Te Matau a Māui project update
Interim report

February 2021

Native species thrive where we live, work and play

Stunning green gecko found at Boundary Stream
Photo: Mike Lusk

Prepared by the Te Matau a Māui Project Management Team

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Executive summary

Some good news to start 2021 with, the confirmed return of tītī to the seabird site at Poutiri Ao ō Tāne. At least 20 birds were spotted flying above the site in November. Some burrows are showing signs of disturbance, and two birds have been seen by trail cameras interacting on the ground. The team are looking forward to a less chaotic 2021 than the previous year. Despite all the disruption in 2020 due to COVID-19, we have achieved a lot and are proud of how far we have come.

Some of the highlights over the last six months have included:

- We welcomed two new team members to the field team at Māhia, Angel Moa and Maungarongo Hemopo. Both are local to Māhia and are already into the swing of bait station installation.
- Māhia residents witnesses two kākā visiting the peninsular. It is exciting to see these taonga species naturally returning to the area, and with ongoing pest control it is hoped they will soon reside on the peninsular.
- The opening of the Ōtatāra Outdoor Learning Centre (OOLC) at EIT was the culmination of the collaboration and vision shared by the TMAM education team, local hapū and a large range of other stakeholders.
- The 2020-21 research contract with Manaaki Whenua Landcare Research has been signed and includes four research projects (see research update for detail).
- A mix of research outputs include two published journal articles from predator control trials in Poutiri Ao ō Tāne, and two unpublished reports on toxoplasmosis reduction from predator control, and social research on rural landholders in Cape to City. All these outputs inform project team management decisions.
- A Good Read on Cape to City's follow up rural landholder survey was published to the website, and two newsletters were distributed via Mailchimp.
- Teacher professional development workshops were able to be conducted in person, and all were oversubscribed.
- We put together a video to show the varied landscapes the Māhia field team are working in, and some of the challenges and innovations the team has overcome https://www.youtube.com/watch?v=m4UzDGdQry0&t=1s
- The Māhia field team are making great progress with the bait station layout on the peninsular. The monitoring network of leghold and trail cameras in Phase 1 has been installed.

Over the next six months the project team will finalise the design of the possum barrier at the neck of the peninsular; complete the monitoring of Phase 1 to declare zero density possum population; contractors will start possum control in the Māhia Scenic Reserve; officially open the Ōtātara Outdoor learning centre at EIT; run two of the postponed Hīkoi; run more teacher training workshops and start monitoring for returning seabirds at Poutiri Ao ō Tāne.

1. Project management update

There has been no further progress with the Whakatipu Māhia Trust which although fully set up is working through the next steps and aligning community needs.

Current milestones for the existing possum eradication and predator suppression to December 2021 continue to be met.

The Te Matau a Māui Governance Team met in November 2020, and recognising the success of the project, also recognised the project had transitioned to a different phase. It was unanimously agreed to disestablish the group but recommended a formal needs analysis, with a desire not to lose the connections and leadership from a group like the governance group. Retaining those connections to drive leadership in the predator control space by some semi-formalised forum is desired.

In September 2020 we said goodbye to Melissa Brignall-Theyer as she moved on to an exciting new position at Predator Free 2050 Ltd.
In November 2020 we welcomed two new team members to the field team at Māhia, Angel Moa and Maungarongo Hemopo. Both are local to Māhia and are already into the swing of bait station installation.
In January we are also saying goodbye to Michaela King-Peters, and Kaya Cooper, our Tauira Mahi Field Team members who are both moving on from the project.

The Project Team in September 2020. From left: Campbell Leckie, Pouri Rakete-Stones, Kaya Cooper, Wendy Rakete-Stones, Natalie de Burgh, Shane Diphoorn, Michaela King-Peters, and Melissa Brignall-Theyer.
Photo: Joanne Hales

1.1 Engagement with Māori

Two Hīkoi were planned at the start of 2020 (under Poutiri Ao ō Tāne) and were postponed due to Covid-19 impacts. These have subsequently been rescheduled.

Te Ana O Parauri Hīkoi was held on 21st November 2020 to unveil the plaque of Te Ana O Parauri. The plaque marks the site of a natural underground burial site for manu and other treasured taonga of the area. Volunteers were also able to share their experiences of working in the area over the previous year, and to share opportunities and information. The Hīkoi was attended by 24 people and included a visit to the seabird site, and tour of the burrows.

Two more Hīkoi are planned early in 2021.

Hapū members continue to be engaged through the Community Advisory Groups and the project management team.

Tyne Nelson completed her Kaupapa Māori research project, looking into local Māori names for native species, the stories behind them which can provide valuable insight into threatened or lost species. The vision is to use these stories to engage iwi back into their local environment, identify species that were once prevalent and look for opportunities to restore. The team are working on creating Good Reads from key parts of the report.

Ken Hunt and Kaumatua Trevor Taurima at the seabird site monitoring the tītī return
Photo: Denise Fastier

2. Workstream update: 1 July – 31 December 2020

2.1 Research and monitoring

Al Glen and Pouri Rakete-Stones installing trail camera monitoring in Cape to City
Photo: Lauren Buccholz

There have been a number of research projects completed over the last six months, this brings the total number of reports completed as part of Te Matau a Māui to 58. The most recent ones are summarised below.

- Refining kill-trap networks for the control of small mammalian predators in invaded ecosystems This paper is based on previous work to optimise the Poutiri Ao ō Tāne predator trapping network. Researchers used a simulation model of predator captures based on existing trapping data and investigated control efficacy of changing trap sites and number of traps per site. Their simulations suggested there could be significant cost savings to be made in the maintenance phase of predator control programmes both through reducing the number of traps, and relocating trap sites.

- Using para-aminopropiophenone (PAPP) as a tool to control feral cats in Hawke's Bay, New Zealand This paper describes the second PAPP trial that was undertaken across Poutiri Ao ō Tāne, the largest (9123ha) PAPP trial undertaken in New Zealand. Over 130 feral cats were removed during the operation, resulting in a 39% reduction in the relative abundance.

Results suggest PAPP has the potential to be a useful management tool across large areas alongside other methods.

- Impact of feral cat control on toxoplasmosis levels in sheep as part of the Cape to City programme This report is the summary from the third round of toxoplasmosis testing in Cape to City, to investigate the influence of large-scale predator control on the incidence of toxoplasmosis in sheep. While results indicated that predator control did not significantly reduce the incidence of toxoplasmosis, a number of factors could have influenced results including the sampling and testing methods.

- Landholder perceptions of predator control in the Cape to City region: results from the rural survey This follow up survey from the original research in 2015 examined perspectives of landholders to predator control efforts, now 5 years on. This new survey found that conservation and predator control are important to landholders, and a part of their responsibility to future generations. The cost of taking action is a barrier to some, although there is a clear understanding of the collective benefit of predator control. Key agencies such as the Regional Council need to be doing more to support landholders in these endeavours, and a need to work smarter not harder. Read the Good Read article.

Research projects undertaken in 2020-21 include;

- Continue predator camera monitoring inside and outside Cape to City. Report by May 30 2021.
- Continue biodiversity response monitoring at Cape to City including analysing eDNA samples of invertebrates in different-aged manuka plantings. Report by May 30, 2021.
- Continue to measure home range size and mobility of possums in three habitat types on the Māhia peninsula. Report by June 30, 2021.
- Repeat the Possum Control Area social survey to identify factors influencing landowner's interest in possum eradication and their willingness to participate in, and contribute to, the programme. Report by June 30, 2021.

2.2 Community engagement

Ōtatāra Outdoor Learning Centre official opening.
Picture supplied by EIT

Community engagement activities over the last six months have included two newsletters, media releases, teacher training workshops, popularising the science outputs through the projects 'good reads' and ongoing facebook posts.

The first in teacher workshop for 2020 was held in September at Te Mata Park, aptly named "Some Enchanted Evening". Te Mata Trust representatives Emma Buttle and Sara Shaw introduced an exciting education resource being developed for the Park, after which teachers explored fossil remnants along the track, enjoyed hands-on learning in the Little Redwoods and left buzzing with ideas to share with their learners!

The launch Ōtātara Outdoor Learning Centre was a great success, bringing together people from across the region and industries. Kaumātua Ihaia Hutana led the tikanga to the bless of the site, followed by Ruud Kleinpaste who declared the centre officially open. Different activities were dotted around the site, showcasing the potential of the centre inspired by its vision "Learning with Nature for a sustainable future". Stakeholder representatives from local government agencies, councils, schools, NGOs and community groups who attended the event reiterated their support for the project. Read the media release.

The day following the opening, a teacher workshop was held at the centre. Teachers from early childhood, primary and beyond had the chance to imagine how they might use the OOLC with their learners as they engaged in fun, hands on activities. From co-creating a 3D outdoor pepeha to making a scent trail amongst the bushes that others had to follow - there were plenty of ideas to explore.

Robyn, Sally, Sonya and Megan look forward to hosting further free, engaging, hands-on workshops in 2021 that support teachers to use nature as a context for learning across all education sectors.

Due to Covid-19, the Hawke's Bay A&P Show was held as a competitors only event, with no public entry. This meant the Nature Shed could not go ahead as planned, but the Shed still received some TLC from the HBRC comms team with a working bee to weed the plantings, and clean the building from top to bottom.

Volunteer hours for the last six months were 262. Overall volunteer hours are down due to less translocation associated activity and Covid-19.

2.3 Biodiversity and species

Motion sensitive camera image showing a tītī returning in December 2020.

Over the last six months there have been no further translocations, but kākā and seabirds continue to be monitored.

Tītī and possibly kōrure continued to return to the seabird site in Poutiri Ao ō Tāne over Summer and a ranger spotted over 20 flying around one night in November.
Advice has come from the Department of Conservation seabird expert that an additional translocation of tītī should be considered. This kind of translocation would need to occur around March but requires some detailed scoping and planning so therefore couldn't proceed until at least 2022. Scoping is now underway.

Kākā continue to be observed on a regular occurrence in Boundary Stream.

2.4 Habitat restoration

Weeding and general maintenance of the plantings continues.

2.5 Pest control

Pouri Rakete-Stones checking a wirelessly monitored leghold trap.
Photo: Natalie de Burgh

Bait station installation has continued across Phase 2 of the Whakatipu Māhia possum eradication, with another hotspot around the Māhia Scenic Reserve identified. We rescinded our application with the Department of Conservation (DOC) for an exemption to brodifacoum use in the Scenic Reserve. In mid-December we released Request for Quote documents to HBRC's approved contractors for a performance based contract to reduce possum densities in the Scenic Reserve to <1% RTC. Quotes were due 18th January with work due to start in February.

The wireless leghold network was turned off over the Christmas break, giving the field team some much needed time off and was reactivated early January.

The field team have also been identifying potential risk areas in Phase 1 that still may contain individual possums. The monitoring network (wireless legholds and lured trail cameras) is fully operational across the 5500ha. A handful of possums have been detected on the cameras in Block 1D near the boundary with Phase 2. Targeted trapping has been deployed in this area, and bait stations are kept full. No possums have been captured by legholds in Phase 1 since 24th November (boundary

with Phase 2). Modelling indicates that eight weeks of zero detections across this network design is required to reach 95% confidence of zero density.

The design of Phase 2 (9000ha) monitoring networks is underway using the Manaaki Whenua Proof of Absence model (and the species eradiation web interface).

The project team are also working through what possum control needs to be undertaken outside the peninsular to reduce pressure of possums moving into the eradication area. A virtual barrier will be installed to protect the eradication work which can be expanded on should an accelerations and expansion of Whakatipu Māhia go ahead. Over the reporting period the pest control team have completed phase one of the eradication and mustelid and cat suppression programme in Māhia. The team are moving into the next 9000ha laying out the eradication and monitoring network, while continuing to monitor the first 5500ha.

Due to using brodifacoum as the primary removal tool, the total number of possums removed is unknown. However, to date numbers caught in mop-up traps totals 388 (known) possums, 45 cats, 64 rats, 61 hedgehogs and 1 stoat have been removed from the peninsular. No ferrets have been recorded in any capture devices, or trail cameras, however weasels and stoats have both been detected on lured trail cameras, and our first stoat catch was recorded on 16th December 2020.

The quarterly Cape to City and Poutiri Ao ō Tāne trap checks have been completed for this period.

The tracking tunnels results for rats in Boundary Stream in November were 4%. This is down from previous results for August 2020 (7%), continuing the downward trend from the spike in May 2020 of 14%.

Targeted rat control was carried out in and around Mohi Bush and 100 acre bush to support the toutouwai/North Island robin during their breeding season. Toutouwai were translocated to Mohi bush in 2015 and a recent bird survey has shown that numbers are stable.

3. Work planned for 1 January – 30 June 2021

In the next 6 months the project team will focus on:

3.1 Research and monitoring

- Four research projects will be completed.

3.2 Community engagement and education

- Two Hīkoi will be held, each led by Ngāti Hineuru and Ngāti Pāhauwera respectively.
- There will be further Teacher professional development workshops and workshops will continue with trainee teachers at EIT.
- The education facilitators will continue to work with Bledisloe School on a programme at the Ōtātara Outdoor Leaning Centre, as part of a research programme under the AirNZ Environment Trust and EIT partnership.
- Publication of Good Reads will continue.

- Maungaharuru Tangitū Trust will undertake some work scoping where to next for the Poutiri Ao ō Tāne project and develop an implementation plan.

3.3 Biodiversity and species

- Tītī and kōrure return monitoring will continue through summer.
- An additional translocation will be scoped to top up the population following recent expert advice.

3.4 Habitat restoration

- Releasing and maintaining plantings will continue.

3.5 Predator control

- Cape to City and Poutiri Ao ō Tāne maintenance trap checks will continue.
- Rat monitoring will continue at Boundary Stream and self-resetting rat traps will be maintained.
- Over the next reporting period the predator control team will have completed bait station installation across final 9000ha (Phase 2) of Māhia peninsular and have completed monitoring of the first 5500ha (Phase 1).

Appendix 2: Project outputs over last six months

Note: For full list of project outputs between January 2015 and August 2019 see August 2019 Interim report. For updates beyond that see latest Interim reports at https://www.pfhb.nz/resources/

Title	Description
Research and monitoring	
Andrew Gormley and Bruce Warburton 2020. Refining kill-trap networks for the control of small mammalian predators in invaded ecosystems. PLoS ONE 15(9): e0238732.	Simulating predator captures to refine kill trap networks based on trapping data from Poutiri Ao ō Tāne. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0238732
Natalie de Burgh, Al Glen, Kelly Mayo, and Mark Mitchell 2021. Using para-aminopropiophenone (PAPP) as a tool to control feral cats in Hawke's Bay, New Zealand. New Zealand Journal of Ecology.	Results and analysis of trial using PAPP as a control tool for feral cats in Poutiri Ao ō Tāne. https://www.pfhb.nz/resources/
Chris Niebuhr and Grant Norbury 2020. Impact of feral cat control on toxoplasmosis levels in sheep as part of the Cape to City Programme. Unpublished Manaaki Whenua Landcare Research Contract Report LC3836, prepared for Hawke's Bay Regional Council.	Results and recommendations from toxoplasmosis testing in Cape to City. https://www.pfhb.nz/resources/
Sweetapple P, Latham D. 2020. Possum home range and movement behaviour on Māhia Peninsula. Annual progress report, June 2020.	Possum home range and movement behaviour on Māhia Peninsula. https://www.pfhb.nz/resources/
McKelvie-Sebileau P. 2020. Landholder Perceptions of Predator Control in the Cape to City Region: Results from the Rural Survey (2020). Unpublished Eastern Institute of Technology contract report, prepared for Manaaki Whenua and Hawke's Bay Regional Council.	Results and analysis from the second rural landholder survey, and comparison to first survey conducted in 2015. https://www.pfhb.nz/resources/
Engagement	

EIT Research Project: Bledisloe Primary School – Student lead exploration of site (2 visits).	Research Project facilitation at Ōtātara Outdoor Learning Centre
Connected to Nature: Teacher Workshop in Collaboration with Enviro Schools – Outdoor workshop at Te Mata Park	Some enchanted evening
EIT – Early Childhood developing teachers - Ōtātara Outdoor learning Centre – Communication technology in ECE (Outdoor/Nature context)	21st century Learners BTECE 7.09
Best Start Early Childhood Centre – 3x Connected to Nature Workshops	Biodiversity and habitats, partnerships and cultural inclusion, where can we take our learning?
Birds in Our Backyard - Te Mata School and grounds	
Natural Phenomena Conference	Presented 2 workshops; supported Ruud Kleinpaste with 3rd workshop - connecting education with nature - conference held outdoors over 3 days. Link to bio , second down https://natureeducationnetwork.co.nz/wp-content/uploads/2020/06/Workshops-2020-Natural-Phenomena.pdf
Opening of Ōtātara Outdoor Learning Centre	https://www.eit.ac.nz/2020/11/eit-celebrates-official-opening-of-otatara-outdoor-learning-centre/
Connected to Nature: Teacher Workshop in Collaboration with Enviro Schools	Ōtātara Outdoor Learning Centre – The Outdoor Classroom
Video showing the variety of landscapes in Māhia, and some of the challenges and innovation the pest team are overcoming.	https://www.youtube.com/watch?v=m4UzDGdQry0
Good Read on rural landholder survey results in Cape to City.	Popularized article on the rural landholder survey: https://www.pfhb.nz/resources/newsletters-and-good-reads/article/54/cape-to-citys-rural-landholder-survey-2020
PFHB October 2020 e-Newsletter	https://mailchi.mp/52971c9f9ce0/predator-free-hawkes-bay-october-e-newsletter
PFHB January 2021 e-Newsletter	https://mailchi.mp/ae056b772b15/predator-free-hawkes-bay-january-newsletter

PFHB Special edition e-Newsletter	https://mailchi.mp/b291975a2b43/predator-free-hawkes-bay-special-edition-newsletter
Article on innovations in Whakatipu Māhia, published in the NZ Biosecurity Institutes magazine Protect, Summer 2020-21.	Page 14. https://mcusercontent.com/4385d407991c30b05f5e533a2/files/8d1cd223-29d6-4d88-a957-ab0e734911be/Protect_Summer_2020_21.pdf
Species and biodiversity	