A swift flypast
The fastest bird on the planet makes a rare visit to Tiritiri

Meet the island's two new rangers
The mystery of the kokako sex change
Bagpipes and haggis on Tiritiri
A good start to the new year

I hope that you all had a merry Christmas and a great new year. We spent Christmas on Tiritiri, New Year on Motuihe, had a three-day walk in the Kawekas, a quick trip to Rotoroa for a kiwi release and a further three-day tramp of the Puakai circuit in Taranaki. There is some wonderful bush around the mountain which seems to me to be crying out for kokako.

I did manage a day trip to Tiritiri recently, with a big contingent from DOC, to look at the areas we are planning to lease for our accommodation, signal mast and museum projects. All were very enthusiastic and we were able to clarify a number of issues. Everything looks good to have our application for the leases in front of DOC in early 2017.

Over Christmas we started to run a trial of the third guiding route. This has been very successful so far with great bird sightings (including four fernbirds on my first walk!) and all the visitors appreciated the fantastic views on the other side of the Island. As we suspected, our groups are meeting hardly any freedom walkers, which was DOC’s major concern.

Talking about freedom walkers, please be aware that while we can encourage people to stay for the DOC mihi and biosecurity/health and safety talk, we are not empowered to prevent them going off on their own. If a reasoned explanation fails to convince them to stay, let them go but feel free to tell the ranger.

It has been a mixed breeding season so far. Rifleman, hihi and takaha are doing well. Kokako have not replicated last year’s amazing season but are still pretty good and tieke activity seems to be down.

We have managed to get some road/track metal on the island but hope to get another two barge-loads over before the end of summer so we should be able to extend the Ridge Rd improvements and keep the main tracks safe for winter.

I would like to thank our guides, shop staff and other volunteers who dealt with the huge numbers of visitors over the holiday period. We are always looking for new guides and shop staff. Full training is provided so if you fancy trying your hand at either don’t hesitate to tell Mary-Ann.

See you on the island.

From the chair

Brian Chandler

Tiritiri snippets

Changing of the guard

Tiritiri’s new all-female ranger team is now in place and making a mark on the Island. Rangers Kata Tamaki and Vonny Sprey have taken over following the departure of Dave Jenkins, who left at the end of last year after eight years on the Island, and Matt Mold, who departed last month at the end of a one-year contract.

Matt’s final departure on the ferry was marked by a guard of honour along the wharf. As he walked past, each member of the guard placed a colourful garland round his neck so by the time he got to the gangway he was well and truly smothered in (fake) flowers. Then, just as the ferry pulled away, manager Mary-Ann Rowland and hihi researcher Mhairi McCready jumped into the water – as Mary-Ann puts it – ‘just so he realised what he was leaving, particularly the wonderful afternoon swims.’

Kata, who was the first of the new team to start work on the Island, grew up further north in Mokau Bay, Whangaruru Harbour, where she was ‘surrounded by nature. Conservation was an integral part of my life, my way of living.’

She did DOC’s Trainee Ranger Course in 2013 and since then has worked in Fiordland, Pureora Forest, Lake Waikaremoana and now Tiritiri Matangi.

‘A hunter and gatherer from way back,’ she loves being outdoors, tree climbing, scuba diving and all sports. She plays rugby and basketball whenever she can and represented Northland in both.

Kata says Tiritiri is ‘an awesome place.’ For her, ‘The most important thing in life is the whenua, the land. Manaki te whenua – without the land we have no people.’

Vonny has a background as a farm consultant but in 2007 she began working with DOC in Wanaka. Since then she has been to Raoul as team leader, managed Motuora Island and spent time at Scott Base (where her interview took place).

She loves jobs like her present post on Tiritiri because she wants ‘to make a positive contribution to help our native flora and fauna. I like to think that if I have a chance to return to a place that I have had the privilege to live and work that I’ll be able to feel that I wasn’t there just to have a look but rather to try and make it a better place ecologically speaking (however small).’

‘Working somewhere like Tiritiri it’s also great to be able to say at the end or start of a day that right at that moment there is nowhere else you would rather be.’
It’s still early days for her on Tiritiri but, she says, ‘it is a beautiful island and I can’t help but reflect on the contrast with Motuora and get a sense of what Motuora may look like in 15 or so years.’

90th birthday
Life member Nan Rothwell celebrated her 90th birthday at the Visitor Centre after being persuaded to go to the island on a Thursday rather than her usual Wednesday and Saturday.

Lots of other longtime supporters turned up to join the tribute to Nan – who has been involved with the project from the very beginning – including Barbara, Sally, Dorothy, Vic, Caroline, Diana and more. There wasn’t a cake but she was presented with a cuddly takahe and an apologetic card. And when she came for her Saturday shop duty there was a delicious cake thanks to Erin.

Pupils support Tiritiri
Year 3 and 4 students from Waimauku School have raised an amazing $1640 to go towards the Tiritiri project. Teacher Alexis Langhorne says the pupils all had wonderful visits to the Island and on their return they decided to contribute to helping the birds.

Each pupil took home a small pot in which to grow cuttings for sale. They also made craft items including squishits (odd creatures made from socks), Maori clay whistles, stress balls, decorated candy canes, paper pokemon, Christmas baubles, bookmarks, bath bombs and painted pet rocks. As well as selling those goodies there were stalls where students could create their own Christmas cards, guess the number of M&Ms in a jar and throw a quoit to win a prize.

Posters were made advertising a market in the school hall and it was also promoted in emails and newsletters to the wider school community. The result was a great turnout of eager buyers and the event was a huge success, Alexis says, and ‘the students and the school community are all very proud of their efforts to help promote and maintain a very worthy cause.’

Watch out for monsters
Giant wetapunga are increasingly becoming spectacular additions to the visitor experience on Tiritiri. The male and female in this photo are often in old fronds on a ponga hanging over the Wattle Track. Guide Donald Snook, who took the photo, says, ‘People pass by nonchalantly unaware that a metre above their heads is perhaps the world’s heaviest insect.’

Metal supplies arrive
The shortage of metal for roads and tracks damaged by the incredibly wet winter has finally ended. Infrastructure Subcommittee chair Carl Hayson says five trucks loaded with metal have been successfully barged in and stockpiled at the entrance to Cable Rd for spreading in March once the breeding season is over. Much of the cost of getting the metal to the Island was met by grants from the Lion Foundation and the Pub Charity.

Further work has been done to transform the old workshop into a maritime museum by opening up the south end of the building and refitting the windows.

We should be hearing the island’s diesel generator far less from now on. DOC
eventually found $80,000 in their budget to replace all the Island’s main storage batteries and upgrade the solar system. We had to sacrifice a truckload of metal on the barge to allow the huge truck loaded with batteries onto the barge but it was well worth it.

**Getting involved**
One area in which SoTM members can get involved in the work on Tiritiri Matangi is by monitoring the Island’s fauna and flora.

Biodiversity projects take place throughout the year and often need volunteers. Anyone registering an interest in helping is added to the biodiversity volunteering database. Those on the register will receive an email advising when volunteers are needed for a particular project. To register an interest send an email to: biodiversity_vol@tiritirimatangi.org.nz

**Third guiding route**
DOC has given the go-ahead for the proposed third guiding route (shown on the map below) to be trialled so it is being used now and again when there are lots of groups to take round.

Committee member Helen Bucksey says DOC will monitor the trial to ensure that visitors walking on their own are not adversely affected by guided groups, particularly on the East Coast track.

Guiding manager Mary-Ann says ‘the guides really like it and are seeing as many birds as the other routes, especially takahē and kokako at spaghetti junction, and the part that follows the East Coast track is stunning!’ At least one visitor has given the route an enthusiastic review on TripAdvisor.

As part of the preparation for the third route we will be upgrading the steep start to the link track, which starts just before the Wharf Dam and runs up to Ridge Rd, by building stairs on the steepest section.

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**MAD ABOUT MOA:** (from left) Hurupaki School pupils Danni Cooper and Bridget Penwarden know a ratite when they see one and they know the species they found on Tiritiri was supposed to have vanished long ago. The large moa puppets they discovered on the Island are used by educator Barbara Cleland-Hughes as ‘a fun way to illustrate what we once had as part of the unique New Zealand biodiversity but is now extinct, along with many other animals.’ Barbara says the case for an invader-free New Zealand to avoid further such extinctions makes up part of the education message that Tiritiri educators aim to foster. Other messages the programme seeks to spread are:

- **Change Our Behaviour** – Stop the littering, particularly plastics into the seas, and aim for biodegradable packaging.
- **Volunteer** – We can all do something for the environment. After all, volunteer hours have made Tiritiri what it is today.
'More rare birds on Tiritiri,' said the header on Martin Sanders' email as he reported that he and a few others had spotted at least one, and possibly two, white-throated needletails flying over the Island.

That was exciting news, but even more exciting was the fact that Martin had managed to take some really clear images of a bird which is notoriously hard to photograph.

Colin Miskelly, curator of vertebrates at Te Papa, who maintains the wonderful NZ Birds Online website, was certainly excited when he confirmed the identification. 'Great images (and correctly identified!),' he replied to Martin. 'Are you OK with these being added to NZ Birds Online?'

The reason for Colin's enthusiasm is quickly apparent if you look at the photos of needletails on NZ Bird Online. Apart from Martin's four shots the only New Zealand presence is a slightly fuzzy photo taken on Stewart Island in 2015 and three skins held by Te Papa. Then there are four photos from Bhutan and five from Australia.

Search the web for images of these birds – as I did looking for a photo that could be blown up for the cover – and you quickly discover that they are photographed only rarely and then almost always at great distance and blurred by speed.

Martin got his shots because at the end of the usual guided walk, while standing on top of Coronary Hill and describing the islands, he and Vic Hunter 'noticed a similar but larger bird flying amongst the welcome swallows feeding over the grasses. 'At lunch we decided it might be a white-throated needletail and to return and check it out. I left to walk round the loop via the cottage on my way to the hill,' Martin says.

'While watching a tui feeding on the flax I noticed a bird doing circuits up the East Coast cliffs. It reminded me of a European swift. I was able to take some photos before it moved off. There may have been two birds but I don't have a photo of both together. I checked Coronary Hill but no more observations.'

These birds breed in northern Asia – particularly Siberia, China and Japan – but then spend October to April in eastern Australia and New Guinea which is when from time to time they visit New Zealand.

There are official OSNZ records of them on Tiritiri on 5 December 1995 and 4 November 2001 and Barbara Walter recalls that she and Ray 'saw them over the cow paddock two or three times.' There are occasional sightings all round the country and in 1943 what was described as 'an invasion' occurred when hundreds were reported.

Needletails, also known as spined swifts, spend most of the year on the wing. Indeed, their wings are so big and their legs so short that they have difficulty taking off from the ground. Hence when they land in order to rest or nest they do so on cliffs or trees.

They feed on the wing using their large mouths to scoop up small insects which have been blown up into the air.

Of course their greatest claim to fame is as the fastest-flying bird in the world. The fastest bird is generally acknowledged to be the peregrine falcon which is said to reach 320km/h when diving. But the needletail is the fastest in actual flying – flapping its wings in level flight – when it has been reported as hitting 169 km/h. Indeed, one online source claims it can get up to 349 km/h, but it isn't clear how that was recorded.

Because they are so difficult to count needletail numbers are unknown. But NZ Birds Online notes that 'comparison of data from the two bird atlas projects in Australia (1977-1981 and 1998-2002) indicates a decline in distribution and reporting rates.'
This has been a strange season so far, with conditions cooler and wetter than expected throughout spring and early summer and very windy conditions through much of January. Our birds have had mixed fortunes; most appear to have had an average season so far, but rifleman are flourishing and hihi are doing better than they have recently. The sighting of two white-throated needletails in November, reported on page 5, was an exciting event.

**Takahe**

It is pleasing to report at least two takahe chicks on the Island this season. After her early nest failed, Anatori had another go and hatched a chick. The family of four, Anatori, partner Tussie, elder daughter Jenkins and the new chick, have been seen in their usual haunts around the lighthouse and bach since mid-January.

At the north end, Edge and Turutu produced two chicks, but kept them well hidden from public view. It is very unusual for our takahe to raise more than one, so no one was surprised when people started reporting sightings of one only. We might have to wait a few weeks to confirm whether a second chick still survives.

Anatori showed signs of having been in a fight in early January, probably with Cheesecake, who was also reported to have feathers missing from her face.

The takahe recovery team has informed us that they would like to remove Cheesecake and Nohoa from the Island so they can contribute to the breeding programme at other sites. We shall be sad to lose them, especially Cheesecake who has been with us for some years, but it will be better for them to have partners, and better for our breeding pairs not to be pestered by single birds trying to muscle in, especially as chicks can get caught in the crossfire when adults fight.

**Kokako**

The Island is bursting with kokako, to the benefit of visitors, many of whom come especially to see them. We now have around 20 pairs to keep track of, so the kokako team has been busier than ever. By mid-January, 12 chicks had hatched and eight of these had fledged, at least four females were still incubating eggs. A few others, whose earlier nesting attempts had failed, may yet have another go.

There have been significant developments in the kokako population this year. One sad and unusual event is that we seem to have lost one of our breeding males, Bariki. His partner Lucky has taken up with a young male, Hohaia, who unfortunately happens to be her brother. Rimu, who arrived on the Island in 2010 and has been seen only once or twice each season during the past few years, has paired up with Royal, the two-year-old daughter of Crown and Pureora.

Sadly, but not unexpectedly (for a young female), their first nest failed, but since Bariki’s disappearance they have moved into part of his territory and may have better success there. Their offspring would be important for the genetic diversity of our population.

Then there’s Waipapa, who took us completely by surprise, as reported on page 8.

**Seabirds**

Our diving petrel chicks had all fledged by about mid-December ending a successful breeding season. A team from Auckland University including Brendon Dunphy and Shae Vickers worked with John Stewart to collect blood samples and fit tracking devic-
es to a few birds. The aim was to determine whether our birds were more stressed than those living on the Mokohinau Islands, as ours would have to travel further each day to reach rich feeding grounds at the ocean shelf edge. We await the results with interest.

John has also set up a solar-powered sound system near the Totara track which is playing the calls of Cook’s petrels through the hours of darkness. Some artificial burrows have been dug in below the speakers and night time cameras will also be installed. We hope that some of the non-breeding birds from the huge colony on Hauturu will be tempted to land and decide to adopt Tiritiri as their new home.

John needs to recruit a small team to help with the monitoring so contact him if you’d like to help. Most of the work can be done during a day visit.

**Ruru/morepork**

Our Summer student, Sarah Busbridge, is working with John Stewart to monitor the numbers, breeding success and diet of some of our ruru. We hope this will lead to a larger project which will determine the impact of ruru on some of our key species such as hihi, of which only a minority of the chicks produced each season end up being recruited into the breeding population – the remainder ‘disappear’ over their first winter. Night time cameras have been used to film parent ruru bringing prey items to their chicks.

Tree weta are by far the most common prey item, though we’ve identified feathers from blackbird, song thrush, kakariki, tieke, robin, whitehead, bellbird, tui and spotless crake in nests, and colour and metal bands from bellbird, hihi, kakariki and possibly robin have also turned up.

**Hihi/stitchbird**

Mhairi was worried at the start of the season as half of the females in the population were juveniles from 2015-16 so this would be their first breeding season and typically they have a lower success rate. However, they have made brilliant first time mums! The running total of hihi fledglings (as of 25 January) is 146 and a few chicks are still in the boxes.

The juveniles can be spotted around the sugar feeders, they look like females but don’t yet have the speckled chests and they have all been banded with white/metal or pink/metal, on the left for a female and the right for a male. It is possible to sex hihi chicks at the time of banding (day 21) using a subtle difference in their plumage.

With the season shaping up to be the most successful for a number of years we are hopeful that the population is stable enough to translocate some of our juveniles to a new site to start a new hihi population. As they say, it’s best not to keep all your hihi in one basket!

**Rifleman /titipounamu**

The eighth breeding season has been the one we have been waiting for. After years of slow but steady growth, this season has seen a quantum leap in rifleman numbers.

Thirty three pairs were identified early in the season with a few unconfirmed pairs reported. Of those, around 25 are known to have produced chicks. 13 of those in rifleman nest boxes and two in stitchbird nest boxes.

One pair nested above the compost bins by the bunkhouse and another near the Cable Track, making for a very visible family for those returning from a walk through the Kawerau Track.

Most of the juveniles from family groups have now dispersed with birds appearing in places where riflemen have not previously been observed.

**Other birds**

Although there are lots of newly fledged tieke/saddleback around, this looks like being a rather poor season for breeding in nest boxes. By early January only ten chicks had fledged from boxes which is well below the average for recent years.

Our dotterel pair on Hobbs Beach tried to nest three times but each attempt was washed away by the tide. We suspect that Hobbs Beach is not a good site for them as there is very little suitable ground above high water mark. However, the variable oystercatchers have learned to nest at the very top of the beach, so perhaps the dotterels will too.
Duvaucel's gecko

The November 2016 Duvaucel’s gecko survey returned a new record. We encountered a total of 58 individuals, amongst them several gravid females.

Juveniles and sub-adults made up 29% of the geckos captured by the survey, indicating that this species of lizards is successfully recruiting new members and the population is growing.

Particularly pleasing is the fact that we have been able to repeatedly recapture a good number of individual geckos during our surveys over the past three years, which will provide useful insights into their individual life-histories and space use patterns.

The biannual population monitoring will continue for at least one more year and the results will give us a better understanding of how this species responds to translocation and colonises new sites.

Compiled by Kay Milton, with contributions from Manu Barry, Morag Fordham, Simon Fordham, John Stewart and Mhairi McCready.

In 2007, a kokako named Waipapa arrived on Tiritiri. At the time it was thought the bird was a he, because it was big and had been caught in Pureora Forest with a female, Mawhero, and they were sent to us as a pair.

However, analysis of feather samples taken when the birds were caught showed that both were female. For a few years, Waipapa and Mawhero went around together but eventually Mawhero took up with a young male, Kikorangi, and Waipapa was left alone.

For about two years she wasn’t seen at all, and we thought she had died, but then she turned up again and hung around Lighthouse Valley and Emergency Landing. During the 2015-16 breeding season, she was joined in this territory by Awatea, a two-year old female. Since it is not unusual for kokako to form single-sex pairs, this was accepted as part of the rich tapestry of kokako life. Indeed, with so many other pairs to monitor, the kokako team was happy to ignore them, knowing they would be unproductive.

Then, at the beginning of January this year, Waipapa and Awatea were seen accompanied by a well-grown fledgling! The three were obviously a family. Both adults were feeding the fledgling and singing each morning to declare their territorial rights. So now it appears that Waipapa is a he after all.

This is not an unwelcome turn of events as Waipapa’s genes will add much-needed diversity to the Island’s population, but it is puzzling. Can feather samples lie? Did someone make a mistake? Such an important fledgling had to be banded for future identification, so the kokako team set up a net and caught all three birds (it is difficult to catch a fledgling without also catching the parents). Feather samples were taken from both the fledgling and Waipapa. If Waipapa’s results come back as female, the mystery will deepen further, but whatever happens, the team will be keeping a very close watch on Waipapa and Awatea from now on.

Kay Milton

Kokako’s sex changes – for the second time

In 2007, a kokako named Waipapa arrived on Tiritiri. At the time it was thought the bird was a he, because it was big and had been caught in Pureora Forest with a female, Mawhero, and they were sent to us as a pair.
A total of 36 species of invertebrate were identified in wetland areas of Tiritiri Matangi in a new survey carried out last summer.

Maddy Pyne, who recently completed her ecological studies at Auckland University, was appointed under SoTM’s Summer Studentship Programme to carry out the study, which was recommended in the Tiritiri Matangi Biodiversity Plan.

The objective was to supplement the freshwater survey done in 2015, which focused on the condition of freshwater habitats and the composition of riparian vegetation and fish species, but not invertebrates.

Maddy noted in her report that wetlands are hugely productive ecosystems and that the invertebrates found there represent important food sources for banded kokopu and shortfin eel – both noted during the earlier wetland survey – as well as birds such as welcome swallow, pateke and spotless crake.

For her survey three artificial dams – Lower Silvester, Bunkhouse and Upper Emergency Landing Dam – were chosen as study sites and partway through the process the Kawerau Stream was also added.

To identify invertebrates found there Maddy relied on extensive observation, including with binoculars, netting in both undisturbed water and after the bottom sediment was stirred up, and examination of rocks, mudflat areas and riparian vegetation.

In her findings she reported that 36 macroinvertebrate taxa were observed at the four surveyed sites. The greatest number was found at Bunkhouse Dam followed by Upper Emergency Landing Dam, then Silvester Dam. Fewer taxa were found at Kawerau Stream but it was only sampled once.

Only non-biting midges (Chironomidae) and pond skaters (Microvelia sp.) were found at all sites, however nine taxa were found at all the dams.

The most abundant arachnid taxa found were water mites (Hydroma sp.), which were very abundant in Lower Silvester Dam and common in Bunkhouse dam. The other three arachnids observed – wolf spiders (Anopteris sp.), pseudoscorpions (Pseudoscorpionida) and stetch spiders (Tetragnatha sp.) – were rarely seen. No arachnids were found in Kawerau Stream.

Ten beetle (Coleoptera) taxa were observed, five of which were diving beetles (Antiporus, Hyphhydrus, Liodessus, Onychohydrus and Rhatus species). No diving beetles were present in Kawerau Stream. Antiporus was the most common genus of diving beetle, and was especially abundant in Lower Silvester Dam. The long-toed water beetle (Dryopidae sp.) was only found in Kawerau Stream where it was rare. Others included marsh beetles (Scirtidae), which were common in Kawerau Stream and Upper Emergency Landing Dam, water scavenger beetles and and the weevil species Oreda notata.

Horney-cased caddisflies (Olinga fere-dayi) and stick caddisflies (Triplectides sp.) were abundant in Lower Silvester Dam and common in Upper Emergency Landing Dam. At Bunkhouse Dam the stick caddisfly was more abundant than the horney cased species. Neither caddisfly taxa was observed in Kawerau Stream.

Two damselfly (Odonata) species were found at all dam sites. Blue damselflies (Austrolestes colensonis) were common in Lower Silvester Dam and Bunkhouse Dam, while gosssamer damselflies (Ishnura aurora) were abundant at these sites. Both species were rare at Upper Emergency Landing Dam.

Nine fly (Diptera) taxa were observed. Non-biting midges were abundant at all dam sites though rare at Kawerau Stream. Fly taxa were found only at one site. Striped mosquitoes (Aedes notoscriptus), sandflies (Austrosimulium sp.), rat tail maggots (Syphidia), biting midges (Ceratopogonidae), green longlegged flies (Parentia sp.), craneflies (Leptotarsus sp.), marshflies (Sciomyzidae) and the brown striped litter flies (Sapromyzza neozealandica) were also observed.

Three true bug (Hemiptera) taxa were abundant at all dams surveyed. These were backswimmer (Anisos sp.), water boaterman (Sigara sp.) and pond skater (Microvelia sp.). Pond skaters were the only true bug taxa found at Kawerau Stream, where they were abundant.

In her conclusions Maddy recommended further invertebrate surveying of wetland areas not looked at in this study, such as Upper Silvester Dam, Lower Emergency Landing Dam and the numerous other streams and ponds on the island. She also suggested that long term monitoring of the wetlands, as the vegetation grows and changes in composition, could also prove beneficial.
A who's who of Tiritiri's plant world

Warren Brewer reveals the fascinating stories of the pioneering explorers and botanists whose names are commemorated in the botanical names of five of the Island's plants.

Taurepo, Rhabdothamnus solandri
Daniel Solander (1733-1782) was a Swedish-born and educated botanist. He was a star pupil of the father of taxonomy Carl Linnaeus.

Solander travelled to England in 1760 where he found work at the British Museum. In 1764 he was elected a Fellow of the Royal Society. He was chosen by Joseph Banks to be his assistant and companion on Captain James Cook's first voyage to the Pacific (1768-1771). Both botanized extensively while visiting New Zealand and after the voyage Solander continued working with Banks as his librarian and secretary.

His tasks included sorting and classifying the collection of plants from the voyage but the work was still unfinished when Solander died from a cerebral haemorrhage at the age of 49 years.

‘Taurepo’s botanical name literally means ‘Solander’s twiggy shrub’. It is a North Island endemic and the sole species in the genus. Its reddish orange to yellow tubular flowers are gloxinia-like and make a pleasing display. Their nectar attracts hihi and bellbirds. A few examples of taurepo can be seen along the Wattle Track. Taurepo belongs in the African violet family, Gesneriaceae.

Wharanui, Peperomia urvilleana
Jules Sebastian Cesar Dumont D’Urville (1790-1842) was a French naval commander with a keen interest in the study of languages and botany. He visited New Zealand three times.

The first visit in 1822 was as second in command of the three-masted sailing ship Coquille, spending four weeks in the Bay of Islands. The second time in 1826 he was in command of the Astrolabe (the refitted and renamed Coquille) when he and his crew spent 67 days doing coastal surveys and plant collecting. A third visit came during a voyage to explore Antarctica which made his name and saw him promoted to Rear Admiral.

Dumont d’Urville’s name was used for several plant species as well as the genus name for the giant bull kelp Durvillaea antarctica.

Wharanui belongs in the pepper family, Piperaceae. It has green fleshy leaves which have colourless water-storing cells in their upper surface. Its tiny flowers are perfect, supported on pale green spikes like kawakawa (Piper excelsum). Tiny fruits ripen on the spikes and small black sticky seeds appear. Peperomia forms a large genus of succulent plants, mostly found in tropical South America. Many of them have become popular houseplants. Wharanui prefers to grow on shady rocky cliffs and can be found at Fisherman’s Bay.

Houpara, Pseudopanax lessonii
Pierre Adolphe Lesson (1805-1888) was a surgeon/botanist on the Astrolabe on its 1826 voyage to New Zealand. Lesson was recorded as assiduously collecting plants at each place the vessel stopped.

He preferred to use his second Christian name and he is often cited as ‘A. Lesson’. In 1832 Lesson co-authored the 376-page Essai d’une Flore de la Nouvelle Zelande which is considered to be the first publication dealing with the New Zealand flora as a whole.

Houpara forms a small tree with distinctive compound leaves consisting of 3-5 leaflets. Flowering occurs in summer and fruit forms in autumn, ripening over winter. Houpara is widely dispersed over Tiritiri. Its leaves are eaten by kokako and kereru and many of Tiritiri’s birds seek out its ripe fruit. Pseudopanax is an endemic New Zealand genus and its members belong in the ivy family, Araliaceae.

Tawapou, Planchnonella costata
Jules-Emile Planchon (1823-1888) was a French-born and educated botanist. He graduated from University in 1844 as a Doctor of Science after writing a treatise on botany.

From 1844 to 1848 he was the herbarium curator at Kew Gardens in London. Intensive plant collecting was occurring at this time, especially from Asia.

In 1847 he described and named many of the plants collected, including some vine material from China which he named Actinidia chinensis. This vine initially became known in New Zealand as Chinese gooseberry. Today, the cultivar Actinidia chinensis Hort 16A is called gold kiwifruit. Planchon later pursued an academic career in France.

Tawapou is a North Island native tree which is naturally restricted to coastal forest as far south as Tolaga Bay on the east coast. Small greenish yellow flowers with long stalks appear on the trees in spring. Large fleshy fruits are then formed, ripening to a purple-black colour in autumn. The fruit is eaten by kereru. Each fruit contains 2-4 elongated bony seeds which were used by Maori to make necklaces. Some large old tawapou trees are present on Tiritiri including a labelled one on the track above Little Hobbs Beach. Tawapou belongs in the sapodilla plum family, Sapotaceae.

Dawn Chorus 108 February 2017
Rereti, *Blechnum chambersii*

Thomas Carrick Chambers (1930-) was born in Auckland and educated at Otahuhu College and Auckland University where he graduated as Master of Science with first class honours in 1954.

In 1960 he completed his Doctorate of Science at the University of Sydney while employed as a lecturer in botany. He then joined the staff at the University of Melbourne where he became Professor of Botany from 1967 to 1986. Following this he returned to Sydney as director of the Royal Botanic Gardens until his retirement in 1996. He still acts as an honorary research associate of the National Herbarium of New South Wales and also travels widely to see the world’s botanic treasures.

Rereti has a good presence on Tiritiri. It is one of New Zealand’s native ferns and favours growing amongst the forest of kohekohe trees that can be seen from the Kawerau Track. Rereti possesses the unique feature of many *Blechnum* species by having two kinds of fronds. The main display is from a rosette of sterile fronds with the shorter fertile spore-bearing fronds emerging from the centre. Maori cooked young fronds from this fern to be eaten as greens. The fronds were also used to cover baskets of eels or kokopu during cooking.
The watchtower on Tiritiri Matangi has now been restored to close to its original condition, thanks mainly to the work of Ray Walter and Ian Higgins, and is now regularly open to visitors. Carl Hayson, who did much of the research on the tower, writes that in its 112-year history it has had a variety of uses which made it well worth saving.

The watchtower was built in 1912 by the old Public Works Department and initially used by the Auckland Harbour Board as a base for a lookout to signal the Mt Victoria Station with the identity of incoming vessels.

Flags were used until the 1920s by which time radio was becoming more common. Ships began to use radio direction finders for navigation and the flag system was replaced with a radio transmitter. During the Second World War, the armed forces operated a radio transmitter service from the watchtower.

With the advent of radar, in 1957 the radio service was discontinued, ownership of the building passed to the Marine Department and its function changed to weather reporting for the Meteorological Service.

This continued into the 1990s and Ray Walter, who continued weather reporting until he retired, was among the last to do this on any station. ‘Weather reports were done at 0600, 0900, 1200, 1800 hours and on request 2100 and midnight. I was paid separately by the Met Office to do them, all for the princely sum of $1.20 per day.

‘After I left, the other rangers reduced the number of reports sent, possibly because the Met Office then paid the Department of Conservation and not the rangers. Reports were sent to Musick Point by radio. After Musick Point was shut down they were sent by telephone to Auckland Met Office and when they were shut down direct to Wellington.

‘Fire reports were done for the Department of Conservation as part of their Rural Fire Fighting commitment. They were done at midday for about three or four years and then done from Auckland.

‘Before the automatic fog signal was installed keepers were advised by Musick Point radio station if fog was likely and had to keep a night watch for fog, so that they could turn on the fog horn manually. This was still done into the 1970s, even after automation, if mains power was lost and they were operating on standby power for the lighthouse and fog signal watches were kept.’

Architecture

The architecture of the building is very distinctive because it was purpose built for the Auckland Harbour Board and different to other lighthouse stations in New Zealand.

The origin of its design is unknown but it has similarities with early timber lighthouses built in the 1880s, such as the lighthouse at Waipapa Point, having tapered walls leading to the top structure, finishing off with a gantry at the top. However, instead of a light room, as at Waipapa Point, an oblong observation room was built with low sashed windows allowing panoramic views of the
Initially in 1907 the structure was built as a single floor dwelling and was called a signalman’s hut. But in 1912 a second floor was added making the building look much as it does today. The bottom half of the building was originally clad in corrugated iron but this was replaced later by weatherboard.

The ground floor has had many roles over the years including being an office, a library, storeroom and now accommodation for the educator. During the 1960s, the floor of the building was bare earth and it was reported that a lighthouse keeper used the room to raise turkeys.

Restoration

By the 1990s, after many years of service, the structure of the building had begun to seriously degrade. In fact, as early as 1961 a Marine Department report expressed concern about rotting timber at the bottom of the watchtower. By the 1980s, the timber had become so rotten it was considered unsafe and only the ranger was allowed access, to make the weather reports. It was decided that if nothing was done soon, the building would ultimately collapse and be lost.

In 1999 Ian Higgins and Ray Walter started some structural work on the building and Carl Hayson obtained grants from the Lion Foundation and Department of Conservation to fund the work. Ian noted that before repairs began when he put his hand against the wall the whole structure trembled, and concluded that the only thing holding the structure upright was probably the staircase and the paint.

Before restoration began DOC architect Jeremy Treadwall produced plans to ensure any rebuild was a faithful restoration of the original building. Many changes had been made over the past century and the intention was to restore original features. For example, the eight-pane sash windows of the 1920s had been replaced with modern single-pane windows, so Ian reproduced and installed replicas of the originals.

The restoration work was slow going because it turned into a total rebuild due to the state the watchtower was in. The entire base of the building had become rotten and the supporting beams, windows, balcony and staircase were in a similar conditions.

Ian reckons that virtually all the weatherboards and timber frames were replaced over a period of 12 years. The entire top floor was gutted and rebuilt, as was the roof. The balcony was restored with the original diagonal beams and Ian added clear perspex screens to the balcony to ensure the safety of the public without compromising the appearance.

The interior was repainted to the original light yellow colour and new lino was overlaid on the floor. When the old lino was removed, articles from newspapers dating back to 1916 were found imprinted on the floor.

The work was made more difficult because of a 500-litre tank of water situated in the roof. This had been used to gravity-feed drinking water to the station after electric power for the pumps was turned off (one of the Supporters used to use the Watchtower as a bedroom unaware that there was a tonne of water over her in an unstable building).

By 2012, structural work was complete and the watchtower repainted and opened. Of the original building, only the top frame was sound enough to save and the watchtower today is in effect a new structure with years of life available.

The interior restoration included installation of a variety of meteorological instruments that were recovered or donated by NIWA. The Munro monitoring equipment on Tiritiri is now the only example in New Zealand that is still operational.

Ray spent considerable time and effort finding a Marlin 15 radio set (the original had gone). He also rebuilt the signal flag locker and cabinets, refurbished the original chairs, supplied display cabinets and had the compass rose rebuilt and mounted on the ceiling. Finally, last year Ray and Ian remounted the anemometer mast and the radio aerial to complete the transformation from a derelict crumbling structure to a completely restored historical unit of which the Supporters of Tiritiri can be justifiably proud.
Hey Tiri Kids

Meet the special bird that recently paid a visit to Tiritiri Matangi:

The white-throated needletail swift.

How fast can you run? I bet you're pretty fast, but nowhere near as fast as the needletail swift. By some measures these speedy swifts are the fastest-flying birds in the world. They have been recorded going at 170 km/h (kilometres an hour) and are sometimes claimed to go as fast as 349 km/h in level flight. Others birds may go faster but only when diving which isn't the same thing.

Needletail swifts spend most of their lives flying in the sky and only land occasionally such as when it's time to roost and lay eggs. In fact, they're so well adapted to flying that if they're put on the ground they can't take off because their legs are so short and their wings so long.

These high-fliers eat bugs for dinner, which they catch when they're 1000 metres in the air. How high is that, you ask? Taller than three Sky Towers stacked one on top of the other.

Find the words in bold in the word search grid below:

Designed and illustrated by michelletheillustrator.com
Supporters of Tiritiri Matangi

_Dawn Chorus_ is the quarterly newsletter of the Supporters of Tiritiri Matangi (SoTM). We are a volunteer incorporated society working closely with the Department of Conservation to make the most of the wonderful conservation restoration project that is Tiritiri Matangi. Every year volunteers put thousands of hours into the project and raise funds through membership, guiding and our Island-based gift shop. For further information see www.tiritirimatangi.org.nz or contact P O Box 90-814 Victoria St West, Auckland

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Visiting Tiritiri Matangi for education or recreation

**Day trips:** 360 Discovery runs a return ferry service every Wednesday through Sunday from Downtown Auckland and the Gulf Harbour Marina. Bookings are essential. Phone 0800 360 347 or visit www.360discovery.co.nz. Call 09 916 2241 after 7am on the day to confirm the vessel is running.

**School and tertiary institution visits:** The Tiritiri education programme covers from level 1 (5-year-olds), to level 13 (17-18-year-olds), to tertiary students. The focus in primary and secondary areas is on delivering the required Nature of Science and Living World objectives from the NZ Science Curriculum. At the senior biology level there are a number of NCEA Achievement Standards where support material and presentations are available. For senior students the Sustainability (EFS) Achievement Standards are available on the NZQA website. There is huge potential in that these standards relate directly to Tiritiri in various subject areas: science, economics, tourism, geography, religious education, marketing, health and physical education. The Island also provides a superb environment for creative writing, photography and art workshops. Tertiary students have the opportunity to learn about the history of Tiritiri and tools of conservation as well as to familiarise themselves with population genetics, evolution and speciation. Groups wishing to visit should go to www.tiritirimatangi.org.nz/schoolvisits.htm or contact schoolbooking@tiritirimatangi.org.nz. Bookings are essential.

**Overnight visits:** Camping is not permitted but there is limited bunkhouse accommodation. Bookings are essential. For information on booking overnight visits, go to: www.doc.govt.nz/tiritiribunkhouse. Bookings can also be made by phoning the Department of Conservation’s Warkworth Area Office on 09 425 7812, though an additional booking fee will apply.

**Supporters’ discount:** Volunteers who are undertaking official SoTM work can obtain accommodation free but this must be booked through the Guiding and Shop Manager at guiding@tiritirimatangi.org.nz or 09 476 0010. SoTM members visiting privately can get a discounted rate by booking through DOC’s Warkworth Area Office 09 425 7812.

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Extra reasons to visit Tiritiri

Enjoy our amazing concert

This year OrigNZ will provide fantastic Scottish fusion music, from traditional to rock, with bagpipe, drum and guitar, plus Rob Thorne playing traditional Maori instruments. There will be a traditional welcome to a haggis and you can enjoy a taste.

Saturday 4 March
Concert 4–6.30pm

Ferries from Auckland at 9am and 1pm.
Late ferry to Gulf Harbour at 7.15pm
and to Auckland at 8pm. Cost $25 plus ferry fare. Book through 360 Discovery.

Take the ferry across the sparkling Hauraki Gulf, explore this amazing island, enjoy some wonderful music, then head back to the spectacular city skyline. What a day!

Get a photo in our amazing calendar

Take part in the Tiritiri Matangi 2017 Photographic Competition and your entry could be selected for our 2018 Calendar (which raises over $10,000 for the Island). We have five categories for photos which must be taken on Tiritiri:
- Fauna
- Flora
- Landscape/Seascape
- People on Tiritiri
- Photographers under 16 years

You can enter four photographs per category. Email to guiding@tiritirimatangi.org.nz before 30 April. We will have an independent judge from the NZ Photographic Society and all photos must be able to be used for promotion of Tiritiri.

Browse in our amazing shop

Get these Dodoland make-your-own models for only $15. They are 3D cardboard models of tuatara, penguin, tui, kiwi and fantail to keep you busy when you really don’t want to be doing all the important jobs that are lined up. Or you can send one to a friend because they are light to post.

Our unique island shop has an incredible array of other gift ideas, including nature books, ceramics, bags, puzzles, jewellery, soft toys, artwork, special t-shirts and much, much more.