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MĀTAURANGA ISSUE

Tackling taupata

Torchlight on Sonia Rahiti

Rakiura Tītī Islands
ADMINISTERING BODY

Manaaki Whenua
Landcare Research

UC
UNIVERSITY OF
CANTERBURY

UNIVERSITY OF
AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

Kā tangi te Tītī.
Kā tangi te Kākā.
Kā tangi hoki ahau.
Tihei Mauriora.

The Tītī is calling.
The Kākā is calling,
and I wish to call.
Behold for there is life.

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Foreword image: Jimi Bull

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Kupu whakataki/Foreword

Kia ora e te whānau,

I am pleased to present you with this new and improved edition of the Tītī Times, which is now led by Tina Nixon – Rakiura Māori Lands trustee and the Ngāi Tahu representative for the Rakiura Tītī Islands administering body. Along with her production team – Cat White and Kris Lockett, Tina will continue to bring us first-hand accounts of birders, birding and all that goes with it. The science-based research write-ups will remain a strong feature of our publication. There will be a subtle change in focus to more 'people-based' accounts which we hope will attract a wider readership – especially youth.

The ever-increasing threat of taupata on our islands is impacting their biodiversity more and more. Its presence ranges from small, established populations right through to widespread abundant invasions. Eradication methods (especially herbicide) are still being tested to evaluate their impact on tītī and the environment. However, as a matter of urgency, the RTIAB has prioritised that a removal experiment be done in the coming year alongside toxicology experiment.

This publication could not happen without support from our community. Both Tina and I are incredibly grateful for the huge amount of support received from birders who have shared stories, poems, pictures and more. There is not room enough in this edition for it all to feature, but we now have a treasure house of information to use in the future.

Nō reira.
Nā,
Tāne Davis. MNZM
Chairman
Rakiura Tītī Islands Administering Body

Above: RTIAB chair Tāne Davis, wife Leanda and four of their grandchildren. Photo Riki Davis

Tackling taupata

How to tell taupata apart from other trees

Taupata is a troublesome tree that has found its way onto many of the Tītī Islands. While some islands already have significant amounts of taupata, other islands only have one or two seedlings. Finding and removing those seedlings will help keep taupata under control, so it's important to know what to look for and how to tell taupata apart from other trees.

Taupata

Taupata

Taupata leaves are thick and **very shiny on their upper surface**. The leaves are **spade-or spoon-shaped** but they **often curl up** into tubes. Taupata leaves are pale on their lower surface and they range in size from a 10c piece up to 9 cm in length.

Nothing else has quite the same leaf shape and shininess, but there are three trees that could be mistaken for taupata, all of which naturally occur on the Tītī Islands.

Karamū is closely related to taupata but it has longer, often larger leaves that hang on long leaf stalks. Pāpāuma can also have larger leaves than taupata.

Karamū

Pāpāuma

Both karamū and pāpāuma leaves are not as glossy and thick as taupata, and the leaf veins on the upper surfaces of the leaves are more subtle than taupata.

Chatham Island matipou only occurs on some of the Tītī Islands. The leaves are a similar size to taupata but they are not thick, fleshy, or shiny.

Chatham Island matipou

Female taupata plant

Female taupata plants can produce huge quantities of bright orange fruits but be careful using this to identify the plants because male plants rarely produce any fruit.

Karamū fruit are also orange, so this can be tricky. Pāpāuma fruit are black when ripe, and Chatham Island matipou fruits are custard yellow.

Pāpāuma fruit

Chatham Island matipou fruit

If in doubt, take a photograph of the upper and lower surfaces of the leaves and send them to one of the RTIAB committee members or Sarah Richardson at Manaaki Whenua (richardsons@landcareresearch.co.nz), and we will help.

Article by Sarah Richardson

Images in this article were sourced from the research team and from https://inaturalist.nz.

Taupata Hui

Tītī birders from both Beneficial and Former Crown Tītī Islands recently attended a meeting in Invercargill to hear more about the invasive native tree, taupata, ***Coprosma repens***.

Most Tītī birders are now aware that the scrubby tree is has the potential to cause detrimental changes to the whenua on the islands.

Scientists from Manaaki Whenua Landcare research explained, based on a mixture of matauranga Māori and western science knowledge, that taupata out competes our native tītī scrub and trees and has the potential to create significant changes to soil structure.

It is also difficult to remove from the manu.

Birders asked some great questions and also provided some clear observations which will assist in developing the most pertinent research options.

Birders from Little Piko, where taupata now dominates one end of the island, have agreed to allow their island to be used to trial some potential management options.

The tone of the hui was very positive with birders wanting to deal with the tree as soon as possible based on current knowledge, but they also supported more research being done.

Actions to come out of the hui will be:

- developing a brochure for birders so they can easily identify the plant as it looks similar to broadleaf.
- Scientists to develop research options.
- Little Piko whānau and the researchers to develop a strategy for Little Piko to be enacted as soon as practicable.
- Regular updates in Tītī Times
- Online session with birders/ experts who have dealt with removing taupata.

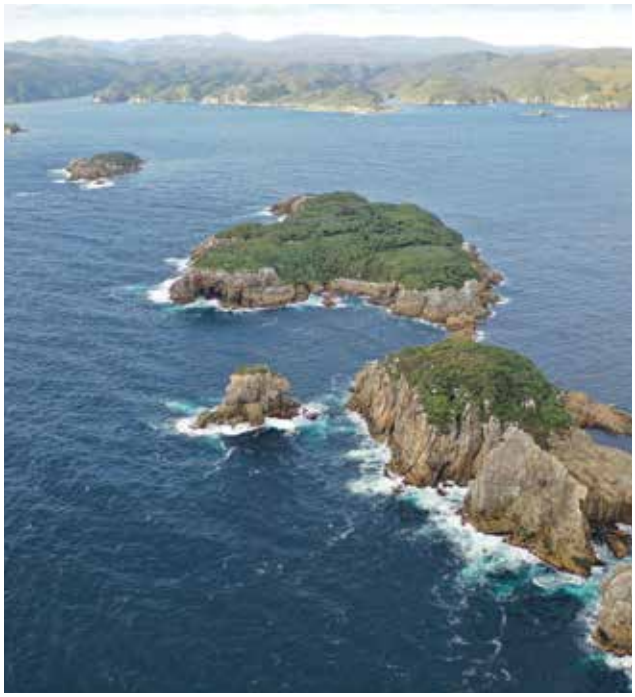
The scientists told the hui that one of the biggest challenges with taupata is that it is very hard to prevent its introduction to islands. They do not know what the mechanism is for transferring seeds, but it could be through birds.

Getting rid of it is difficult as it reroots from a cut branch and if it's chopped down it coppices – which means it will regrow from a stump.

Birders were keen to know the impacts of any toxins used to kill taupata. The Rakiura Tītī Islands Administering Body (RTIAB) will advise birders what works best when the scientists have evaluated some of the options.

RTIAB chair Tāne Davis says he was heartened by the response of birders to the problem. "The birders really supported doing something as soon as possible but were very clear that they also supported more research. We are delighted the birders from Little Piko have put their hands up to get the ball rolling, as it's the easiest island to get to, and it's small with a good helicopter landing pad so means we can get cracking as soon as we work out an agreed strategy and workplan with them."

Lead scientist Kate Orwin says the support for research and ideas from the birders was fantastic. "It really helped us work out what the priorities for the birders are and focusses us on the types of management options that are likely to be more acceptable to Rakiura Māori."



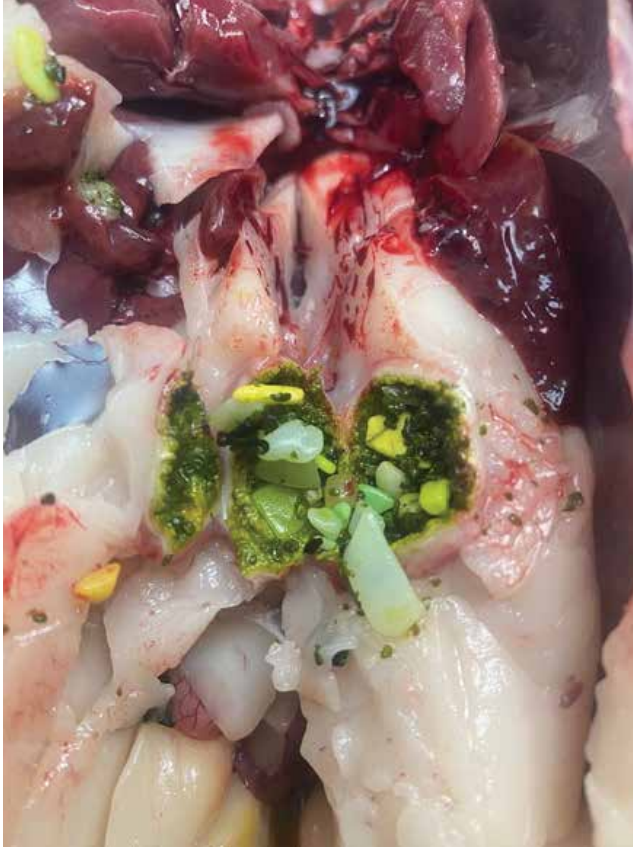
Big and Little Chimneys in the foreground with Te Poho o Tairea/Big Island. Betsy and Kundy by Anthony Tauroa

Photo Competition

Top: Ranui, Oraka (inside) and Kurenga McLaughlin. Photo submitted Moana McLaughlin, taken by 16 year old Riki Bull. This is the pahori Manu i roto (Mhari Baty's Manu) built by whānau members about 20–25 years ago.

Left: Pōhā – kelp bags to store tītī. Photo Jacqui Caine Horomamae.

Below: Toutouwai – Stewart Island Robin on Taukihepa (Kanawera), photo Jimi Bull.



Above left: Max and Frank Thomas working birds on Poutama, photo Riley Thomas.

Above right: Plastic in bird stomach (This is becoming an all too common sight in the gizzard of the tītī chicks). Photo Russell Trow.

Bottom: Sunset on Kundy by Aurora Metzger aged 15.

Thanks to all those Tītī Island whānau who submitted pics for the competition. They were judged by Amber Griffin, who has just been awarded NZ's top professional photographer and is also my son Matt's partner. She says the pluck house image by Moana McLaughlan was compositionally well-balanced and beautifully illustrated the unique environment. "The joy emanating from the children's faces is beautifully balanced by the well lit greenery surrounding them. This decisive moment is perfectly exposed with a successful use of fill flash that can be difficult to achieve."

The sunset pic by Aurora Metzger took out first place in the under 16 section.

Tino Pai to all the other finalists!

We will use some of the other great images in upcoming Tītī Times Editions and if you have any more you think we could use please send them to Tina tinanixon@gmail.com

Torchlight on Sonia Rahiti

Sonia Rahiti has just completed her 56th muttonbirding season. Along with her whānau, she has recently returned from an eleven-and-a-half week stay at their house at Murderer's Cove, located on the south-east side of Big South Cape Island, to the west of the southern tip of Rakiura.

Sonia is married to Emil Rahiti, and they share a daughter, Kea Moana. The tītī harvest has brought families like hers together every year for generations. 'We are a lot more spread out than we used to be,' says Sonia. 'But I can't think of another event which has the power to make people put their working lives and their differences aside and come together for 11-and-a-half weeks every year.'

For her whānau, the harvest is a time to reconnect and to replenish food stocks. Adults and children alike enjoy a sense of pure freedom where they explore the bush and the beaches at their leisure. This is accompanied by a unique sense of celebration that mahinga kai can only bring.

At the end of a season, the emotions running through Sonia are hard to capture on paper. When the time comes to go home, the families gather on the beach to board their boats. 'We begin to feel a sense of sadness,' Sonia says, 'which I can only describe as being like a powerful feeling of home-sickness. And we haven't even left the island yet.'

When she returns to the mainland, Sonia continues to feel a sense of disconnection from the island. 'I avoid people for the first few days back home,' she says, 'because I find my experiences on the manu too hard to convey to those who have never had the privilege to partake.'

Sonia's bloodline comes from both the Cleaver and Kini whānau, thus she affiliates to several manu. Her mother, Dale Cleaver (daughter of George Cleaver and Martha Kini), has two rights to the Tītī Islands.

Her father, Ronnie Bull (son of Freda and Jim Bull, descendant of Rewiti Te Akau), has another.

There are six living members of Sonia's immediate family altogether now. Riki, her brother, went missing at sea in 1993. All the current family members have been birding most of their lives.

Sonia's family home on Taukihepa (Big South Cape) is a four-bedroom house. Her sister, Moana, has a three-bedroom house there too. Last year, 13 members of Sonia's family stayed in her house, and five stayed in the other. Brother Ranui plans to build a third house there next year to help accommodate the growing number of 'little people' who make the trip over. A separate 'work-house' is located close by, which the whānau all make use of together.

Sonia comes from a fishing whānau. Each season they are transported to the islands on her brother Rewi Bull's commercial boat, the ***Shangri La***. Not that long ago, families used to go for weeks without seeing a boat. 'Back when my parents were young, the food top-ups came from weka roaming the island, which they'd catch and eat,' says Sonia. Their other source of sustenance was, of course, readily available kaimoana including pāua, crays and kina. Now there is the privilege of being able to replenish stores during each stay, because Rewi returns from Bluff to Big South Cape from time to time to bring back food and fuel.

Indeed weka were brought to the Tītī Islands intentionally to provide a food source for families. They are now a threat to tītī though. It is estimated weka are responsible for killing up to 10 per cent of the tītī population. The birds are now being targeted as part of the island's pest management programmes.

During recent times, eradication of weka on the Tītī Islands has not had the success that was hoped for. Poisoning operations have not reduced their numbers significantly. Although weka ate poison, (evident because their poos were fluorescent) they were simply not dying. One operation in 2006 aimed for a 95% kill rate. 'But it seemed like 95% of them survived instead,' says Sonia. Other weka-

culling methods include shooting them and trapping them. No methods have yet had the impact hoped for to reduce their numbers to a manageable size.

Tītī have historically been caught during the daytime, (nanao) using hooks and hands to remove them from their burrows. Nanao is not so common any more. 'People have work commitments now,' Sonia says, 'they can't necessarily take two or three months off.' And the birders are getting older and are not so keen on lying on the ground and reaching into burrows.

Now, tītī are now mostly hunted on dark nights using torches, a method known as 'rama'. This is when the chicks emerge in the dark to flex their wings and get ready to leave the nest.

Seasons are variable. 'The last three seasons have been good,' says Sonia, 'tītī are coming back in good numbers.' But prior to this, her family had nearly ten years of bad birding.

Sonia's family regulate their tītī quota based on their own harvest numbers and also on their observations from previous seasons. They are heavily aware of the importance of sustainability. Her extended family now number 18; 'because there are so many of us, we've made the decision to effectively cut our harvest in half.'

Sonia has been involved with Tītī Islands research for many years. She has worked with those involved in projects led by ecologist Henrik Moller, who started the original research on tītī. His leadership has had her and teams of field workers participate in dissections of tītī, tītī sample collecting, tītī transit methods and burrow scoping exercises. 'I have learnt so much about the science relating to the tītī population from Henrik's leadership,' she says.

Pest control work on Big South Cape Island is carried out by Sonia's whānau, alongside other whānau and of course the Department of Conservation. Sonia identifies several reasons for tītī population decline in recent years. Rats and weka both eat large numbers of tītī eggs and young birds.

Commercial fishing by Japanese trawlers has also had an impact. These vessels have reportedly been responsible for killing millions of tītī as by-catch. In addition, Japanese squid boats, which have been known to fish very close to shore, have interfered with rama. Sonia recalls seasons where torches at night-time were not needed because their lights would illuminate both the beaches and the forest.

Alongside this, there is strong evidence that the climate also impacts the tītī population. A decline in their numbers has been linked by scientists to El Niño weather events.

I asked Sonia what her vision is for the future of the Tītī Islands. She believes making them predator-free is an achievable goal. Pest control successes continue to be reported as the Rakiura community works together to restore the island's natural haven. 'Predator-Free Rakiura is providing hope for our islands, especially the islands which lie closest to it,' says Sonia.

But there are big challenges. Sonia's view is that 'to get the islands back to what they were, we need to get rid of the rats and the weka.' But weka are clever. A single weka on Codfish Island confounded pest eradication experts for a long time before it was discovered that it was swimming to and from the island at low tide.

And rats are relentless. While the Tītī Islands, close to Rakiura, benefit from its predator-control programmes, they are also the first islands to get the rats back when their numbers increase again.

Removing pests completely from the Tītī Islands is, by Sonia's own admittance, a courageous and ambitious goal. But through continued research and pest control programmes, supported by like-minded whānau and their dedicated birders like Sonia, the possibility remains that one day, nature on the Tītī Islands will thrive. Especially the tītī!

Below: Sonia with her nephew on her lap surrounded by her whānau.

Previous page: The Shangri La***, owned by Rewi Bull – taking tītī birders to the island since – forever!***

Dogs doing their bit for conservation

Biosecurity efforts on the Tītī Islands surrounding Rakiura/Stewart Island have recently stepped up another level with the introduction of two rodent detector dogs to check vessels and freight prior to departure for the Islands.

Between 1st April–31st May for the last six years, birders bring a large amount of gear to the Islands. This includes food and personal supplies, building materials, fuel, harvest and processing supplies goes to the islands via private fishing vessels, charter vessels, and helicopters.

Until recently, biosecurity relied on the vigilance of the birders and transport operators, but in the midst of busy birding seasons, this has not always been at the forefront of their thinking.

These efforts in place until now have had good results – at present at least 70 per cent of the Tītī Islands are rodent-free. Some have never had rodents, and others have had rats eradicated by birders with support from specialist contractors and the Department of Conservation.

The rodent-free status has enabled the transfer of taonga species, including tīeke/South Island saddleback, toutouwai/Stewart Island robin, mātātā/Codfish Island fernbird, and tutukiwi/Snares Island snipe to and between some of the islands and has further protected species already present.

But there is still more work to do. Since 2018, the Rakiura Tītī Islands Administering Body has been using rodent detection dogs to check vessels and freight prior to departure for the Islands.

Sandy King and Karen Andrew are detector dog handlers from Paws4Conservation. Along with their rodent detection dogs Gadget, Mawson and Mica, they carry out inspections on vessels, freight, and helicopter loads each season.

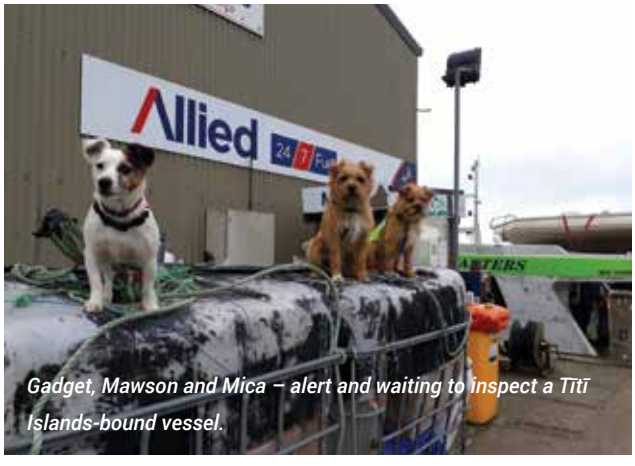
So far, no live rodents have been detected in gear or on boats. However, the dogs have indicated the presence of rodents many times.

43 inspections of vessels and freight and 25 inspections of helicopters were carried out this year. In general, the loads were clean and well-packed. Where the dogs did indicate, this has thought to have been because of residual scent.

But it is important to stay vigilant. There is an increasing acceptance and understanding of the importance of biosecurity by both the birding whānau and transport operators. Their engagement and participation is critical to this programme and so far whānau have been willing and enthusiastic.

Here are some simple guidelines for anyone travelling to the Tītī Islands:

- Clean and inspect containers before packing, pay attention to the bottom of cages.
- Pack as soon as practical before loading and ensure bags are fully closed. Minimise the time loads are left waiting at the loading site, and if possible do not leave them overnight.
- Arrange for inspection as close as possible to the time of departure.
- Help the dogs to work more effectively by minimising distractions (remove or contain other dogs) while inspections are being carried out.
- Ensure packs are well-sealed (eg wrap them entirely in plastic film).
- Water blast cages before packing. Not only does it reduce the chances of mice hiding in spaces in the cage frames, but it also removes soil, invertebrates, and potential weed seeds that could threaten the islands.
- Pack as close to the time of departure as possible, keeping bags fully closed, and storing them in a rodent-free area if possible.
- Travel operators should ensure there are bait stations (with fresh bait) placed in and around departure points (eg hangars an wharves).



Gadget, Mawson and Mica – alert and waiting to inspect a Tītī Islands-bound vessel.

Tītī and the climate – what does the future hold?

Like people, animals do best when they live in a great environment – a good home, enough of the right food and great living conditions. Tītī are no exception, with birds in better health and producing more chicks when the conditions are right. And, because they spend most of their year offshore, tītī are most affected by what is happening out in the Pacific Ocean.

The Rakiura Tītī Project (led by Henrik Möller) showed that tītī populations are strongly linked with the El Niño Southern Oscillation (ENSO) climate cycle, which influences patterns of wind and water temperatures at the sea's surface. Interestingly, however, the responses of tītī appear to occur before scientists notice the change in ENSO state.

For example, years when harvests of tītī are good, with lots of successful nests and big chicks, are usually followed by a La Niña event when sea surface temperatures are warmer in the western Pacific Ocean. In comparison, poor tītī harvests, with few successful nests and smaller chicks, are typically followed by El Niño events when sea surface temperatures are cooler in the western Pacific Ocean. In addition, a greater number of adult tītī often die in years prior to El Niño events. Worryingly, we may see rapid declines in tītī numbers if El Niño events become more frequent due to climate change, affecting the long-term sustainability of tītī harvests.

However, we don't really understand why or how tītī respond to climatic patterns in the way that they do. Perhaps it has something to do with changes in food availability under different climate conditions or maybe changing wind patterns mean that tītī use more energy to fly across the Pacific Ocean in El Niño conditions. We hope to investigate some of the potential causes by looking into three key questions:

1. Where are tītī going when they are out at sea and does this change under different climate conditions?
2. Are the relationships between tītī breeding success, harvest rate and climate still the same?
3. How might the changing climate affect tītī populations in the long-term?

To answer the first question, we will fit tiny backpack satellite transmitters to 20 adult tītī each year. These transmitters will send back each bird's location twice a day and will allow us to monitor where they go as they move around the Pacific Ocean. We will also collect environmental information from satellites (such as sea surface temperatures, wind strength and direction) to see whether the birds change their movement patterns based on the climate or oceanic conditions. Looking for potential changes to feeding and migration patterns across the Pacific Ocean will help us to identify what might be causing tītī populations to go up and down in response to climatic conditions.

At the same time, we hope to use information from harvest diaries (with whānau permission) to look for patterns between harvest success, chick size and conditions in the Pacific Ocean. If the patterns look like they are changing, then it may indicate that tītī are changing their behaviour in response to climate change. Understanding these relationships will help us to better predict how tītī might respond to climate change.

Finally, we will work with climate scientists to understand how climate change might affect the frequency and intensity of El Niño and La Niña events in the future. Combining the outcomes from these three research questions will allow us to make predictions about how tītī might be affected by climate change and what implications this might have for the long-term health of tītī populations. Ultimately, we hope that this will help to inform the management of tītī for the outcome: Kia Mau Te Tītī Mo Ake Tōnu Atu.

Article by Amy Whitehead

Photograph: Nicole White

My Paradise

Kia ora, my name is Riley Thomas
I am the daughter of Frank Thomas.
I am Waitaha, Kāti Māmoe, Kāi Tahu.
I have been brought up going to Poutama Island.

I have included a poem about the Tītī Islands and some photos of Poutama.

Riley Thomas

Poutama Island is our special place which we return to year after year.

Excitement builds as we gather together our kai and supplies.

Our special place brings us so much contentment.

It is a place where water meets land, where hills and tracks lie waiting for us to conquer.

It is a place we will always be in awe of and where our love for nature has its roots.

It offers life, it offers fruits.

Our love for the island keeps us close.

We love it for its beauty, which runs from hilltops to the sea and beyond the peaceful forests and ponds.

Our love for the island keeps us close.

Towards the sky our tītī fly.

Waves crash into the rocks,

Out here there is no time on my clock.

Wind- bitten but happy faces from our nightly torch,

working together through the night.

The sun sets down over the clouds,

The orange glow around makes me proud.

It's days like these I truly treasure, amazing nights and clear skies.

Listening to the birds, walking our manu as the waves keep crashing into the rocks.

As the night draws near, I feel like this is where I'm meant to be.

It may not seem like much, but it's moments like these I always want to clutch.

I feel happiness in my heart.

My paradise.