

# MIRANDA

Naturalists' Trust

November 2008 Issue 71

NEWS



Meet Maria

Is that bird an albino?

A catch up with E7



# November 2008 Issue 71

From the Blackboard  
20 November 2008

## Upcoming Events

December 31 2008

New Years Eve

Farewell one year and welcome the next. Special Guests: YOU!

January 24-30 2009

Miranda Field Course 2009.

For details contact the Centre.

Feb 15 2009

OSNZ Firth of Thames Wader Census

Contact the Centre for meeting time.

March 15 10am and 1:30 pm

Autumn Migration Day

Speaker: Keith Woodley, On the Tundra with nesting godwits. High Tide is at 11am so meet at 10 for birding, Speaker is at 1:30pm

May 17 10am

Annual General Meeting

Guest Speaker Andrew Swale on Mangroves

for 2009 course details see page 13

Cover: "Blanche" the white Variable Oystercatcher and her parents at Duders Beach. See article page 4. Photo Jacques Cerfontaine

Back Cover: A swallow carrying nesting material perched on the clothesline near the bunkrooms at the Centre. See page 17. Photo Ian Southey.

## A word from the editor

Over the course of the last two years the stories of the godwits carrying satellite transmitters have become an important part of Miranda Naturalists' Trust News. With the close of this season, and the last of the NZ bird's transmitters failing, those stories are coming to an end. The amount of new knowledge gained in such a short period of time has been amazing, theories that have long been held have been confirmed, and totally unexpected information has appeared. Its been a privilege to watch and again I would like to extend my thanks to all those involved.

But the end of those stories also means that the content of MNT News will change (again!) in the upcoming issues. Often when I ask for feedback on the magazine people say they are happy with the way it is, as I see the end of these stories as a change, it seems like a good time to ask for feedback on where members would like to see the magazine head in upcoming years. Are there subjects you are interested in that haven't yet been covered? Would you like to see more photos and less writing? More pieces about the people involved in the Trust? More about bird biology? Other wader spots around NZ? I'd be keen to hear from people, my contact details are at the back of this issue. Of course you are welcome to write contributions as well!

The deadline for the next issue is January 20, 2009  
Gillian Vaughan

### Arctic Migrants

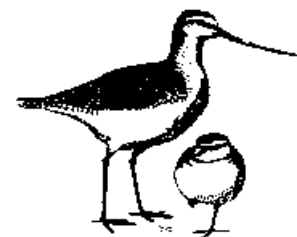
Bar-tailed Godwit	3000
Red Knot	2000
Turnstone	15
Red-necked Stint	2
Sharp-tailed Sandpiper	6
Golden Plover	32

### New Zealand Species

Pied Oystercatcher	
Wrybill	100
NZ Dotterel	3
Variable Oystercatcher	
Black-billed Gull	1000
Red-billed Gull	
White-fronted Tern	150
Caspian Tern	
Pied Stilt	
Spoonbill	7

### CONTENTS:

Meet Maria	3
"Albino" Birds	4
Avian Radar	8
Birds Before a Storm	9
Chairman's Report	10
Websites to Check Out	13
E7 in 2008	14
Keeping a Nature Journal	16
From the Manager	17
Book Review	18



# meet MARIA

Maria Stables-Page

Chocks away. Let's get this bird off the ground and make this baby fly. Ah, the language of flight. The language of birding. It's so rich. It's so funny. It's so clever how birders enrich their everyday language with avian analogies. And more so when engaging in conversation with other birders. I think it displays passion. It shows that one is always just on the edge of speaking bird. Twittering, you might say.




My passion for conservation has been long, starting in the twentieth century. By contrast, my entry into the birding world only began in the twenty first century, since I was bequeathed a 40 year old Sulphur-crested Cockatoo. Her name is Freddie and the rule is, if we are home, she has free reign both inside and out, in the Ake Ake or up the gum tree. She has spent many a night in the macrocarpa and trots (pigeon toed) inside through the cat door the next day when she's had enough of her own company.

Miranda has been a joy for me. I have participated in Wader ID Workshops, the 2008 Field Course, banding days, working bees, pot luck dinners, shore duty, gardening days and negotiating with that infamous till. And what happened? I got hooked on Miranda. Now happily Miranda has her talons hooked onto me! I am now assisting Keith in the centre and coordinating volunteers.

Let me share a little secret with you. Everyone who comes through the Shorebird Centre is happy. They are happy they are not at work. They are happy they are on holiday or have the day off. And if they are happy, I am happy. We have that one thing in common. The second thing we have in common is an interest in birds. So, here's me, living at the bottom of the Firth of Thames, migrating two days per week to the wilds of Miranda to talk to happy people about birds. I am indeed most fortunate to be the new assistant to Keith.

May I take a minute to appeal to you all? I have lost my darling three year old chocolate Tonkinese (translate Siamese/Burmese), Elroy, from 10km south of Thames. I fear he has been stolen. He has been missing since 29 September. I know it seems strange to put out the call in this magazine

but if you don't know he's missing you won't know to find him. I can be contacted on 07 868 1258 or 027 46 111 26.

I certainly look forward to meeting new members and volunteers. Thanks for having me. 



Dear Editor,

Flying to mainland US from NZ, our two ports of entry are of course either L.A or San Francisco. My suggestion to your readers for future travel planning is to add enough time between connecting flights (6 hours at a pinch probably would do) for a stroll on any beach - even those close to the city. Take a look what you are sure to see there!

Happy travels!

Geraldine King





This South Island Pied Oystercatcher was seen at Invercargill Estuary in November 2007. It shows the same overall pattern as other SIPOs, but all of the feathers that would normally be black are shades of cream to light brown. The bill and eye colour are normal for a SIPO, the legs are brighter than those of the oystercatchers around it.



This Bar-tailed Godwit was photographed at the Kidd's Shellbanks on the Manukau Harbour in February 2006, a bird with similar colouring was seen at Big Sand Island on the Kaipara in 2007. As with the oystercatcher the pattern of the feathers is similar to normal, but very faded. The bill, eye, and leg colour (not really visible in this photo) were all normal. The colour on the back of the Red Knots around it are similar to the colour on the back of a normal godwit.



This SIPO was also photographed at Kidd's shellbanks on the Manukau Harbour in February 2006. Instead of showing the faded plumage of the birds above random feathers that should be black are completely or partially white, again eye, bill and leg colour are normal.

Photos Ian Southey

# Why is that white bird white?

Gillian Vaughan

Colour is one of the most important features that we use in identifying birds, but sometimes a bird will show unusual patterns; a Blackbird with a white feather or two is not uncommon, when looking at a wader flock sometimes there is a bird that is pale, piebald or just white.



There are a number of reasons for these different colour patterns. Oddly coloured feathers can be caused by poor diet when the feather is growing, by injury or disease. However often the unusual colouring is caused by one of many mutations that affect melanin. One of the most well-known mutations in wild birds is albinism, one of the most common is leucism, and there are many others!

Dark colours in birds are produced by melanin, a pigment created by birds from an amino acid. It is formed in, amongst other places, the

feather follicles and its production is controlled by an enzyme. One type of melanin, eumelanin, is responsible for the grey, brown and black shades, while another, pheomelanin, causes creamy-brown to red-brown colours, like those can be seen on a godwit's breast in breeding plumage. Different shades are caused by the amount of the pigment present and the amount of oxidation of that pigment that occurred during its production. Some birds have only eumelanin, while many have both pigments.

The presence of melanin in a feather

makes it stronger – black feathers do not wear or fade as fast as lighter coloured feathers. A lack of melanin will cause the white or light feathers that can be seen on some birds.

## Albinism

Albinism is a mutation that occurs when a bird lacks the enzyme necessary to produce melanin and therefore both types of melanin are completely absent from the feather and eye. Albino birds can still produce and use carotenoids (another group of colouring agents responsible for

## What makes a bird's feather coloured?

The colours in a feather are caused first by pigments which are laid down in the feather. The structure of the feather can then affect the way the light reflects and change the appearance of the colour.

The two most important types of pigments are melanins and carotenoids; carotenoids are formed from food and are responsible for yellow, orange and red colours. For example they are responsible for the pink colour in flamingos, which grow white feathers in captivity when their food lacks carotenoids. If 'white' flamingos are given carotenoid-rich food, they will grow pink feathers the next time they moult. For most waders carotenoids are found only in bare parts, such as the beak, legs and eye ring, as well as in the iris. The only pigment found in the feathers of most waders, except one Jacana species, is melanin.

Melanin is the pigment responsible for the darker colours, black, grey, brown and reddish brown. It is produced in the body of a bird as part of a chemical reaction.

Colours such as blue and green are caused by the light reflecting off a feather in a particular wavelength, much the same way that the sky appears blue because of the way light is absorbed and reflected. These are referred to as 'structural colours'. The colour we see is determined by what pigments lie underneath, and the microscale structure of the feather itself. Blue feathers have largely melanin-based pigments underneath, and the short wavelengths of light are reflected by the feather structure while the long wavelengths are absorbed by the melanin. Green feathers generally have yellow carotenoids in the feather; only one type of bird, turacos, produce a green pigment. Similarly iridescence is caused by light hitting the microscopic surface of the feather.

White is a structural colour as the feather, with no pigment in it, reflects all light. There are also a small number of uncommon colouring agents found in birds' feathers, eyes and eggs including porphyrins, pterins, psittacofulvins and flavins.

Melanin causes the dark colours in bird feathers, there are two types

- eumelanin - responsible for the grey, brown and black colours and shades
- phaeomelanin - causes creamy-brown to red-brown colours

many yellow and reddish colours), so albino birds can appear anywhere from pure white to yellow or red, but they will not have any of the dark colours produced by melanin. Because they are unable to produce melanin an albino's colour will stay the same from year to year, if they survive.

Melanin is also normally deposited in a bird's iris and the back of its eye. The eyes of albino birds are pink as they have no melanin in their eyes and the colour of the blood vessels shows through. The lack of melanin in the eye affects depth perception, and increases light sensitivity. Poor eyesight makes feeding and even flying difficult, and therefore reduces the survival of birds in the wild, so although albinism is a common mutation it is rarely seen in wild birds.

Birds with a few white feathers amidst

mostly normal feathers are often referred to as partial albinos, though by definition albino birds have no dark feathers at all as they cannot produce any melanin. These birds are actually partially leucistic.

### Leucism

Leucism is a group of inherited disorders which occur when a bird can produce melanin, but the pigments are not correctly deposited in some or all feathers. The impact can vary from a few, randomly scattered white feathers (partially leucistic) to affecting every feather (fully leucistic). As with albinism the carotenoids can still provide some of the lighter colours to these feathers.

The eyes of leucistic birds always look normal to dark, as although pigment is not always laid down in the iris, colour is present normally in the

back of the eyeball.

### "Faded" plumages

There are several mutations which will leave a bird with its normal plumage patterns but with a faded look. Some of the most common are:

"Brown" is when a bird produces a normal amount of eumelanin, but it is incorrectly produced (the oxidation is incomplete) and the final colour produced is lighter. The feathers on birds with this mutation will also fade quickly in sunlight. This mutation is carried on the sex chromosome, so if a "brown" bird has two normal looking parents it is almost certainly female.

"Dilute" is where the amount of one or both of the melanin pigments is reduced. This includes the "Isabel-line" (see box) mutation where only the eumelanin is reduced and the "pastel" mutation where both are reduced by around 50%.

"Ino" occurs where almost all of the phaeomelanin is absent and although eumelanin is present it is barely oxidised and therefore produces a very pale colour. These birds start off very pale and as feathers age they can appear almost totally white. These birds will have red eyes like albinos but their eyesight is better and they are therefore more likely to survive to adulthood.

"Schizochromism" is a rarer mutation which is the total absence of one or the other types of melanin, "Phaeo" is the form where no eumelanin is present, and only the cream-brown to reddish brown melanin colours are found. "Grey" is where there is no phaeomelanin and only the shades of



*Blanche and a parent, note the white patch under the parent's chin, not usually present in a Variable Oystercatcher. Photo Jacques Cerfontaine*

grey to black are seen. In birds with all black feathers, and therefore no phaeomelanin, the “phaeo” mutation can result in a nearly white bird.

The result of these mutations is often similar looking, and the birds can be mistaken for each other in the field. As the feathers age and get sun-bleached they are also mistaken for albino or fully leucistic birds. In addition because most species of bird have different mixes of carotenoids and the two melanin types, the effect of the same mutation will look different from species to species.

### “White” Shorebirds.

There are records from around the country of light or white shorebirds. In the past few years faded godwits and piebald South Island Pied Oystercatchers have been reported, but the most commonly commented on have been the white Variable Oystercatchers (VOC).

A white VOC was hatched at Duder Beach in December 2007. It was seen from a very early age as the nest was in an area where New Zealand Dotterel were being protected. Named Blanche by the locals it was reported to be off-white when hatched to two black parents, and has grown glossier and whiter with age (this would be expected as the bird loses its down). It is still seen regularly nearly a year

## Isabelline

The mutation “isabelline” is named after the grey-yellow colour that birds with this mutation display.

Rumour has it that the colour was named after Isabella, Archduchess of Austria and Infanta of Spain in the late 16th and early 17th Centuries. Isabella was in a siege, and was reputed to have vowed not to change her underwear until the siege was over, if true, three years later when the siege ended her underwear would have been a yellow- grey!

History shows however that the term was in use in many languages before Isabella of Austria’s time, some move the story to an earlier Isabella, Isabella I of Castile, who was in a siege lasting eight months in the mid 1400s.


It may however simply be that the colour is named after the Arabic word for lion - *izab*.

later, with the latest sightings at Kawakawa Bay. One parent is partially leucistic, with a white spot under the chin, an area where VOC do not normally have white feathers. This would seem to indicate that Blanche is also leucistic but it is not possible to be certain.

White Variable Oystercatchers have also been recorded at Journeys End and surrounding areas in the Kaipara harbour, Whangarei Harbour, Thames and Tolaga Bay. These birds have been present for years; their lifespan indicates that they are not albino, as they would be unlikely to survive this long. The birds at Tolaga Bay and Whangarei Harbour have

each been reported to be breeding with VOC of normal appearance.

Mutations that make feathers white are not the only colour mutations there are, one of the most common other mutations is “Melanistic”, darker than normal.

Much of the detail in this article is from Hein van Grouw (2006) “Not every white bird is an albino: sense and nonsense about colour aberrations in birds.” *Dutch Birding* 28. The paper can be found online at: [http://www.vogelringschier.nl/DB28\(2\)79-89\\_2006.pdf](http://www.vogelringschier.nl/DB28(2)79-89_2006.pdf) 



One normal and one faded South Island Pied Oystercatcher at Invercargill Estuary. Both birds are moulting their primary flight feathers, the faded bird shows the difference between old and new feathers much more clearly, the new feathers are a pale brown, the outer, older feathers have faded to nearly white. Note how the ends of the wing tips on the faded bird are very worn, the lack of melanin makes the feather weaker, leading to faster wear. The outer feathers on the normally coloured bird are likely to be of a similar age to those on the faded bird but are more intact. Photo Ian Southey

# Avian Radar: a new tool for observing bird activity

Shane McPherson

In the last week of August, a strange contraption was sighted out at the Lime-works at Miranda. A spacey white trailer with two whirling radar beams created a stir in the area upon its arrival. The first of its kind in New Zealand, the Merlin Avian Radar is constructed by De-Tect Inc., based in Florida USA.



Being sensitive to solid objects and water, RADAR is used in all oceangoing vessels, at airports, and at weather stations (rain radar). Usually these radar units scan to a great range (often 90+ miles), to see landforms and such large objects as planes and boats. At shorter ranges, the resolution can be maxed out and birds, bats, and large or swarming insects will be detected. The radar units display a simple analog signal, a blue and yellow blotchy screen with not much going for it,

in a variety of applications, from airports in South Africa to wind energy development in Norway. This system has been brought by Meridian Energy to aid in monitoring bird movements on potential wind energy sites in New Zealand.

After running Merlin at our study site for a month, my introduction and training with the radar, it stuck me as an amazing piece of technology. But at our study site it was underemployed

and after the initial buzz of seeing a harrier, some flocks to dial in the radar's parameters, and we packed down and moved the radar to Miranda to record in an area renowned for its abundance of waders. Recording four days and nights of activity, we needed to ground-truth what we were seeing (appearing as grey smudges of reflected radar) moving across the monitors. Observers relay flock sizes and species, and they are matched to particular radar signals. Then the Merlin software can be tuned in to optimise its tracking ability of target species.

there was a sudden burst of activity where the starlings would leave their roost in series of 'ripples',

and after the initial buzz of seeing a harrier, some

so data recording involves extensive pen-work. De-Tect's unique development has been the Merlin software, a program designed to digitize the signal, track moving targets over a series of scans (quite a feat using complex algorithms!), and record and summarise the data. Incorporating two radars, a power supply, surge protection batteries, banks of computers, monitors, and a couple of power outlets (for the kettle, obviously, tea anyone?) onto a small transportable unit has given the company a commercial opportunity.

gulls, and plenty of finches, coursing across the screen, little else changed day after day. It didn't help that we hit the so called 'weather bombs' that winter, three in a row! We needed

I'm an irregular visitor to Miranda and a four day trial here was an exceptional way to see just how limited the human eye is. As dusk approached on our first night, a swarm of individual targets were pouring into the mangroves to the south of the shellbanks, looking out we could see the odd




The Merlin Avian Radar set up near the stilt ponds. Photo Shane McPherson

Developed initially for the US Air Force and NASA, the high cost of developing this technology was justified to reduce the risk of birdstikes to very expensive aircraft. After development, a more affordable unit has demonstrated its usefulness



flock of sparrows and finches making their way there. At best we could spot these flocks within 400 meters, the radar indicated that these birds were inbound right across the farmland, hundreds per minute for half an hour. Towards twilight, a wide bright band (on the radar screen) made its way to the mangroves, with binoculars pointing in that direction we saw a final push of several thousand starlings descending to roost.

The radar recorded data all night, and come sunrise (a breakfast spent watching a white heron hunting in the mangroves) it was time to review, high speed, what the radar has been seeing in the pitch black. Reviewing at a smooth high speed replay condenses a minute per second. We were ecstatic with the images: at the crack of dawn there was a sudden burst of activity where the starlings would leave their roost in series of 'ripples', concentric half-circles surging into the surrounding farmland, providing a new angle on a spectacle. The initial push by the starlings was followed by a thick stream of finches pouring out over the countryside, much like the evening before. Overnight and two hours either side of high tide (at 10.30pm) saw great numbers of incoming then outgoing wader movements to the shellbanks. Over our four days at Miranda we recorded the daily movements of gulls, terns, godwits, Wrybill, stilts, and SIPO, and tracked several SIPO and stilt flocks as they departed on their migration south.

Having collected some brilliant data the radar settings can be perfected before the next season, when waders start their migration northbound. With its greater range and ability to track bird movements 24 hours a day, this technology will act as another superb tool to further our understanding of the ecology around windfarm areas. 

## Birds before a Storm

Ken Pickett

“There’s seven breezes blowin’ all around the cabin door”.

The words of Bob Dylan came to mind as a wild north-easterly grabbed at the eaves of the building. Squalling rain lashed at the windows.

It was June. We had just sold our home in Auckland, and my wife Anna and I were using the time in between homes to stay at the Miranda Shorebird Centre for a few days. The weather made the visitor’s flat extra cosy.

That evening I had stood on the veranda and looked out at the unsettled sky. A cyclone was threatening and the wind was rising. I watched a flock of finches toss past with their undulating flight and then noticed another. Soon, wave after wave of the small birds flew past, hastened by the approaching storm.


In the fading light of the evening, the colour of the birds was not evident, but their varying size and flight identified them as several different species. There was a lack of trees on the chenier plains of Miranda, and it seemed that the birds were flying to some distant place of shelter.

The whole scenario fascinated me. I understood the need for shelter. The weather forecast had not looked good when we left Auckland. The scenery on the way down the coasts had its usual beauty but the tree-tops were starting to toss and rain began to fall then drift before the wind.

The flat was cool when we arrived and the heater took a while to warm the room. We thought of the flocks of friends and acquaintances we had left behind in Auckland. But we were fleeing from a storm of activity. We looked for a quieter place apart from the storm and this is what we had.

I heard the cry of what seemed like some seabird above the howl of the wind and I wondered how a bird survives in such conditions. I thought of how tightly knit the feathers of a bird are, like the fibres of my polar-fleece jacket. I knew there were stands of conifer trees further south of the Centre and I knew these would offer good shelter for birds. I read that birds will fly away from bad weather and seek shelter where they will often roost together to keep warm.

As a boy I had clambered through a large macrocarpa hedge with friends and I remembered how calm it was inside. We had made a lot of noise in those exuberant days, but I imagine this storm would have silenced any normal roosting chatter of birds.

In our accommodation we didn’t say much either. There was no T.V., so we went to bed early, curled up under the blanket and marvelled at the wildness of the storm. 

# Chairman's Report

David Lawrie

We are pleased to welcome Keith Woodley back into his role as the on-site manager at the Centre. Keith has been absent for nearly 6 months, firstly camping on the arctic tundra studying the breeding of Bar-tailed Godwits in Alaska and then on his return to NZ he spent time on the Coromandel Peninsula writing his impending book on godwits.



We understand that the launch date for the book will be towards the end of next year and we look forward to that with some anticipation.

On a sadder note we are preparing to farewell Jenni Hensley on her impending departure overseas. Jenni has been involved with Miranda for nearly 5 years, first as a volunteer but then as the Assistant Manager - recently acting as full time manager during Keith's absence. Jenni has also ably organised the volunteers and

it was decided to appoint Maria Stables-Page as Jenni's replacement.

now has a good keen group and we hope that they can continue.

At the recent Council meeting it was decided to appoint Maria Stables-



*Thanks for everything Jenni!*

Page as Jenni's replacement. There were five applicants for the position and it was a difficult choice but we believe that Maria will be more than capable of fulfilling the role. Maria will already be well known as she has been a volunteer for a couple of years. There are more details on her background elsewhere in the newsletter.

## Notable Donations:

The Trust recently was the recipient of a donation from the EB Firth Charitable Trust of \$4,000. This donation will allow the Centre to install a new concrete water tank to increase our storage capacity of water during the summer months.

In recent years it has been necessary to purchase several tanker loads of water as the dry summer months are also the busiest time at the Centre.

We are grateful for the donation and thank the Trustees of the EB Firth Charitable Trust for their support on this and previous occasions.

Recently Geoff Moon, the well known photographer and author, donated a large number of one of his photographic books to the Trust. These will be sold at a reduced rate in the shop, the funds going towards the Trusts' continuing activities.

Geoff has always been a great supporter of the Trust and we are extremely grateful for this very generous donation of material - members can take advantage of Geoff's generosity by purchasing a book on your next visit to the Centre.

I would also like to take this opportunity to thank Andrew Crowe from Thames, who has made another cash donation which will allow the Trust to meet the costs of a participant at both the Wader Identification Course, and the January field course, hence opening the door for someone who may not be able to pay their own way. The Trust will be looking to use this money to sponsor a young person and if any members are aware of a worthy candidate they should contact Keith at the Centre to enable us to explore the options. We are grateful to Andrew for his support and interest.

## Mangrove Situation:

As alluded to in previous reports the Trust lodged a submission to the Auckland Regional Council who are reviewing their coastal by-laws, particularly relating to the expansion of mangroves. I prepared and presented the Trust's submissions at the committee meeting on 8 September, and had a very good reception.

The basis of the Trust's submission is that the rapid growth of mangroves in recent years is an unnatural situation caused by human activities on the land and that unnatural solutions need to be undertaken to preserve the important bird roosting and

feeding areas. We were careful to indicate that a need for management is not based on lack of understanding of the key role that mangroves play in the natural system, but merely because of the requirement to maintain viable roosting areas for the birds during the high tide periods.

We are awaiting the final outcomes of the hearings but it would appear that the ability to control mangroves in limited areas based around traditional bird roosts may become a reality.

### Centre Activities:

The Trust Council has held meetings on 28 June and 11 October. These are the meetings where the Council discusses the business of the Trust and sets in place the platforms for future activities.

The pot luck dinner on 9 August was well attended and was an ideal opportunity for members to relax and share experiences. The speaker on the evening was Simon Fordham, who gave an illustrated talk on his trip into Borneo. We thank Simon for that interesting talk, even though he was coerced at relatively short notice.

On the following day there was the annual working bee which had a good attendance and completed many of the general maintenance tasks around the building and the grounds.

On the weekend of 29-31 August the Trust organised a weekend course on the basics of bird photography which was ably tutored by Bruce Shanks. Bruce is well known in photography circles and is a fellow of the NZ Photographic Society. Bruce has also been active in the local photography scene for many years, learning his trade under the wing of Geoff Moon. This course was thoroughly enjoyed by all participants and we look forward to another course in the coming year.

The annual NZ Dotterel Management Course was held from 9-11 September. John Dowding was again the tutor and John's experience and expertise was passed onto the participants who came from a wide range of organisations, others of whom attended in a private capacity. It is pleasing to see the support that

this course receives from the Department of Conservation and Regional Authorities, who have active management of the dotterel breeding areas. It is clear that the benefits of this training is now being applied widely by the wardens of not only NZ Dotterels but also of Fairy Terns.

A volunteers working day was held on 30 August under the guidance of Jenni Hensley and this provides further training and also a chance to complete gardening activities around the Centre. This volunteer group who meet once a month, is always looking for more members and if you are wishing to provide practical assistance to the Trust this is an ideal opportunity.

On 19 October the Spring Migration Day was held with nice fine weather for a change. The viewing at the shellbanks provided an opportunity for a close examination of the large flock of godwit and knot that were present.

Following lunch the inside portion of the event was held. I had agreed that Arun Books could launch the book written by George Watola providing the listing of the history behind the first bird sighting for every species that has been recorded in NZ. This was an extra event above the activities listed on the calendar. The book itself is an interesting mix of facts and information but the book launch itself disrupted the normal open day activities by delaying the guest speakers.

This provided some logistical difficulties because of the warm day and the large crowd, and it was clear from that event that extra activities should not be added to our programme in the future.

### It is pleasing to see the support that this course receives from the Department of Conservation and Regional Authorities

The official guest speakers on the day were Gillian Vaughan and Adrian Riegen who were talking about the experiences of the Trust activities in China and South Korea earlier this year.

These interesting talks both provided much valuable information on the challenges that are facing that region which is the major stopover point for the migratory birds from NZ. The reclamation activities that are taking place in South Korea are causing major declines in the population of some species which makes for depressing viewing, but it is important that our members understand the cause and effects that reclamation of tidal areas present for the bird populations.

We hope that the Ramsar convention being held in Korea in November will provide more positive outcomes and much greater protection for that extremely important area.

### External Activities:

On 6 August I was invited to attend a meeting in Wellington jointly organised by the Department of External Affairs and the friends of the Democratic Peoples Public of Korea examining the possibilities for the expansion of closer relationships between the two countries. The Miranda Naturalists' Trust's involvement in this meeting resulted from my contact with Winston Peters as the Minister of Foreign Affairs who arranged for an invitation from that country for a group from Miranda to undertake the first shorebird census work in that country.

Our project was well received at that meeting and we now have further contacts in that country which should assist us in organising our planned visit in April 2009.

Following that meeting I took the opportunity to meet with Nicola Scott, a Department of Conservation Head Office Manager who will be one of the delegation attending the Ramsar meeting in South Korea early in November. During that meeting we discussed the Trust's aspirations for some of the resolutions that will be considered at that convention.

I was also invited to attend, by telephone conference call, a non-governmental organisation meeting on similar issues on 22 September. This was at the time when the Department was drafting their responses to the various resolutions and seeking some further input.

**there has been a substantial decrease in the number of South Island Pied Oystercatchers utilising the Firth.**

It is a credit to the Miranda Naturalists' Trust that we are now achieving respect at senior government official level.

Estella Lee, one of the Trust Council members, is intending to attend the Ramsar meeting in Korea as a private individual. I have arranged for Estella to be included as far as possible with the government team as she is the only N.G.O. representative from NZ that will be at the meetings.

Estella will also be attending the world N.G.O. conference on wetlands from 25-27 October and establishing contacts with representatives from the organisations from the participating countries.

At the recent Council meetings there have been discussions with Jacun

Chin from South Korea who is a representative of Wetlands and Birds Korea. We are developing a joint project with the educational department at Busan City on the southern shores of Korea to establish an interactive programme between school children in both countries based around the migratory birds that fly between the two countries. This project is in its infancy but Estella will be meeting some of the key Korean people on her visit and we hope that this project can be further advanced in 2009.

**Local Advocacy:**

There has been a meeting of the Hauraki Gulf forum at Miranda where the committee was able to view first hand the shorebirds and the Centre's facilities as these are a key component of the Firth of Thames portion of the Hauraki Gulf.

There have also been several meetings held at the Centre of the group associated with the Muddy Feet programme, driven by

Bill Brownell. I have had the opportunity to attend a number of these meet-

ings and it is clear that the outcomes from these discussions will provide practical solutions to many of the issues being dealt with by the Hauraki Gulf forum.

All of these activities are building on the research being carried out at the Centre, and it also shows the value of having facilities that are available for external agencies to utilise.

The census work that is done by the Ornithological Society in the Firth of Thames has shown that there has been a substantial decrease in the number of South Island Pied Oystercatchers utilising the Firth. At this stage it is not known whether this is a Firth of Thames issue or whether the population is decreasing nationwide.

This does however show the value of having long term trend counts and any changes need to be carefully examined. This issue is now being considered by the Muddy Feet programme and will form the basis of their investigations into the health of the mud in the Firth of Thames.

I have previously reported on the Trust's successful application to the



The new sign erected at Big Sand Island on the Kaipara Harbour, the photo at the top shows some of the details expanded. Photo A Riegen

Auckland Regional Council coastal enhancement fund to allow the Trust to erect an educational sign at Big Sand Island in the Kaipara Harbour. While this is external to the Trust's core area in the Firth of Thames it is all part of the process of educating the public about the value and threats faced by the migratory shorebirds wherever they occur in NZ.

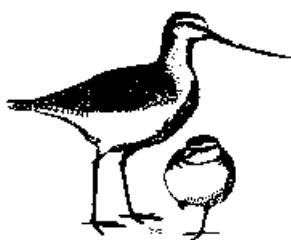
The draft sign was seen by several local authorities and already the Franklin District Council wish for us to erect a similar sign on the Kaiaua foreshore where Janie and Kevin Vaughan have been advocating for some measures to be taken to ensure that the roost site just outside the township can remain undisturbed by people.

Adrian Riegen attended the Bay of Plenty Birds Aplenty Festival where he gave an illustrated talk and attended the open day on the Ohiwa Harbour. Adrian has also given several talks in the Auckland region including the Auckland Regional Council Ambury Park open day.

### Conclusion:

As can be seen the Trust and its officials have been very active in striving to achieve the vision of keeping the birds coming. This work however cannot continue without the huge voluntary team and the interest of all the members.

As can be seen there are tasks for people at all levels of the organisation and I look forward to your continued support in the future.



## Websites to check out:

### The Global Flyway Network

[www.globalflywaynetwork.com.au](http://www.globalflywaynetwork.com.au)

The Global Flyway Network is a partnership between researchers worldwide who are devoted to long term work on long distance migrating shorebirds, the website is focused around North-West Australia however research summary reports (on the "our fieldwork" pages) for each year show the work that this group is doing around the world. The paper on the "our work" – "our work" page on habitat use and migration strategies is worth delving into if you are interested in some of the details about migration.

### Keep up with research on knots

[www.rug.nl/biologie/onderzoek/onderzoekgroepen/dieroecologie/publications/index](http://www.rug.nl/biologie/onderzoek/onderzoekgroepen/dieroecologie/publications/index)

Its a lot to type in, but this link will take you to the publications section of the website of the Animal Ecology group at the University of Groningen in the Netherlands, where Theunis Piersma a leading researcher into migration generally, and Red Knot specifically, works. Pdfs of most of the papers listed are available. Interested in the immune system of knots and how that affects their distribution or the rate at which red knot put on weight at their staging grounds? This could be the site for you! If you don't want to type it all in go to [www.rug.nl](http://www.rug.nl) and search for animal ecology publications, choose one of the years that come up and navigate from there.

### The Shorebird Recovery Project

[www.manomet.org](http://www.manomet.org)

Manomet is one of Americas leading environmental research organisations. They have several programs, such as developing shorebird friendly rice growing techniques that are aimed at helping some of the species on the American flyways.

## 2009 Courses

**Field Course: The 2009 field course will be held from January 24-30, the course is currently full. Contact the Centre if you want to be on the waiting list.**

**Botanical Illustration 11-12 July, Tutor Sandra Morris.**

**NZ Dotterel Management Course 7-9 September  
Tutor John Dowding.**

**Photographic Course 19-20 September Tutor Bruce Shanks.**

**Wader Identification 24 - 25 October Tutor Keith Woodley.**

**Field Sketching course 7-8 November Tutor Sandra Morris,**

**Contact the Centre for details of any of these courses!**

# Could E7 have led the way again?

Tony Habraken

The start of the 07/08 season was heralded with great excitement and expectation by the arrival of E7. She arrived early in the season, and in completing her journey, which many had followed as satellites tracked her progress, she confirmed the direct flight of godwits from Alaska to NZ.



*E7 in flight - the aerial is visible on the second bird from the right. Photo Jesse Conklin*

In 2008 she may have again arrived early, albeit without an armchair ride for those at home.

Following the current raft of satellite-tagged Bar-tailed Godwit from Australia and New Zealand traversing the globe these past few months has been just awesome. Although our NZ birds are not transmitting on their returns this year, we haven't lost sight of either their activities or those of their forerunners.

Keeping up with some of them has meant some long hours in the field either doing ground observations or working on research projects, which is where a mid-week exercise away from the lecture theatres at Palmerston North took Dr Phil Battley.

Phil saw E7 back at Miranda on 2 September. She looked scruffy and was possibly carrying a leg injury. Although this sighting failed to create the hype of her record breaking achievements last year for me this sighting was great news. Every sighting, no matter how insignificant it may seem at the time can be valuable, this case is no exception.

So, what can we glean from this small piece of information?

We discussed the following scenarios and can assume one of two things may have happened:

- E7 overwintered and did not take part in a north migration due to ill health. (On 26.1.08 when I last saw her, she had a suspected limp, however her condition did not suggest at the time she was unwell) or
- she had just returned from migration, was showing signs of an arduous trip and continues to carry an injury.

## Did she overwinter...

E7 was not seen at all during winter, so if she overwintered she did so using the skills she used to evade observers in 2007. This lack of sightings is unusual, although D6 is another bird who has chosen a similar path and faithfully stayed out of the Miranda limelight.

D6 did not migrate and chose to overwinter with her PPT in full operation mode allowing us to monitor her movements with great interest. She roosted regularly in the Piako



*E7 at Miranda in February 2007, the letters on the black flag are just visible. Photo Jesse Conklin*

area where E7 was most commonly recorded last year. Her transmitter showed she visited Miranda from time to time but she was not often seen. Although, from her PPT reports, she has been at or near the Miranda roost at least 7 times between 1 April and 2 September my first sighting since 21 March 08 was on 9 August 08. The six rounds of new moon high tides over the winter period would have forced birds out of Piako to roost elsewhere, but she may have preferred the many saturated wet fields around. So equally, could E7 have avoided being sighted all winter, not seen until the tide height on 2 September forced all birds out of her favoured Piako hideaway.

#### Or migrate?

Considering the state of her health and condition, had she just returned from migration? This is quite possible and would explain the poor condition Phil saw her in, not unexpected from a bird that may have just completed a non-stop flight of 11,700 kms from Alaska.

Is it a coincidence that Phil's sighting is only 5 days prior to E7's anniversary of 7.9.07, the date she returned to

NZ after her 'world recording breaking' epic flight from Alaska?

Could it be that she just completed another epic flight down the Pacific Ocean and is confirming not only her site faithfulness but also that she is a forerunner in leading the way south?


There is the possibility that we are yet to receive a report of a sighting of E7 during the past 6 months along the flyway, breeding grounds or staging sites, but this seems unlikely given the speed of international communications these days.

Of course it would be a very nice if E7 has created another result fit for an Olympic gold medal (and without waiting four years for a second attempt!). But this isn't just a case of wishful thinking but an ongoing study we can all take part in, in one way or another. So whenever an opportunity arises to scan a flock of godwits, wherever they may be, have a look for flagged and banded birds, you never know your luck and the importance of that one sighting. The more data we are able to collect from individually marked birds in

the coming years will surely help us better understand the species.

The coming months are going to be as exciting as last year! Will E7's condition improve? Will we be able to find out whether ill health limited her ability to clock up more kilometres on the flyway? Let's hope her visits to Miranda are more regular than last year and that we don't have to wait till mid-summer before she's next seen.

#### Footnote

While D0 and D8 (both males carrying PPT's this year) made it to the breeding grounds their PPT's stopped functioning while staging on the shoals of the Yukon Delta prior to departing, but we have had sightings confirming their return. Their reappearance at Miranda on 27.9.08, when seen by Gillian Vaughan and Ian Southey, confirmed they too safely navigated the flyway and returned to Miranda. 

To see how the journey ended for the Australians visit [http://alaska.usgs.gov/science/biology/shorebirds/barg\\_updates.html](http://alaska.usgs.gov/science/biology/shorebirds/barg_updates.html)

While you're there check out the work being done on other migrant species such as the Long-billed Curlew.

The satellite tracking of Bar-tailed Godwits has come to an end for now, there are no plans to implant transmitters in godwits for the coming season.

Our thanks to all those who led and helped with this project that bought the godwits incredible journey into our living rooms!



D8's first sighting at Miranda on the 27th of September this year. Both D8 and D0 were seen that day. Photo Ian Southey

# 'Keeping a Nature Journal'

A sketching Course with Sandra Morris.

Judith Tyler - Course Participant

The date was: Saturday 5th – Sunday 6th October 2008  
The place was: Miranda Shorebird Centre  
The weather was: Definitely 'variable', but windy most times, sitting on the shellbanks.

Ten people attended this course with varying levels of skill – some were beginners and others a little more advanced – so Sandra started by showing the group examples of nature journals covering a variety of subjects, and these certainly provided good inspiration for us.

Our first session was spent sketching birds from the mounted exhib-

set up our 'scopes and started sketching the birds. Why won't they stand still?! You focus on one bird that looks quite comfortable on one leg and lo and behold they all shuffle and change positions! I swear they were doing it deliberately to annoy us! Tony Habraken, keeping his vigil on the far side of the spit, was much more cooperative, so everyone sketched him!


lieved one and a half hours could go by so quickly and that I could stay still for that length of time! All too soon it was time for afternoon tea. Fresh baking and yummy chocolate brownies were enjoyed by all.

Plants don't move, but some were still a lot more difficult to draw than others. Pages in our sketch books were rapidly filling up and the sketches were at last becoming recognisable.

Dinner at night was very enjoyable and well presented thanks to the team of Rhonda and her son Max from Kaiāua. Younger son David was also roped in to help with our main meal. After dinner we watched a video but by this time most of us were ready for bed after our busy day of sketching.

Sunday, though, we were all eagerly back at it, improving our new sketching skills. Back at the shellbanks, much warmer today, but still windy, we continued with drawing the birds and landscape. I also managed to get a sketch of Sandra while she was viewing the birds!

All too soon the course was over, with a final afternoon tea of lovely fresh cakes.

I am sure all the course participants have gained new skills over this weekend and go home with more confidence (and competence!) in the art of sketching. A special thanks to Sandra, and also to Jenni, Rhonda, Max and David for all making this a great weekend course. 



its. This brought out a few laughs as some of us tried, with varying success, to conquer shapes and proportions. There was a look of determination on all the faces around the room as we tried to master this skill.

After a welcome break for morning tea we set off for the shellbanks. We

After a delicious lunch we spent time sketching around the Centre. We were encouraged to look at ground-level, eye-level and overhead as well as at the whole landscape. Trying to find suitable bugs wasn't very successful (adverse weather conditions), but we still all found something of interest to draw. I wouldn't have be-



# from the MANAGER

Keith Woodley

It was my first visit in over six months. In the extremely familiar Miranda landscape there had been some changes. Most notable was how the most recent shell bank was now firmly grafted on to the main spit. Indeed, it now formed part of a crescent shaped bay extending eastwards, and into that bay the tide was funnelling birds.



*J0 being released on the tundra on June 16th this year. Photo Keith Woodley*


Those birds too were familiar – mainly godwits, knots and Wrybill. My purpose on this occasion was reconnaissance – looking at where birds were roosting ahead of the cannon-netting exercise scheduled in a few days time.

It was my first connection with godwits since late June, when I had watched a small flock flying south over Big Slough, on the shores of the Bering Sea. They were heading for a staging site before migrating south. Whether any of those particular birds were now here at Miranda, I shall never know. But sprinkled among the flocks were a few juvenile birds, and in this case there can be no doubt that just a few weeks earlier they had been in Alaska. Perhaps one of these juveniles was from the successful clutch of the boatshed marsh pair at Old Chevak. Once again, I shall never know.

But there was one individual bird that I did know something about.

On 22 June at Big Slough we had banded and flagged a female godwit at the nest. She became J0, and on 20 September Tony Habraken saw her at Clarks Bay, on the southern shores of the Manukau Harbour. In the tide of amazing things we have learnt of these birds in just the last few years – the colour banded individual tracked around the Pacific in one season, the satellite telemetry data of E7 and others - this connection stood out. A bird I had photographed on its release on the tundra, was now back in New Zealand. I had returned with airline assistance; she had just followed the path of countless others like her, launching herself into the boundless Pacific sky, propelled by a genetic program and tiny cardio vascular system burning fat.

\* \* \* \* \*

To many it goes without saying; Miranda is a pretty special place. Even more so, I believe, is the nature and calibre of the people attracted to become active here. The Trust has been, and continues to be, well served by some amazing people who exhibit a spectrum of qualities - talent, energy, dedication and passion. In addition to remarks elsewhere in this issue I wish to record here my gratitude to Jenni Hensley. During my sabbatical on the tundra and elsewhere, I was never in any doubt that Miranda was in very capable hands. From the comments of many others since my return, that view has been well validated. During her entire association with Miranda she has been an immensely thoughtful and helpful presence, who has contributed mightily to the centre and its activities. She will be missed here, but I am sure we all wish her well on her future paths. 



*In Keith's absence two new residents appeared in the courtyard of the Shorebird Centre. As they kept the noise of their construction to daylight hours they were warmly welcomed, however they may have been new to the building trade, as their nest fell off the wall a few days later. Photo Ian Southey.*

# THE DISCOVERY OF NEW ZEALAND'S BIRDS

By GEORGE WATOLA

Publisher - Arun Books ,New Zealand: 304p; 2008.

Review by Paul Cuming



Another book on New Zealand birds was, perhaps, unexpected, as the market for bird books in New Zealand is limited. However, as professional book buyer for a medium-sized public library, I welcome this book into the fold; mainly on the unique angle that it approaches its subject matter: the first record of

every bird species in New Zealand since 1769.

Taking on the task of writing this book was, in my opinion, an unenviable job, as the scope of the book seems a lengthy involved assignment in frustration: the subtitle reads – ‘an annotated list of the first historical record of every bird species recorded in the New Zealand bio-region (including Norfolk Island) since 1769’. Accuracy of the records springs to mind initially, then the sources – which would be far-flung and as varied in nature as the specimens themselves. Indeed, George Watola describes the somewhat hit-and-miss nature of the above, adeptly, in the introduction.

According to the introduction, ‘no country appears to have published a list of first historical records for its entire avifauna’. If this is true, congratulations to the author!

Upon initial inspection, my book-buyer’s eye is drawn immediately to the hallmarks of a limited edition, locally published book: soft-back, full-colour, non-glossy covers with photographs of various subjects in various stages of sharpness. The book’s construction seems robust enough to survive years of use. The use of brown may not have been my first choice of main cover colour. But to be honest, this was not the real attraction – or intention – of the book, for inside the cover lies a unique contribution to ornithological literature in this country.

Watola has pitched this work towards the amateur birdwatcher, and the layout of the work is easily digested, with white space and text balanced with both photographs and illustrations. Various people contributing photographs always makes for an interesting book, and the quality of the photographs is generally excellent (the Kingfisher on p.182 is an exception). The photographs lean towards the land-oriented species.

405 species are listed in the taxonomic order of Dickinson (2003) The Howard and Moore Complete Checklist of the Birds of the World, listing all first records as the subtitle of the book outlines. Each record details common name, Latin name, who described it, what year and whether it is an endemic, native or introduced bird.

With the earlier records, it is always tricky verifying accuracy, and sources quoted sometimes can be out of date or inaccurate in themselves, so this task must have been a labour of love – in fact I think this really is the case, as Watola’s son has contributed some illustrations – and the afterword suggests Watola worked for four years on it.


The nearest in scope for anything similar in this country is A Working List of Breeding Bird Species of the New Zealand Region at First Human Contact: Holdaway, Worthy and Tennyson (2001). In fact, according to the references at the back of the book, this has been consulted, but not Helen Oliver’s Annotated Index

to Some Early Bird Literature – although this is a list in itself and the original works may have been referenced instead. Nevertheless, 6 other pages of references show the detail of the work involved.

Other parts of the book are given over to interesting lists, including unsuccessful introductions, fossils, subfossils, a ‘suspense’ list including doubtful records, and potential listees in the forthcoming next edition of the OSNZ checklist. Another appealing list I found was the chronological list, including the years the introduced birds were released.

The only faults I found in the body of the work were one photograph identification, a few typographical and layout errors, and a name I am new to, describing the North Island Tomtit (White-breasted Tomtit).

Considering I am a lister at heart, this item will be taking pride of place amongst the other checklists and indexes and atlases in the reviewer’s own library. I recommend this work to all birdwatchers interested in where the bird wandering around their garden or through the foreground of their telescope lens comes from – or has first been found in New Zealand.

This book fills a niche, and kudos to Arun Books for publishing this unique tome, and to Watola for having the fortitude to undertake such a large task to heart and get it to the publishing stage. Copies are available from the publisher or from the Shorebird Centre. 

Keep up-to-date with events  
visit  
[www.miranda-shorebird.org.nz](http://www.miranda-shorebird.org.nz)



### MNT People:

#### Shorebird Centre Manager:

Keith Woodley,  
shorebird@farmside.co.nz

#### Assistant Manager

Maria Stables-Page topcats@ihug.co.nz  
**The Shorebird Centre**  
283 East Coast Road  
RD 3 Pokeno 2473  
phone/fax (09) 232 2781

#### Chairman: David Lawrie

R.D. 2, Pukekohe. Phone (09) 238-8407.

#### Deputy Chairman and Banding Convenor:

Adrian Riegen, 231 Forest Hill Road,  
Auckland 8. phone/fax: (09) 814- 9741.  
email riegen@xtra.co.nz

#### Secretary: Will Perry

34 Morrin St, Ellerslie, Auckland. Phone  
(09) 525-2771 hm; (09) 526-1944 wk; (09)  
526-1960 fax (wk)

#### Treasurer: Ashley Reid

1 Picquet Hill Road, Te Awamutu. Phone  
(07) 871-5729.  
email: reid.AandS@xtra.co.nz.

#### Editor: Gillian Vaughan

82 Redhill Road Papakura.  
ph (09) 298 2500 Fax (wk) (09) 522- 5518  
email: gillianv@actrix.co.nz

#### Council:

David Lawrie (Chairman)  
Adrian Riegen (Deputy Chairman)  
William Perry (Secretary)  
Ashley Reid (Treasurer)  
Eila Lawton                Emma Stanyard  
Len Taylor                Estella Lee  
Phil Hammond            Sue Reid  
Wendy Hare                Gillian Vaughan  
Keith Thompson  
John Gale (Ex officio)

### Bequests

Remember the Miranda Naturalists' Trust in your will and ensure that our vital work in education and protection of the migratory shorebirds can continue. For further information and a copy of our legacy letter contact the Shorebird Centre.

Situated on the Firth of Thames between Kaiaua and the Miranda Hot Pools, the Miranda Shorebird Centre provides a base for birders right where the birds are. The best time to see the birds is two to three hours either side of high tide. The Miranda high tide is 30 minutes before the Auckland (Waitemata) tide. Drop in to investigate, or come and stay a night or two.

### Accommodation

The Shorebird Centre has bunkrooms for hire and two self-contained flats:

Per bed / night member \$ 15.00	Per bed / night non-member \$ 20.00
Hire of Sandpiper member \$ 50.00	Hire of Sandpiper non-member \$ 60.00
Hire of Whimbrel member \$ 50.00	Hire of Whimbrel non-member \$ 65.00

For further information contact the Shorebird Centre, RD3 Pokeno  
Phone /Fax (09) 232 2781 shorebird@xtra.co.nz

**Help support the Trust's efforts to educate and promote conservation awareness.**

#### Membership of the Trust entitles you to:

Four Miranda News issues per year.  
A discount on overnight accommodation  
Invitations to Trust Events  
The right to attend the AGM  
The right to vote for council members

#### Membership Rates :

Ordinary Member - \$ 35.00  
Family Member - \$ 40.00  
Overseas Member- \$ 40.00  
Life Member, under 50 - \$ 1200  
Life Member, 50 & over - \$ 600

## Want to be involved?

### Friends of Miranda

A volunteer group which helps look after the Shorebird Centre. If you'd like to help out contact Keith. Helping out can be anything from assisting with the shop, school groups or meeting people down at the shellbanks. Regular days for volunteer training are held. Contact Jenni Hensley at the Centre or on gekkoomoon@slingshot.co.nz for details.

### Long term Volunteers

Spend four weeks or more on the shoreline at Miranda. If you are interested in staffing the visitor centre, helping with school groups or talking to people on the shellbank for a few weeks contact Keith to discuss options. Free accommodation is available in one of the bunkrooms. Use of a bicycle will be available.

### The Miranda Garden

If you want an excuse to stay at Miranda for a couple of week nights free of charge, come and help a small team of gardeners maintain the gardens. It is satisfying and worthwhile work in the outdoors. We make the time enjoyable especially when we down tools at high tide and go and watch the birds on the shell banks. If interested phone Keith on 232 2781 who will put you in touch with a gardener!

### Firth of Thames Census

Run by OSNZ and held three times a year the Census days are a good chance to get involved with ongoing field work and research.

### The Magazine

Never forget you are welcome to contribute to the MNT NEWS! If you would like to discuss your idea contact Gillian, gillianv@actrix.co.nz

The Newsletter of the Miranda Naturalists' Trust is published four times a year to keep members in touch, and to bring news of events at the Miranda Shorebird Centre and along the East Asian-Australasian Flyway. No part of this publication may be reproduced without permission.

