.

Fivefinger (*Pseudopanax arboreus*)

pseudo = false

panax (compound Greek word)

pan = all

akos = remedy

In English we get panacea (cure-all)

See medicinal ginseng (*Panax quinquefolium*)

arboreus = tree like

Fivefinger is dioecious and its common name refers to its compound leaf (composed of 5 - 7 leaflets, each of which has a small stalk 3 - 5 cm long). A mature labelled specimen is on the Wattle Track.



Five fingers fruit

4.

Houpara (*Pseudopanax lessonii*)

Pierre Adolph Lesson, French surgeon / botanist on the Astrolabe

This is also dioecious and occurs naturally in the northern part of the North Island. Its compound leaf is composed of 3 - 5 leaflets which are sessile (no stalks). Houpara is widely planted on the island.

Note. European ivy (*Hedera helix*) shows its affinity to the above araliads when it flowers and forms fruit.

Ivy with fruit



Takahe

Greg has once again paired up with Cheesecake so maybe the old boy still has a few chicks in him! For the first few weeks he even left the Visitor Centre and all the available lunches to enjoy her company at Emergency Landing. In recent weeks the pair has been moving between the two areas. If he is not careful he might lose her to Rossie who is lurking between the Visitor Centre and Little Wattle Valley.

Ahikaea and her mate, Montague, are nesting and have two eggs due to hatch around the end of October.

Mahuika and her mate Blackwatch, are also nesting so he has chased Blake away from the Visitor Centre area down to Fisherman's Bay.

As yet there is no sign of the North East Bay pair, Edge and her mate Mungo, nesting.

Tiri, Tango and Hauraki who were all transferred to Burwood Bush are all doing well and have been released into the Murchison Mountains. Harakeke who is still at Burwood Bush will also soon be released into the Murchison Mountains.

There are currently just over a total of 220 takahe in existence with approximately equal numbers in the Murchison Mountains and on islands (we have 10 birds on Tiri) and display sites (92-93) plus 36 at Burwood Bush. The total figure of 220 does not include last year's chicks.

Stitchbird/Hihi

Although 140 birds were recorded in the September census (87 males and 53 females) it is estimated that there are approximately 160 birds on Tiri. Of these, 37 are first year birds.

They are beginning to nest and a few now have eggs.

A fairly large volume of sugar water is consistently being consumed at the feeding stations by both stitchbirds and bellbirds.

There have been sightings of two stitchbirds at Shakespear Regional Park.

Some of the birds translocated to the Ark in the Park in the Waitakeres have started nesting using holes high up in the kauri trees. One of our ex Tiri males is obviously keen to keep up his association with Tiri as he is a regular

visitor to the sugar water feeder at the Waitakere home of Yvonne Vaneveld and Mike Siddens.

Kokako

Poutama (male), the last Taranaki bird left in captivity, together with the two recently captured Waipapa birds, Crown (male) and Pureora (female) were successfully released on Tiri on 30 August.

Our other Taranaki male, Paraninihi, has been seen with Fern who fledged last season so we are hoping that they have paired up.

Our pairs are now in nesting mode. Cloudsley Shovell (her mate is Te Koha Waiata) is finishing off her nest and Te Rae, one of our Taranaki females has started to build her nest. Last year she and her mate Chatters nested unknown to anyone and produced Naki.

Eunice and Ruby, two of the Tiri birds transferred to the Hunuas, have found mates and Eunice is now building her nest. Both these clever birds have learnt the local song dialect which is more complex than the Tiri song. This is excellent news as in the past it has been difficult to get transferred kokako to adjust to their new song dialect, so they don't pair up with the local birds which slows down breeding and hence an increase in the population.

Brown Teal/Pateke

At the end of August, Bella and Ossie from the Wharf Dam were seen with seven ducklings.

Three of these have survived and are now quite large.

Solita and Finn had five ducklings at the beginning of October but now they only have one left.

Five ducklings were also seen on the Fisherman's Bay Dam but they all appear to have disappeared.

North Island Robin

The Tiri robins have started nesting early again this year! The same pair as last year had two fledglings by the third week of September. Fledglings are chicks that have left the nest but are still dependent on their parents.

There are currently around seventy-seven birds, including twenty-four juveniles from last season. This is close

to the carrying capacity for Tiri due to the limitation of suitable habitat.

By the end of October, fifty nests have been built and seventeen fledglings can be seen begging for food from their parents.

North Island Saddleback

We have already banded our first three chicks for the season and hopefully these will soon fledge. Others are still building their nests and some are still thinking about it!

Other Birds

The shining cuckoos are back and sadly one was found with a broken neck after hitting a window at the Visitor Centre.

This season the red-crowned parakeets have managed to leave around two thirds of the flax flower buds so we now have lots of birds especially the tui and bellbirds sporting orange crowns from feeding on the flowers.

Tuatara

The tuatara are now more active with four, including a probable gravid female, being seen on one night at Labour weekend.

Other

Recently, to the delight of the passengers, five orcas (one large, two medium and one youngster) were seen within three metres of the ferry just as it tied up at the Wharf. It is thought that the presence of many eagle rays around the Wharf and Hobbs Beach had attracted the orcas.



Photograph
© Kathryn Jones

Hey everyone!

It's time to get to know some of the common plants on Tiri. There are six different ones in the picture. Fill in the right letter in the circles to make their names, match them to the picture, and colour them in. Plants are cool too!

Jo and Tess



Supporters of Tiritiri Matangi Inc. Notice of Annual General Meeting

Notice is hereby given that the Annual General Meeting of the Supporters of Tiritiri Matangi will be held as follows:

**7.30pm Monday 16th March 2009
at Kohia Teachers' Centre, 74 Epsom Ave, Epsom**

**(Enter Gate 2 on Epsom Ave, down slope and right, into middle level of parking building.
Kohia is on the far side of the carpark accessed via covered walkway. Ample safe parking.)**

At this meeting, the following items will be included: Welcome - Peter Lee, Apologies, Minutes of Previous AGM - Jill Courteaud, Matters Arising, General Business, Financial Report - Bill Mancer, Election of Officers - In accordance with the revised constitution (2007) nominations closes 31 Jan.

Nominations for 2008 Committee In accordance with our constitution, nominations are sought for:

- Chairperson
- Secretary
- Treasurer
- Between 4 & 9 ordinary members

Nominations, moved and seconded, need to be received in writing by 31 January. Please include a brief resume of the nominee for inclusion in the February Dawn Chorus.

Please forward nominations to: Jill Courteaud, Secretary, Supporters of Tiritiri Matangi,
PO Box 90 814, Victoria Street West, AUCKLAND 1142

TREASURER WANTED

Got a spare hour or two each month?

Some knowledge of basic accounting? SoTM needs YOU!

Our treasurer role is currently vacant. There's not a lot of work involved – our very efficient bookkeeper takes care of most of the day-to-day work such as invoice payment and banking. There are three main areas:

- Preparing monthly summary accounts for the main committee
- Preparing the annual budget
- Generating the annual accounts

While the SoTM year runs from the AGM in March, we're keen to get someone involved ASAP.

Interested? Call Peter Lee, Chairperson, on 418 1332, or for more detailed information, call interim treasurer Bill Mancer on 473 3997

WANTED: Dawn Chorus Editor with flair and passion

You're reading one of the most professional publications in NZ conservation, going out to an audience of over 1600 members, and produced with style by Paul Colgrave. Sadly, this is Paul's last issue. We're looking for someone to take on this most satisfying and rewarding role in time for the February issue.

The work involves:

- Sourcing material from contributors
- Generating a high-quality layout
- Organizing printing and mailout with our trusty team of volunteers

Interested? Contact Cathy Catto, chair of the Education & Comms subcommittee (629 3903)

Supporters of Tiritiri Matangi Inc. PO Box 90 814, Victoria Street West, Auckland 1142



Dawn Chorus