WWF Habitat Protection Fund - Final Report

Ngā Uruora – Kāpiti Project

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Group: Ngā Uruora – Kāpiti Project

Project title: Lizard Habitat Enhancement

Report due: 31/08/2018

Author: Paul Callister

Agreed project purpose

Restoration and protection of lizard populations on the Paekākāriki-Pukerua Bay escarpment.

The 0.25 ha lizard protection site sits within a larger, 90ha, restoration project. It has been identified as the most important lizard site on the escarpment and a key mainland lizard site within the Wellington region.

The project aims to trap predators, remove exotic weeds that support predator populations and create further lizard habitat.

The project will the improve lizard profile, both through interpretive signage and increased public visibility of the lizards themselves.

Agreed deliverables

40 hours of paid weed control over 2 hectares.

Control of target weed species including tree lucerne, gorse, cape ivy, periwinkle and nasturtiums with a focus on grasses and banana passionfruit.

500 eco-sourced lizard friendly native plants in the ground.

Creation of 0.1 hectares of lizard rock piles. Re-vegetation of 0.15 hectares between the rock piles.

Minimum 70% survival of plantings on submission of final report.

Lizard interpretation panel designed and installed.

Summary

This has been an exciting and challenging project. In most areas we believe we have exceeded expectations. We have:

1. Removed some very hard to control weeds.
2. Built rock piles as lizard habitat.
3. Put in significantly more plants than initially planned and will plant more next winter.
4. Set up the first stage of an irrigation system.
5. Increased trapping and put in place a lizard monitoring system.
6. Gained much publicity for the project including putting out attractive cut-out lizards painted by children from Paekākāriki School.
7. Worked with Paekākāriki School in creating their own ‘lizard garden’.
8. Created an awareness in Paekākāriki of the value of lizards and prompted an interest in developing home based lizard gardens.

However, we have not completed all we agreed to in the first year. The size and difficult nature of the site, plus an unplanned need to keep sheep out, means we have only planted two thirds of it this winter. Due to the changing nature of the project, we have also chosen not to put up a permanent sign until summer 2018. We expect to complete the ‘lizard garden’ by the end of winter 2019.

The project has already increased the profile of lizards in the Wellington region through volunteer involvement, through many walkers passing the site and through publicity about the project.

Full Report

Progress against project purpose and deliverables

Volunteer involvement - numbers and hours

We have held a number of weekend and weekday working bees to work on the site. A number of these working bees attracted up to a dozen people. While we have not formally tallied up volunteer hours it would now be in the 100s of hours put into this project, especially if all the pest control and plant growing activities were to be included. However as with all Ngā Uruora projects, a small core of volunteers put in a disproportionate number of hours. A large number of people follow our work on Facebook, but it remains a challenge to convert ‘likes’ to volunteering in the field.

 [1]

Working bee at the quarry

[1] All photos were taken by Ngā Uruora volunteers, namely Andy McKay, Peter Kentish and Paul Callister

Employee/contractor/consultant involvement

Contractors were used to undertake the initial weed control on the site. The contractors focussed on the most difficult to control weeds, namely periwinkle, gorse and climbing dock. The contractors also began control of banana passionfruit higher on the quarry site (this control is continuing using other funding sources with an aim of eventual eradication.

Further weed control was carried out by volunteers with GrowSafe certificates.

We have kept aside some money to complete weed control in summer 2018.

Post spraying

Once the main rock piles were built and planting completed

A record of partnerships

This has been a collaborative project. Some of the main partnerships include:

1. Otari-Wilton's Bush Trust: This organisation provided some rare plant seedlings. This summer they will propagate other rare plants from cuttings found near the quarry site. In turn, Ngā Uruora is propagating the regionally rare *Aciphylla squarrosa* for Otari.

2. Department of Conservation: DOC has provided technical support for the project.

3. Greater Wellington Regional Council: GWRC provides bait and lures for pest control.

4. Kāpiti Biodiversity Project: The KBP has provided funding for traps, onduline (for lizard monitoring) and tracking tunnels.

5. Kāpiti Coast District Council: Workers from KCDC have assisted us on the site including helping build the sheep fence.

6. QEII National Trust: The Trust has donated chemicals, gloves and tools which the organisation has used on the lizard site.

7. Groundtruth and Econode: We work closely with both organisations to develop and support remote sense traps that are used on the site.

8. KiwiRail: KiwiRail managed a controlled crossing of the main trunk railway to take plants and the water tank to the quarry site. It did not charge for this.

KiwiRail assisting our crossing

9. The Kāpiti Menzshed: The Menzshed made 50 wooden cut-out lizards for publicity. Most of these are displayed on our lizard site. The lizards were paid for by RNZs ‘Critter of the Week’.

10. Paekākāriki School: Year 3 and 6 children painted these lizards. Plants were also grown on at the Paekākāriki School nursery. In addition, Ngā Uruora is assisting the school to develop its own lizard garden including donating some plants grown by the organisation. This garden will become a source of plant material for future local lizard gardens.

11. Te Rito Garden: Te Rito, a community nursery based in Porirua, donated approximately 500 *Muehlenbekia complexa* to our project. We then gave 50 to Paekākāriki School

12. We are partnering with Amelia Geary of Forest & Bird to write a guide to creating lizard gardens in Kāpiti.

Painted lizards

Plants being grown at the school nursery

Lizard garden working bee at the school

Picking up Muehlenbekia from Te Rito nursery

Conservation/restoration activities undertaken

Weed control

The control of target weed species included tree lucerne, gorse, cape ivy, climbing dock, periwinkle and banana passionfruit. Both the periwinkle and climbing dock proved very difficult to kill. Based on advice from a variety of sources, including weed experts at Greater Wellington Regional Council and the Weedbusters website, we used Tordon on the periwinkle and Metsulfuron-methyl on the climbing dock.

On the boundary of the lizard garden, we tried other methods of controlling periwinkle but only Tordon worked well. Along the boundary of the lizard garden we

are experimenting with planting *Muehlenbekia complexa* among the periwinkle with the hope that the *Muehlenbekia* will eventually supress the periwinkle. We planted over 300 *Muehlenbekia* along this boundary during winter.

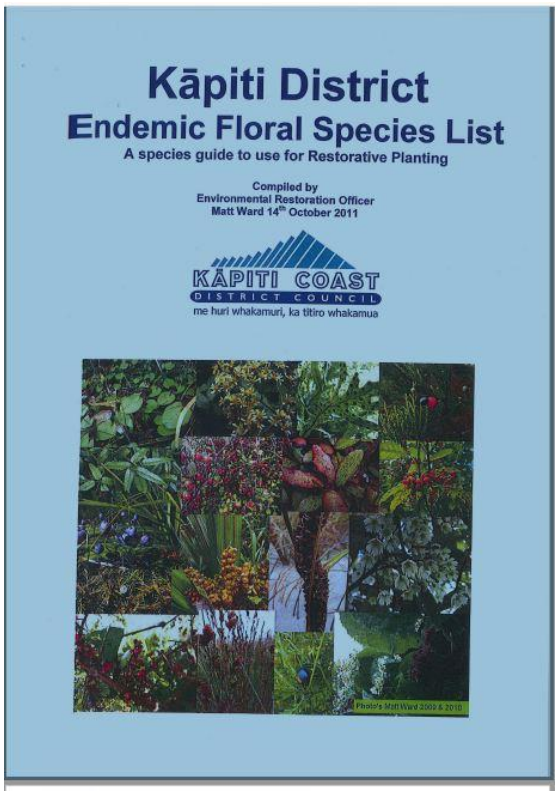
We undertook a search of literature on the effects on sprays on lizards before undertaking weed control. We also built our rock piles before spraying the grass so they already had spray free refuge. Given the number of lizards we have seen since spraying we are confident we have not significantly damaged the lizard population.

***Muehlenbekia* planted into periwinkle**

We have left about a third of the site in grass and this will be sprayed in autumn 2019 ready for winter 2019 planting. We have set aside additional money for this spraying.

Planting

The plant list was guided by a document created by the Kāpiti District Council.



KCDC plant list

The original plan was to purchase and plant 500 eco-sourced lizard friendly native plants across the whole site. This was to involve re-vegetation of 0.15 hectares between the rock piles. This plan was changed for a number of reasons. The main one being that over 500 *Muehlenbeckia complexa* were being given away by Te Rito community gardens in Porirua. This allowed us to plant more densely than planned. Planting at a higher density will help better control emergent weeds. We also grew more plants ourselves than originally planned. This not only saved money but also allowed for denser planting. Excluding more than 300 *Muehlenbeckia* which have been planted on the border of the lizard garden, we had planted over 700 plants on the site by early July 2018. Overall, we planted approximately 0.9 of a hectare at spacings of a metre or less for the plants. This is roughly two thirds of the site. We plan to plant the other third in winter 2019. We will grow a further 300 plants for this and most of these are already seedlings in our nursery.

***Aciphylla* on the way to the quarry**

Species and number of plants established in the lizard garden, Winter 2018

Muehlenbeckia complexa	200
Melicytus crassifolius	150
Melicytus orarius	100
Comprosma rhamnoides	40
Comprosma acerosa	30
Aciphylla squarrosa	6
Coprosma propinqua	100
Phormium cookianum subsp. cookianum	10
Acaena novae-zelandiae	5
Libertia grandiflora	30
Disphyma australe subsp. australe	30
Leptocarpus similis	20
Ozothamnus leptophyllus	15
Coprosma rugosa	6
Anemanthele lessoniana	5
Total	747

An agreed deliverable was that there would be a minimum 70% survival of plantings on submission of final report. The final report has been prepared before a full summer has passed by so we do not yet know the survival rate. However, given that we are putting in a water tank we hope to have an 80+% survival rate.

Building of rock piles

An aim was to create 0.1 hectares of rock piles. It is difficult to measure the area covered by rock piles but is likely to be slightly higher than this figure. Building the rock piles has been physically demanding work. As at July 2018 we had completed about 90% of the planned rock piles. We will recommence rock pile building in summer 2018 as there are dangers in gathering rocks in winter especially after heavy rain.

Building the first rock pile

Predator control and lizard monitoring

In June 2018 Ngā Uruora updated its three year pest plan. This can be found at:

https://www.naturespace.org.nz/sites/default/files/Pest%20control%20strategy%20Nga%20Uruora%202018-2021.pdf

This sets out in detail predator control in the quarry and its surrounds. Some of the traps used in the quarry are DOC200s with an Econode remote sensors. It seems appropriate that initial development of this sensor was also funded by the WWF.

We are undertaking ad-hoc lizard monitoring as we build the lizard garden primarily using onduline. This is showing on-going healthy lizard populations despite our disturbance of the site. Once the lizard garden is completed we will develop a more systematic way of monitoring lizards. This may involve the use of new technology.

Lizards under onduline

In April 2018 we showed Gerald Dickinson around our Lizard Habitat Restoration Site at the quarry. Gerald is the recipient of a WWF Innovation Award in 2017 and is currently working on a project to identify possums, rats and stoats using infrared camera technology. We intend on trialling some of Gerald's cameras as part of our

wider pest control programme. We have also discussed the potential for utilising this technology for lizard identification and we will be working closely with Gerald to help develop this technology.

Issues or difficulties encountered

Sheep

Ngā Uruora has had a long standing problem with sheep escaping from neighbouring farmland. We had hoped with some additional fencing on the farm boundary put in during summer 2018 that this problem would be solved. Unfortunately it has not. Therefore it was decided to build a fence around the lizard garden.

Sheep within the quarry

The fence is 400 metres plus two gates into the lizard garden are being built. While the fence is designed to keep out sheep it has the added advantage of stopping people wandering into the garden.

Gate within our sheep proof fence

Infected plants

Some locally rare plants were purchased from a Kāpiti nursery. As the plants were being made ready for transport to the planting site a volunteer noticed that the moss growing around the plants was the highly invasive weed *African moss*. As a result we destroyed all these plants. Luckily we were growing additional plants so it did not affect our planting programme.

African club moss growing on a plant

Tough weeds

As already noted, some weeds have proved difficult to control. We are already seeing some seedlings of these problematic weeds germinating within the lizard garden. In the worst area we have placed a roll or weed mat to supress growth. In other areas we are heavily mulching. We will need to vigilantly monitor weeds over the next few years to prevent re-infestation.

Periwinkle seedlings

Work yet to be completed

As discussed, as at July 2018 around 90% of rock piles have been completed. A third of the site has yet to be planted. All the plants needed for planting in winter 2019 will be grown by Ngā Uruora at the Paekākāriki School nursery. We estimate we will plant up to an additional 300 plants in 2019. These will include *Pimelia prostrata*, a locally rare plant which is being propagated by Otari for the project and the grass *Poa cita* which, while a plant commonly used by landscapers, is currently absent from the escarpment. We will purchase potting mix to grow these plants.

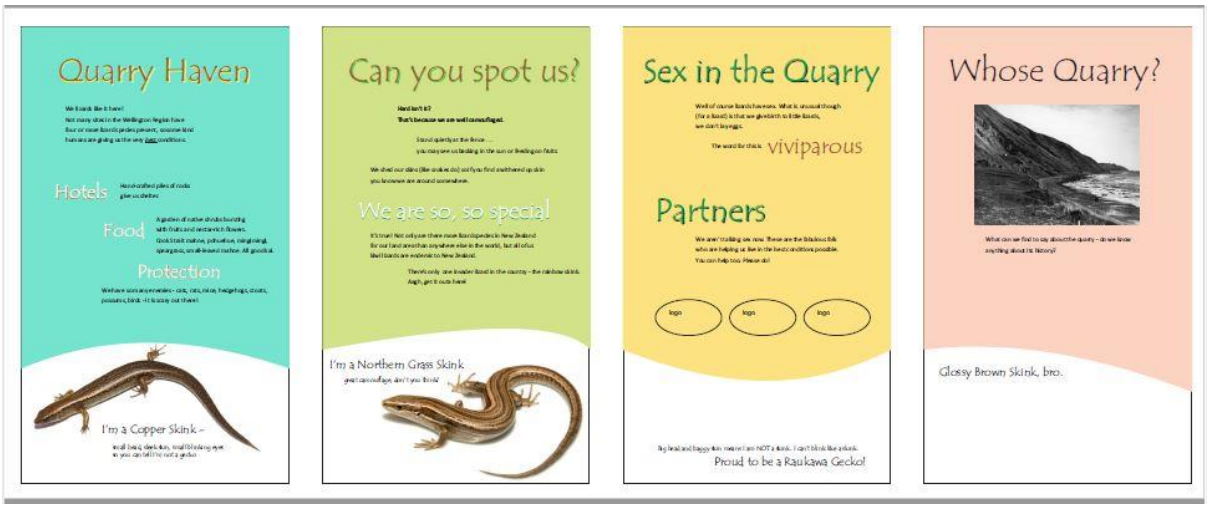
A final contract for pre-spraying the site will use the remaining weed money.

At the beginning of the project we put up a temporary sign explaining what we are doing. Shortly this will be joined by a sign painted by children from Paekākāriki School explaining the history behind the painted cut-out lizards.

Temporary lizard sign

As the project proceeded, we discussed draft ideas for a permanent sign. One issue that came up was that information about lizards on the escarpment has been changing rapidly. For example, the final data on lizard monitoring by Ecogecko was only supplied to us in July 2018. We were reluctant to put in a permanent sign in case it becomes dated quickly.

We discussed this challenge with Isobel Gabites who designed all the other signs on the escarpment. Isobel came up with the idea of a ‘story board’ sign with panels that can be easily changed if new information becomes available.



First draft lizard sign panels

In mid-August we completed the design of the sign. The sign is within our revised budget. We will install the signage in Spring 2018 in time for the peak summer track walking season. There were 36,000 walkers over the 12 months from July 2017 to

June 2018, most of whom walk past the lizard site, and the popularity of the track appears to be increasing.

In spring 2018 we will set up a recycled water tank that will allow us to water plants over summer. The water tank is already in the quarry but all the irrigation fittings are yet to be installed. We will also use recycled pipe and fittings where we can but will need to purchase some additional fittings.

Water tank before installation

Finally, when we complete the fence around the last third of the garden we will need to purchase materials to build a second access gate. All these commitments will more than use up the remaining grant money.

Reports or publications arising from the project

At the beginning of the project a detailed workplan was developed and this is available via *Naturespace.*

https://www.naturespace.org.nz/sites/default/files/Quarry%20lizard%20habitat%20plan.pdf

A paper will be published in the journal *BioGecko* in late 2018 which mentions the quarry lizard project.

When the project is completed a full report will be published. This will be made available to the public through Nature Space.

Project promotion and publicity

The project has been promoted in various ways. This includes:

1. Regular Ngā Uruora Facebook updates.
2. A blog site, eg https://Kāpitibush.org.nz/2017/07/13/restoring-the-Paekākāriki-pukerua-bay-escarpment-quarry-site/
3. It has been highlighted in the regular Ngā Uruora newsletter.
4. The project was discussed at a recent regional Lizard Workshop that attracted over 90 people. The programme can be found at: https://www.naturespace.org.nz/sites/default/files/communities%20supporting%20lizards%20final_0.pdf
5. A track counter indicates that over 40,000 people walked past the lizard site in the year to June 2018. The track seems to be increasing in popularity so this number may well increase in subsequent years. When undertaking working bees at the site many people stop to ask about the project.

An article on lizards in the Wellington Region was published in the May 2018 edition of Capital Times. This included information on the quarry project. This can be accessed through https://issuu.com/capitalmag/docs/capital_51

The project was also briefly mentioned on the 27th July, 2018 'Critter of the Week' session on Jesse Mulligan's RNZ program. It was mentioned again on 3rd August, 2018.

https://www.radionz.co.nz/audio/player?audio_id=2018655536

https://www.radionz.co.nz/national/programmes/afternoons/audio/2018656546/critter-of-the-week

Finally, there has been an article in the Daily Encourager bog site.
https://dailyencourager.co.nz/lizard-study-pollination-Kāpiti-coast/

Health and safety reporting

There were no Health and Safety incidents.

Acknowledgement of sponsors

We have ensured our sponsors have been acknowledged in all our publicity.

Budget statement detailing expenditure of funds, July 2018
(all figures include GST)

Planting	
Seedlings purchased	$337.83
Felt squares for plant protection	$967.73
Sheep fencing, posts and waratah	$697.42
Total	$2,002.98
Weed control	
Weed spraying contract	$1,499.60
Publicity/signage	$0.00
Total expenditure to end of July 2018	$3,502.58
Total grant	$6,000.00
Unspent grant money (set aside for signage and weed control)	$2,497.42