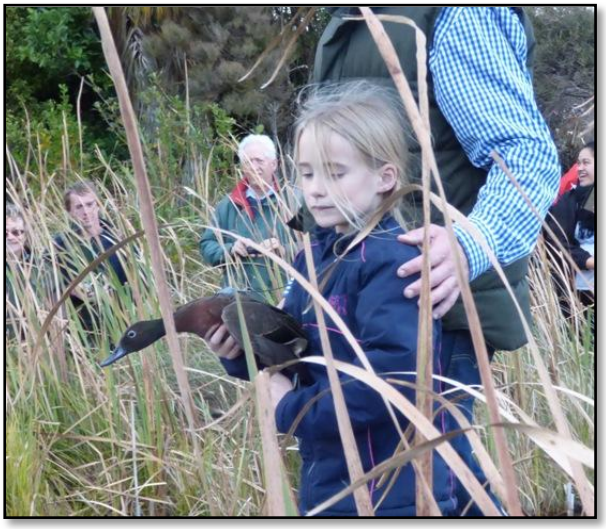
Te Matau a Māui project update: interim report August 2015

Native species thrive where we live, work and play



Pāteke/brown teal release May 2015.
Photo: Melissa Brignall-Theyer

Port Ahuriri school student and tree weta
Photo: Robyn McCool

This report provides project status information from 1 January to 30 June 2015

Prepared by the Te Matau a Māui Project Management Team

Contents

1. Executive summary

New Zealand is challenged by the loss of a significant amount of its biodiversity and a downward trend in much of that which remains. In this regard plant and animal pest effects and loss of habitat are key factors in the decline of biodiversity. Long term success for biodiversity relies on a complex web of interrelated factors but reducing pest impacts and restoring habitat are critical parts of the picture.

For New Zealand, with two-thirds of the country in private land use and much of that area in primary agricultural production, the solution for biodiversity must include the ability to integrate restoration into day-to-day farming practise. This needs to be in a way that delivers both production and environmental benefits to land users and the broader community.

The Te Matau a Māui project seeks to find a credible pathway to a wide-scale reduction of the impacts of predator pests (possums, feral cats, mustelids) on farmland to allow more effective integration across New Zealand with the significant public conservation land efforts of the Department of Conservation. Alongside this the project is seeking to engage the community at a much greater level into the value of participating in biodiversity and restoration activities. These elements are what underpin the project vision: *Native species thrive where we live, work and play*.

Having moved successfully through its first six months it is becoming increasingly clear that the Cape to City and Poutiri Ao ō Tāne projects have the potential to show how we can transform vertebrate pest management in farmland. The project workstreams include project management, pest management, biodiversity and species, community engagement and education, research and habitat restoration. A wide range of deliverables have already been met across the workstreams.

Of particular interest are the use of wireless technology and motion sensitive cameras for vertebrate pest management and translocations of petrels and pāteke/brown teal. The project has also been fortunate to have internationally recognised Ruud Kleinpaste become an ambassador. It is the combination of these elements across the workstreams that will provide the template for ecological restoration that can potentially be up scaled across the Hawke's Bay region or other areas of New Zealand. A range of risks and opportunities exist and are being managed across the workstreams. One of the more significant risks to the project is the level of national, regional and local interest and willingness to engage with the project. This interest holds many opportunities, but unless managed could lead to scope creep and be a significant risk to delivering the agreed milestones.

The 2015 workstreams have required detailed planning and preparation, are now being implemented and are on track to deliver what is required to meet the Aotearoa Foundations 2015 milestones. A lot has been learned in the last six months and a number of refinements to workstream outputs and in some cases budget focus are proposed in this report.

2. Background

Te Matau a Māui is a five-year overarching project in Hawke's Bay, which includes Poutiri Ao ō Tāne and Cape to City. These are collaborative landscape-scale projects covering 8,800 ha in the Maungaharuru/Tutira area and 26,000 ha between Cape Kidnappers, Havelock North and Waimarama. The land covers a variety of land uses and builds on the success and knowledge gained from Poutiri Ao ō Tāne, which has been running for four years.

Te Matau a Māui is a partnership between the Department of Conservation (DOC), Hawke's Bay Regional Council (HBRC), Cape Sanctuary, Landcare Research (LCR), the Aotearoa Foundation, and various landowners and businesses. Iwi are key partners with the project with representation at the governance level, and the project team are in dialogue with respective hapū and marae to enhance the partnership.

DOC has been nominated the grant holder under the agreement with the Aotearoa Foundation and will report on the combined investment of $6.2 million.

The strategic objective of the project is to see *native species thrive where we live, work and play* at large scales on our agricultural primary productive landscape. It will achieve this vision through transformational change in pest management, research and how our community engage in ecological restoration initiatives within Hawke's Bay.

A Governance Group has been formed to oversee the project and direct the multi-agency partnership effort dedicated towards achieving the project's objectives:

1. Leverage the native species establishment and research success of privately owned Cape Sanctuary to deliver significant conservation outcomes within the project area.

2. Build on the success of Poutiri Ao ō Tāne by trialling wide-scale, low cost (<$3/ha) predator control (possums, mustelids, hedgehogs, feral cats and in some cases rats) techniques for biodiversity enhancement within an agricultural landscape in Hawke's Bay.

3. Engage with the Hawke's Bay community through education and engagement events to:

    - Create opportunities to empower iwi participation, develop passion and bring conservation in line with the holistic Māori world view.

    - Provide teachers and students with environmental education opportunities and support schools to increase their learning around biodiversity in their backyard.

    - Create opportunities for the community to experience and value the importance of biodiversity, and be encouraged to act accordingly.

4. Act as a regional project that will deliver an ecological restoration template applicable across the region and New Zealand farmland. In conjunction with Hawke's Bay's Regional Biodiversity Strategy this template will drive a long-term positive step change in the regional biodiversity profile, funding, community engagement and conservation in general.

It will achieve these objectives through research, habitat protection, pest control, species reintroductions, community engagement and education, and strong governance and project management.

The project team has developed the Te Matau a Māui logic model (Appendix 2), which shows the high level links between inputs, outputs and outcomes of the project.

A Project Management Team will prepare the annual work programme that will deliver on the contract with the Aotearoa Foundation that has been agreed to by the Governance Group.

3. Project management

3.1 Governance

The Te Matau a Māui Governance Group is the overarching body of the project governance structure (**Figure 1**), and is made up of members representing partner organisations, iwi and the farming community.

The purpose of the Governance Group (see terms of reference, *Appendix 4*) is to oversee the Cape to City and Poutiri Ao ō Tāne projects and direct the multi-agency partnership effort dedicated to the project towards achieving the project's objectives.

The Governance Group is responsible for:

- Ensuring that the vision, mission and goals of the Project are the key focus of project activities.
- Approve the development of the annual work programme to deliver the vision, mission and goals of the project.
- Monitor and ensure key milestones are met on time.
- Receive reports, via the Project Management Team, about activities that relate to implementation of the project work programme.
- Direct or request the development of issue-related decision papers to effectively manage higher level project risks or capitalise on broader opportunities the project may present or align with.
- Where appropriate act as advocates for the vision of the project.

The group representatives have appropriate governance skills, and are appointed from a range of key partners:

- Reg Kemper (Chair), DOC
- Mike Adye, HBRC
- Richard Gordon, LCR
- Andy Lowe, Cape Sanctuary
- Tania Hopmans (Māori Representative), Poutiri Ao ō Tāne
- Bruce Wills (farming representative)

Senior officials from all partner organisations may attend governance meetings from time to time as advisory members requested by the Governance Group.

3.2 Biographies of the Governance Group

Reg Kemper (Chair)

Reg is currently the Director Partnerships for the Lower North Island for DOC. The role stretches from East Cape to Wellington (including the Kapiti Coast, Wairarapa, Manawatu, Hawke's Bay and East Coast districts) and involves growing conservation and conservation support with the community. Prior to this Reg has had different roles in DOC and its predecessor the NZ Forest

Service, including managing Nelson Lakes National Park, Operations Manager at Hokitika and more recently Area Manager of Fiordland.

Michael Adye

Mike is Group Manager Asset Manager for HBRC. He has filled this position since 1993. He has responsibilities for flood control and drainage, engineering, natural hazard knowledge, forest assets, biosecurity, land management, climate change, and regional open spaces. HBRC is his first experience of local government. Prior to joining HBRC Mike spent most of his professional career working for consulting engineering practices in Bay of Plenty, Auckland, London, and Dar es Salaam (Tanzania).

Richard Gordon

Richard is a company director with a scientific focus on environment and sustainability. His New Zealand and international activities include: Chief Executive Officer of Landcare Research, a Crown Research Institute (2011–present); Director of Enviro-Mark Solutions Ltd (2011–present); board member of Science New Zealand, the association of Crown Research Institutes (2011–present); advisory board member of Business New Zealand's Sustainable Business Council (2012–present); trustee of Predator-Free NZ Trust (2013–present); board member of Lincoln Hub (2013–present); and elected stakeholder council member of Global Reporting Initiative (2002–2006).

Andy Lowe

Andy is Managing Director and owner of Lowe Corporation Limited, a meat by-products processor based in Hawke's Bay that owns and has operated plants throughout New Zealand for 50 years with annual turnover in excess of $100 million. Andy is the initiator and 'vision keeper' behind Cape Sanctuary, the largest privately funded mainland wildlife preserve in New Zealand. Andy's other conservation projects include part ownership of pest-free Puangiangi Island in the Cook Strait, and trustee of the Hollyford Conservation Trust in Fiordland.

Tania Hopmans

Tania Hopmans brings to the governance group her analytical, strategic planning, project management and communication skills, as well as her experience from both previous and current roles as a commercial solicitor (in New Zealand and overseas), lead negotiator, general manager and member of various governance boards in Hawke's Bay. Tania's establishes networks in Hawke's Bay, particularly amongst local iwi groups, are also of great value and benefit.

Bruce Wills

Bruce has farmed sheep and cattle with family for the last 10 years on the hills north of Napier and also runs a small on farm tourist business. Between 2011 and 2014 he was National President of Federated Farmers NZ, and the three years prior to this was the Chairman of Federated Farmers' Meat & Fibre section. In 2008 he won the Hawke's Bay Farm Environmental award. He is Chairman of the NZ Poplar & Willow Research Trust, Chair of the East Coast region Ballance Farm Environmental Awards, and a trustee for the Todd Foundation and for Motu Research.

3.3 Community Advisory Groups

The purpose of the Community Advisory Groups (CAG) is to facilitate the community aspects of Cape to City and Poutiri Ao ō Tāne to help achieve the projects' vision, mission and goals. The CAGs provide appropriate communication and leadership at a community level; and advice so that project activities deliver towards engaging the community in biodiversity initiatives within the region.

The Poutiri Ao ō Tāne CAG has already had three meetings. The group is made up of some members who were part of the old Steering Group and we are looking for new members to join.

The Cape to City CAG is in the process of recruiting members.

3.4 Project integration and sustainability

Te Matau a Māui is a large, complex, multi-agency project. Critical to its success are two areas of work which are not specifically covered in the Aotearoa Foundation contract milestones:

1. Project management and workstream integration
2. A clear pathway to project sustainability.

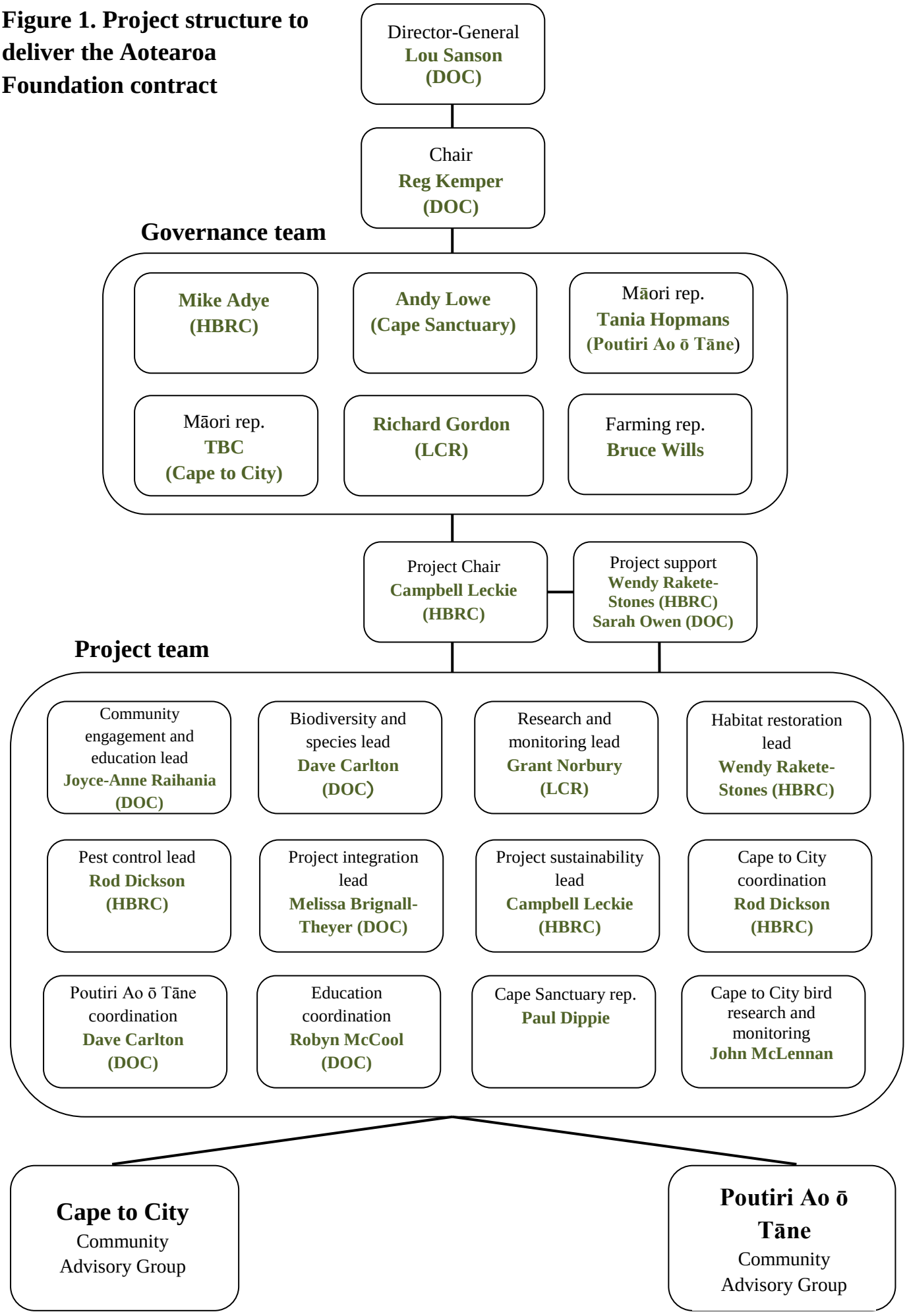
Te Matau a Māui has a defined project structure (**Figure 1**). Within the structure are three types of group: governance, project management and delivery, and community advisory groups. Each group operates under a Terms of Reference (TOR). The project itself is managed through a defined project management framework, and 'Project Integration' has been set up as a separate workstream with clear deliverables.

Long term restoration projects often face specific challenges when it comes to resourcing. The first is acquiring sufficient resources over the course of the project to deliver its objectives, and the second is that funding is irregular and in reduced funding cycles the project cannot maintain momentum. Funding sustainability is therefore a key element of this project from three perspectives:

1. The project has benefitted from Aotearoa Foundation funding in the past and there is a clear expectation that the project must not be reliant on Aotearoa Foundation funds at the end of the 5-year duration.
2. The project has a range of activities that need to be funded. Some of these will require additional funding to deliver the objectives (the habitat restoration workstream for example) and additional funding also needs to be sourced to match the final $300,000 Aotearoa Foundation grant.
3. The project will not be successful unless it continues beyond the 5-year contract but, like the Aotearoa Foundation, the other agencies involved will need to pull back from resourcing the project, therefore the parts of project that need to continue beyond this point must become substantially self sustaining and require little or no agency resources.

Project financial sustainability will be reported separately in future interim reports.

Figure 1. Project structure to deliver the Aotearoa Foundation contract



4. Workstream update: 1 January – 30 June 2015

Overall Te Matau a Māui is progressing well. Of the 2015 activities identified in the Aotearoa Foundation contract 10 are complete, 11 are between 50 and 100% complete, and 9 are less than 50% complete. Unless otherwise stated, the incomplete are on track to be completed by 31 December 2015. **Table 1** provides a summary by workstream.

This section outlines the progress on the activities and objectives outlined in *Attachment 1* of the Aotearoa Foundation contract. These have been separated into five workstreams: Research and monitoring; Community engagement and education; Biodiversity and species; Habitat restoration; and Pest control.

Table 1. 2015 activities progress

Workstream	Number of activities	% complete
Research and monitoring	8	78
Community engagement and education	7	57
Biodiversity and species	6	51
Habitat restoration	3	63
Pest control	6	84

4.1 Research and monitoring

The research and monitoring workstream is led by LCR. There are four strands to this research: pests, indigenous biodiversity, and social and economic research. This work is substantially delivered through milestones described in two contracts: one between LCR and HBRC, the other between HBRC and John McLennan (private consultant).

4.1.1 Expected outcomes

Many of the research outputs give direct insight into the ability to achieve the broader pest, biodiversity, community engagement and economic outcomes. These broader outcomes are:

1. Adaptive management, underpinned by robust research, will provide an understanding of the outcomes arising from wide-scale predator control, particularly around potential biodiversity gains.

2. The project is breaking new ground in terms of both the pathway to, and benefit of wide-scale pest control on farmland. The project team is not always going to get it right. Therefore, high quality peer-reviewed research from the project is key to building a credible and robust information platform for others to build on across New Zealand in pursuit of the long-term vision.

3. Breakthroughs and insights into things we did not realise were possible are provided by credible research. A good example of this is the recent research conducted as part of the Poutiri Ao ō Tāne project that has shown that motion-triggered cameras (camera traps) can detect mammalian predators at high and low density, and provide a robust measure of the effectiveness of predator control.

The main objectives of this workstream are to:

Pests	• Research methods of monitoring animal pests before and after control, and adaptively manage according to the outcomes of predator control. • Provide and utilise models for predicting cost-effective trapping configurations for managing predators over large areas. • Develop strategies for more cost-effective use of wireless trap technology.
Biodiversity	• Monitor establishment of birds that emigrate from Cape Sanctuary. • Monitor lizards and invertebrates in the Cape to City area, and continue monitoring in the Poutiri Ao ō Tāne area. • Monitor and describe the success of mottled petrel reintroduction as well as species that are described in the *Biodiversity and species* workstream.
Social	• Increase participation in pest management and ecological restoration by landowners and the community. • Encourage student participation. • Provide robust peer-reviewed research outputs.
Economic	• Measure integrated economic benefits of Te Matau a Māui. • Measure toxoplasmosis loadings in cats and livestock.

In addition to these objectives, research that documents Te Matau a Māui as a case study has been established. This will track the social aspect of a transformational landscape-scale ecological restoration project with both internal and external stakeholders, with the intention of:

1. Gaining a better understanding of the key human and social factors that worked well or could have been done differently.

2. Assessing which factors are key themes, leverage points or insights to allow more effective up-scaling of the template across New Zealand.

These objectives will substantially be delivered through the milestones set out in the Aotearoa Foundation, LCR-HBRC and HBRC-John McLennan contracts.

4.1.2 How is success measured?

- Through pest and indigenous biodiversity measurements.

- Change in social values and participation.

- A credible technical pathway to low cost (<$3/ha) integrated predator control on farmland.

4.1.3 Progress towards outcomes

Rod Dickson with wireless trap and caught ferret. Photo: Pouri Rakete-Stones

Highlights

- A wireless trapping trial has been completed and early results show that it could significantly increase efficiency of trap maintenance. Further trials are pending in different habitat types.
- Motion-sensitive camera trials have shown the potential for cameras to be an effective tool to monitor predator pests for control effectiveness and survivor detection, as well as compliance monitoring of community wide-scale predator control programmes.
- Publications and conferences: 1 research paper has been published, 2 submitted, 4 are in preparation, 4 conference papers completed, and 2 newsletter articles have been published.
- Students: there are 6 postgraduate students (5 PhD and 1 Fulbright Fellow), and 6 undergraduate students working on various aspects of the project at present.
- Work is underway to set up Te Matau a Māui as a case study of the social interactions that drive a transformational ecological restoration project.

Table 2. Research and monitoring milestones progress

Milestone	**2015 activity**	**Update**	**% complete**
Research proposals	A minimum of three research proposals; two of which are submitted to peer reviewed journals	1 research paper has been published; 2 submitted; 4 are in preparation; 4 conference papers completed; and 2 newsletter articles have been published (see *Appendix 3*)	100

Milestone	2015 activity	Update	% complete
Methods of monitoring introduced mammalian predators before and after control	Compare camera traps, predator detection dogs and tracking tunnels in terms of sensitivity and cost	The Ramsey model has been used successfully to generate g0 and sigma values for Poutiri Ao ō Tāne camera trap data. Options for Cape to City predator detection monitoring have been scoped (see milestone 2.3 and 2.4; *Appendix 3*)	57
Decision analysis models for predicting the most cost-effective trapping configurations for managing introduced predators over large areas	Model effectiveness of predator control with varying levels of landholder participation	Interim report completed that provides 5 scenarios. These will be reviewed in the next couple of months (see milestone 3.1; *Appendix 3*)	100
Reintroduction and re-establishment of mottled petrels	Initiate the 5-year translocation programme of mottled petrel juveniles from Whenua Hou to Maungaharuru Range following successful trial in 2014	82 birds were translocated in April in two trips; 81 successfully fledged PhD student will present results at the International Seabirds Conference in September	100
Analysis and reports on the integrated economic benefits of Te Matau a Māui		This is a 2016 milestone	N/A
Through research and a significant reduction in cats, toxoplasmosis-related lamb abortion rates will be significantly decreased and there will be no need for vaccination; resulting in a significant economic benefit to the region and nation	Detailed toxoplasmosis research programme designed, with key stakeholders engaged, and necessary baseline data gathered	Sustainable Farming Fund bid for this research was unsuccessful. This work will now be funded from contracted work with LCR in 2015/16	20

Milestone	2015 activity	Update	% complete
Use of restored habitat by native wildlife	Research for Occupancy assessment of key indicator species is designed	Progress on this milestone will be made after a research meeting in August to determine its feasibility	0
Student participation	Two tertiary students per annum are engaged in the project	There are five postgraduate students, one Fulbright fellow, and six undergraduate students working on various aspects of the project at present	100
Increasing the participation in pest management and ecological restoration by landowners and the community	Base line surveys on attitudes and barriers to participation completed	Two baseline surveys are being developed (rural and urban). The rural survey is finalised and will be mailed out to landowners by the end of July. The Urban Survey will be rolled out by October.	82

Note: Research progress is also reported in other workstream updates.

4.1.4 Significant risks

- Insufficient pest control intensity to achieve desirable biodiversity outcomes is a potential risk that will be mitigated through monitoring and adaptive management.

Refer to full risk register (*Appendix 5*).

4.1.5 Significant opportunities

- Working closely with the Biological Heritage National Science Challenge – more detail on this in *section 7*.
- LCR is currently considering aligning another of its core research portfolios (Enhancing biodiversity) to the Cape to City project. This is work in progress.

4.1.6 Variation to milestone: request Aotearoa Foundation approval

Table 3. Details of requested variations to research and monitoring milestone wording

Milestone	2015 activity	Variance to wording
Research proposals	A minimum of three research proposals; two of which are submitted to peer reviewed journals	Change proposals to outputs
Method of monitoring introduced mammalian predators before and after control	Compare camera traps, predator detection dogs and tracking tunnels in terms of sensitivity and cost	Add in ‘predator’ before tracking tunnels and ‘effectiveness’ after cost

Use of restored habitat by native wildlife	Research for Occupancy assessment of key indicator species is designed	The research team will discuss this milestone at a meeting on 11 August. It may be that from this meeting we request a variation to this milestone.

4.2 Community engagement and education

This workstream is led by DOC but because it is intimately linked to all the other workstreams there is significant input from other project partners. This workstream has two strands: education (school and curriculum based) and community engagement in general.

4.2.1 Expected outcomes

The overall outcome is to deliver a significant increase in community engagement and participation in biodiversity over the next five years. Potentially this outcome could be influenced by a range of non-project related factors, so the intention of the project team is to use both quantitative and qualitative measures to track progress towards the outcome.

The main objectives of this workstream are:

- Through the education programme and wider education plan, students will learn to care, understand and act for biodiversity, and teachers will be up-skilled in delivering environmental education.
- Through the engagement strategy and communication plan the Hawke's Bay community will value the importance of biodiversity and act accordingly.
- Recognise, through the Māori engagement strategy, the kaitiakitanga (guardianship) and leadership that Māori rightfully hold within this project.
- Farmers will be engaged and empowered to support the goals and objectives of Cape to City through the value and benefits (social, economic and environmental) they have gained through the project.
- Community engagement and education will empower the community to come on board and take ownership, ensuring sustainability of the outcomes generated by the project, beyond the scope of the five-year funding.

This workstream is critical to achieving the vision that *native species thrive where we live, work and play*. Without significant engagement the project will fail. It is only the community who can take this project and make it part of their future. Therefore, this workstream needs to provide a mechanism by which people will see value and invest in the project vision.

4.2.2 How is success measured?

- Awareness and behavioral changes identified through community and farming surveys.
- Māori participation in the project is measured.
- School programme evaluations.
- Increase in volunteer numbers.
- Landowner participation is measured.
- Sponsorships and partnerships.

4.2.3 Progress towards outcomes

Audience at the Cape to City Launch, 30 April 30 2015. Photo: Melissa Brignall-Theyer

Highlights

- A teacher resource for the Backyard Biodiversity education programme has been published and printed.
- Positive initial meeting with teacher training faculty staff and other faculty members of Eastern Institute of Technology (EIT).
- Two schools are booked in to programmes at Cape to City and three have already been engaged through Poutiri Ao ō Tāne in 2015.
- Cape to City Facebook page has been set up www.facebook.com/capetocity.
- Cape to City Launch was a success with over 180 participants.
- Media interest is strong (6 newspaper articles, 3 magazine articles).
- Cape to City Logo has been developed.
- Promoted Cape to City at the Clifton County Cricket Club Legends game (part of Cricket World Cup).
- Ruud Kleinpaste (Bugman) is an ambassador for Cape to City. Ruud presents in a very engaging way the broad message 'that biodiversity is critical to human survival', and has a nationwide network of environmentally-focused organisations, politicians, and education advocates.
- Project vision has been changed to: *Native species thrive where we live, work and play*.
- The Poutiri Ao ō Tāne Facebook page and newsletters continue to have a good following; one of the postings got more than 70,000 hits.
- The community event to release pāteke/brown teal as part of Poutiri Ao ō Tāne was well attended with strong representation from the local community, iwi and schools.

Table 4. Community engagement and education milestones progress

Milestone	2015 activity	Update	% complete
A marked increase in the number of volunteers participating in the programmes over the next five years	Review what is needed for volunteer management systems and how the project best builds on existing Cape Sanctuary and DOC systems. Volunteer hours baselined for Cape to City and Poutiri Ao ō Tāne	Work is underway to align DOC and Cape Sanctuary systems. Both organisations continue to collect data. DOC National Office Volunteers Manager has been consulted	40
Increased involvement of schools in the various conservation initiatives	Total of three schools engaged in the Cape to City project	• School programme launch was on 30 April. • Working with Ruud Kleinpaste as ambassador. • 2 schools booked into programmes at Cape to City • Teacher resource has been published and printed.	40
Communications strategy	Communications strategy finalised	• Strategy has been completed and is being implemented • Cape to City logo has been designed and Facebook page set up www.facebook.com/capetocity • Cape to City website is being developed • 9 media articles have been published • Decided that the programme name Te Matau a Māui will only be used internally to relate to the Aotearoa Foundation contract. The project names, Cape to City and Poutiri Ao ō Tāne, will be used externally.	80

Milestone	2015 activity	Update	% complete
High level landowner participation in pest control in the C2C [Cape to City] area. An 'in principle' agreement by participating landowners to continue predator control beyond life of the programme	50% of land owners agree in principle across sufficient land area to be likely to deliver wide-scale pest control outcomes	More than 60% have already signed up; work is ongoing to increase this number	100
Through the social engagement strategy and communication plan the Hawke's Bay community will value the importance of biodiversity and act accordingly so that sustainability behaviours become part of the social norm	Review of all other potential stakeholders including philanthropists	• Stakeholder list is currently being developed • Currently scoping options for a full review of stakeholders and revenue streams	50
	Review and implement Giblin group community engagement strategy and scope further education opportunities at Poutiri Ao ō Tāne	• Draft review has completed and Principles of an Engagement Strategy for Te Matau a Māui have been agreed. • Scope of Māori engagement strategy has been completed. Draft strategy currently being developed. • Cape to City had a stand at the Clifton County Cricket Club Legends game in February. • Cape to City was launched on 30 April; feedback was positive and there were a wide range of attendees (180+) • 3 schools have already done programmes through Poutiri Ao ō Tāne in 2015.	67
	Citizen science biodiversity monitoring programme begun to tie into current national programmes	Focus groups were held in March and June with regard to building trustworthy biodiversity measures and Cape to City; results and implications will be written up by October 2015	60

4.2.4 Significant risks

- If we do not engage iwi in a meaningful way we risk losing a key partner and jeopardising the success of the project. We therefore need to formalise engagement with iwi at a communication and participation level and make sure that engagement is genuine and is visible in all our communication. A Māori engagement strategy is being developed.

- There is a lot of interest and excitement about the education programmes. This has created many opportunities for links and involvement outside of the project milestones. The risk is that the project team starts working in areas outside of the project deliverables and in doing so is unable to meet the contracted deliverables due to resource and time constraints. This is being mitigated by assessing all opportunities as a team.

Refer to full risk register (*Appendix 5*).

4.2.5 Significant opportunities

- An initial presentation and meeting with Eastern Institute of Technology (EIT) teacher training faculty staff and students has provided an opportunity to link the teacher training programme with Cape to City. This is a significant step towards the 2017 milestone *Engage a minimum of six schools in the Cape to City project plus at least one tertiary institute initiative*.

- The Community Conservation Partnerships Fund ($26 million over 4 years), administered by DOC is a significant opportunity for community groups to receive funding and align themselves through. Proposals are being considered at present.

4.2.6 Variation to milestone: request Aotearoa Foundation approval

Table 5. Details of requested variations to community engagement and education milestone wording

Milestone	**2015 activity**	**Variance to wording**
High level landowner participation in pest control in the C2C area. An 'in principle' agreement by participating landowners to continue predator control beyond life of the programme	50% of land owners agree in principle across sufficient land area to be likely to deliver WSPC outcomes	Suggest putting this milestone under the pest control workstream due to alignment.

4.3 Biodiversity and species

This workstream is led by DOC, but has significant input by John McLennan and LCR. There are two main strands: species reintroductions and biodiversity monitoring.

4.3.1 Expected outcomes

Monitoring biodiversity and species reintroductions allows benefits of the pest control to be measured. This will provide a clear pathway to enable nature to flourish in our backyards. It will:

- Highlight examples of what can happen in farmland and lowland country, and how species can become established out from a sanctuary in a low predator landscape. This will be significant for other groups trying to enhance biodiversity in their own areas.
- Provide useful insights into links between different species (birds, invertebrates and lizards) and ecological integrity, and what the significant long-term improvements to ecological health are if they are not being predated.

Species translocations also provide one of the most tangible milestones of ecological restoration and are a powerful tool for involving the community in restoration programmes. People are passionate about endangered species, and being involved in protecting and enhancing populations provides a sense of making a positive difference.

The main objectives of this workstream are to:

- Reintroduce threatened bird species and allow them to flourish, including sea birds, water fowl and forest birds.
- Increase and monitor the bird populations that are already present in the project areas particularly through the outflow of rare and threatened species from Cape Sanctuary into the wider landscape and Hawke's Bay's urban centres.
- Monitor invertebrate and lizard populations in both Poutiri Ao ō Tāne and Cape to City.

4.3.2 How is success measured?

- Self sustaining populations of fauna are established at release sites.
- The community is aware of and engaged with fauna populations established by the Matau a Māui project as shown through survey results.
- Rare and threatened species progressively colonise farmland outside of the Cape Sanctuary
- Invertebrate and lizard populations increase within the wide-scale predator control areas.

4.3.3 Progress towards outcomes

Petrel nest boxes and burrows at Boundary Stream. Photo: Ruud Kleinpaste

Highlights

- 20 pāteke were successfully translocated in May onto Lake Opuahi as part of Poutiri Ao ō Tāne. However, 5 birds have been lost to predation, 2 outside the Poutiri Ao ō Tāne boundary. Good data has been collected indicating preferred habitat in the local area, which will assist in refining the trapping network.
- 82 Cook's petrel were successfully translocated to Poutiri Ao ō Tāne on 18 March 2015; 78 fledged.
- 82 mottled petrels arrived mid-April, 81 fledged. Recently released kākā are doing well and are still receiving supplementary feeding.

Table 6. Biodiversity and species milestones progress

Milestone	2015 activity	Update	% complete
Increase in skinks, geckos, and native invertebrates in the C2C area, and continued increase in skinks, geckos, and native invertebrates in the Poutiri Ao ō Tāne area	Poutiri Ao ō Tāne monitoring continues but monitoring times may be extended out. Specific Cape to City invertebrate monitoring is set up	• Monitoring is continuing at Poutiri Ao ō Tāne. Results so far are recorded (*Appendix 3*) • Monitoring network for Cape to City will be established in October and monitoring will begin in November 2015	49

Milestone	2015 activity	Update	% complete
Increase in the abundance of introduced and native birds that are already present in the area	Bird monitoring programme established and baseline estimates completed	• Monitoring plan design has been finalised. • Baseline estimates will begin in October 2015	48
The reintroduction and establishment of several threatened bird species into the Cape to City area. Some species will spread from Cape Sanctuary; others will be reintroduced and actively managed until they are demonstrated to be self-sustaining	John McLennan led species monitoring programme for birds/invertebrates overflowing into broader project area outside of Cape Sanctuary is designed	• Monitoring plan design has been finalised. • Monitoring will begin in October 2015 • Translocation plans for small forest bird species from Cape Sanctuary to Cape to City are being developed	100
The successful re-establishment of whio/blue duck on the Maraetotara River. The successful colonisation of ponds and wetlands by pāteke in the Cape to City and Poutiri Ao ō Tāne areas	DOC/John McLennan whio Maraetotara translocation plan developed	This work will be initiated in July 2015 and completed in December 2015	20
Improvement in the numbers of long-tailed bats inhabiting Mohi Bush	Initial design of monitoring programme is completed. Impact of potential threats to the bat population is assessed	This work will be initiated in July 2015 and will be completed in December 2015	20
The reintroduction and re-establishment of mottled petrels, Cook's petrels, kākā, kākāriki, and pāteke in the Poutiri Ao ō Tāne area	Petrels are successfully transferred and fledged. Kākā and kākāriki have been released and don't disperse from the release site.	• Mottled and Cook's petrel and pāteke were successfully translocated to Poutiri Ao ō Tāne • Kākāriki translocation is postponed until rat numbers are very low. • Recently released kākā are doing well	70

4.3.4 Significant risks

- It is yet unknown what level of predator control is sufficient for survival of pāteke and whio, therefore there is a risk that control cannot be achieved to levels that support the survivability of these species. This will be managed through monitoring and adaptive management.
- If adequately sized founder populations cannot be achieved due to limited numbers of source birds, the project is at risk of not reaching sustainable populations in the release area.

Refer to full risk register (*Appendix 5*).

4.3.5 Significant opportunities

- Techniques developed for petrel translocations will enable further populations to be established elsewhere in New Zealand.

4.3.6 Variation to milestone: request Aotearoa Foundation approval

Table 7. Details of requested variations to biodiversity and species milestone wording

Milestone	2015 activity	Variance to wording
The reintroduction and re-establishment of mottled petrels, Cook's petrels, kākā, kākāriki, and pāteke in the Poutiri Ao ō Tāne area	Petrels are successfully transferred and fledged. Kākā and kākāriki have been released and do not disperse from the release site	Wording change: kākā and kākāriki have been released, and a founder population establishes at the location
The reintroduction and re-establishment of mottled petrels, Cook's petrels, kākā, kākāriki, and pāteke in the Poutiri Ao ō Tāne area	Petrels are successfully transferred and fledged. Kākā and kākāriki have been released and don't disperse from the release site	Rat numbers are not low enough for kākāriki to be released in September as planned. Preference is to push out release to April/May 2016
The reintroduction and establishment of several threatened bird species into the Cape to City area. Some species will spread from Cape Sanctuary; others will be reintroduced and actively managed until they are demonstrated to be self-sustaining	2016 milestone: Monitor species currently overflowing from Cape Sanctuary (pāteke, red crowned kākāriki etc); prepare translocation plans for robins and tomtits	Translocation proposal for robins and tomtits needs to be brought forward to this year due to some concerns that the likely source population in another part of the Hawke's Bay may be under threat due to logging of the commercial pine plantation where they currently reside

4.4 Habitat restoration

This workstream is led by HBRC and is focused on restoring native habitat and water quality through planting.

4.4.1 Expected outcomes

This workstream will provide a better understanding of how planned habitat connectivity can take place in a landscape, and how that can make a difference to biodiversity outcomes. This also brings with it some opportunities for alignment to more land related outcomes in terms of land and water in New Zealand.

The main objectives of this workstream are to:

- Restore sufficient native habitat within the Cape to City footprint for native biodiversity to flourish.
- Enhance water quality in the Maraetotara River.
- Show that ecological restoration on private land can enhance conservation efforts on public land.

4.4.2 How is success measured?

- Native species utilising the restored habitats.
- Water quality showing early improvement trends towards the end of five years.
- Public land reserves show an increase in biodiversity and environmental health.

4.4.3 Progress towards outcomes

Highlights

- HBRC working on a partnership with Million Meters Streams for Maraetotara River as part of project, millionmetres.org.nz.
- Planting along the Maraetotara River has begun.

Table 8. Habitat restoration milestones progress

Milestone	2015 activity	Update	% complete
Improved water quality in the Maraetotara River following stock exclusion and riparian re-vegetation	Water quality monitoring programme and monitoring sites established; existing HBRC water quality monitoring needs integration	HBRC water quality monitoring has been integrated with National State of the Environment water monitoring	100
An increase in native habitat in the Cape to City area	HBRC GIS scoping study identifies where habitat would be best placed (including bush remnants that could be fenced); 15,000 plants planted within project footprint by partners or community groups	• HBRC GIS scoping study is complete • Planting plan for 2015 is complete and relationships with community groups have been established • Planting is underway and four intern students have been engaged June-July 2015 • HBRC is scoping a partnership with millionmetres.org.nz	60
Enhancement of DOC's efforts on public land through landscape-scale ecological restoration on private land	Operational assessment of how integration of public and private land within Cape to City project is best achieved and impact monitored	• Project team working with DOC National Office scientists to develop an assessment that takes into account a National as well as local perspective • Operational assessment will be delivered by December 2015	30

4.4.4 Significant risks

- Not delivering maintenance after planting is a risk that often turns into a reality due to lack of resources for weeding, watering and other maintenance. This is being managed by effective planning and resource allocation.
- Lack of landowner cooperation is another risk and will be managed through landowner/council agreements and forming solid relationships with landowners and community groups.

Refer to full risk register (*Appendix 5*).

4.4.5 Significant opportunities

- HBRC is working on a partnership with Million Meters Streams for Maraetotara River as part of the project. This organisation raises money for riparian restoration through sponsorship.

4.5 Pest control

Although led by HBRC, this workstream has substantial input from LCR. It covers wide-scale suppression of predators within Poutiri Ao ō Tāne and Cape to City.

4.5.1 Expected outcomes

The success of this workstream will ultimately be seen when biodiversity is flourishing in the project areas, and the pest control system is being used successfully in other parts of New Zealand to deliver economic and environmental benefits. A significant part of this outcome is to provide an ultra low cost pest control system (<$3/ha) that can be scaled-up to the rest of Hawke's Bay and New Zealand. The system will be developed through the use of smart technology like wireless trapping, so that trap checking becomes a lot more efficient.

The objectives are to:

- Establish a wireless trap networks to optimise control.
- Maintain suppression of introduced predators at low densities in the pest control area.
- Demonstrate that effective ongoing predator control in the Cape to City area can be undertaken for less than $3 per ha.
- Demonstrate that the cost of predator control can be met by transferring resources from possum control programmes, while still maintaining possums at low densities.
- Monitor pest numbers.

4.5.2 How is success measured?

- Uptake of predator control by landowners.
- Reduction of predator numbers.
- Survival and monitoring of key indicator species.
- Testing, and if possible, then securing the outcomes such as reduction in toxoplasmosis through predator control.

4.5.3 Progress towards outcomes

Self-resetting rat trap with dead rat. *Photo: Craig Gillies*

Highlights

- More than 60% of landowners have signed up to Cape to City.
- A wireless trapping trial has been completed, and another 6 trials in other locations are being considered.
- Self setting rat trap set-up has been completed; monitoring is ongoing.
- Initial meetings have been held with Zero Invasive Predators (ZIP) to create 12-month plan and form a partnership agreement (see section 7 for further information).

Table 9. Pest control milestones progress

Milestone	**2015 activity**	**Update**	**% complete**
A marked reduction in introduced predators in the Cape to City area		No 2015 milestone for this – trapping network will be set up, dependent on landowner buy-in	N/A

Milestone	2015 activity	Update	% complete
Wireless trap networks to optimise control	Small-scale operational trials of wireless trap networks are completed	• One wireless trapping trial has been completed. • A further 6 trials in other locations are planned	100
Examine the long term effectiveness and reliability of self-resetting traps for rat control in Boundary Stream Mainland Island	Set up trap network over 800 ha, check six times per year and monitor rat population density	• Self resetting rat trap set-up has been completed; monitoring is ongoing. • The lure will be changed in June/July from peanut butter to chocolate, as the peanut butter lure does not seem to be sufficiently effective at reducing rat numbers enough for good biodiversity gains	70
Sustained suppression of introduced predators at low densities in the Poutiri Ao ō Tāne pest control area	Contractor control continues at reduced control intensity	Reduced control is ongoing and effectiveness will be monitored. Draft report completed (milestone 2.6; *Appendix 3*)	75
Demonstration that effective ongoing predator control in the C2C area can be undertaken for less than ~$3 per ha	Systems to analyse control costs in place	HBRC has systems to analyse control costs in place.	100
Demonstration that the cost of predator control can be met by transferring resources from possum control programmes, while still maintaining possums at low densities	Chewcarding completed on 20,000 ha with follow up compliance where necessary for possums	• Chew cards will go out in July 2015 to 16,000 ha that are yet to be carded • This is a trial with every third card a predator chewcard and testing at 7-, 14- and 28-day intervals • Initial chewcarding results indicate some properties have higher possum numbers than is desirable	57
Operational monitoring for predator control is undertaken	Operational monitoring plan for control is completed	A paper has been completed on predator and possum control in the Cape to City knock-down phase (milestone 2.7, *Appendix 3*)	100

4.5.4 Significant risks

- The perception that rabbits increase after predator control is a risk that will be mitigated with good communications backed up by research. LCR has published a scientifically credible review that demonstrates that rabbit numbers are driven by bottom up influences such as climate, disease and pasture growth, rather than by predators.

- To get biodiversity and economic gains (through reduction in toxoplasmosis) we need to control feral cats, but this is an emotive subject in New Zealand and there is the risk that a farmer's cat or an urban cat gets caught and prompting negative media coverage. To manage this we have a communication plan in place and traps will be placed in places least likely to trap farm or domestic cats. Where the risk of catching farm or domestic cats is high (ie around urban areas) live capture cage traps will be used.

Refer to full risk register (*Appendix 5*).

4.5.5 Significant opportunities

- Initial meetings have been held with Zero Invasive Predators (ZIP) and the Biological Heritage National Science Challenge to align appropriate parts of each project, or learn from work these others are doing (see *section 7* for further information)

5. Work planned for 1 July – 31 December 2015

5.1 Research and monitoring

HBRC, DOC, LCR, and private contractors will attend a meeting in Napier on Tuesday 11 August to plan the research workstream for 2015/16. The following research topics are high priority.

- Clearly demonstrate that wireless trapping technology as a more cost-efficient means of suppressing pest numbers to the wider pest control community.
- Research to demonstrate the economic benefits of wide-scale pest control on the production sector. Tissue sampling for toxoplasmosis from mice, cats and sheep will be undertaken in Cape to City before and after cat control. Trials are expected to begin in September.
- Further research into the use of camera traps for measuring residual predator abundance – this is important as HBRC moves to a new pest management strategy that potentially includes predator control as an audited outcome.
- The focus will be on monitoring responses of birds, lizards and invertebrates in Cape to City, and in a neighbouring non-treatment area. Monitoring will continue at Poutiri Ao ō Tāne, but with reduced sampling frequency (annual).
- Results of the rural survey will be analysed, and an urban survey will be designed and deployed.
- Te Matau a Māui will continue to be documented as a case study for others to emulate in the future.

5.2 Community engagement and education

- The Māori Engagement Strategy will be consulted on and ratified by the project team and Māori involved in the project.
- A full review of stakeholders and revenue streams will be completed and a data capture system implemented.
- A teacher training workshop with Ruud Kleinpaste will be held in October.
- A candidate teacher workshop with Ruud Kleinpaste will be held with EIT student teachers.
- A Biodiversity Inventory day with Ruud Kleinpaste will be held with Te Mata Primary School.
- Cape to City Community Advisory Group will be operational.
- Cape to City website will be live.
- Cape to City will publish a newsletter – the first of many.

5.3 Biodiversity and species

- Maintenance of the petrel burrows at the Maungaharuru seabird site will occur over the next few months in preparation for next cohort of Cook's and mottled petrels scheduled for translocation in March/April 2016.
- After winter, supplementary kākā feeding will be reduced to encourage the kākā to forage more widely and reduce their dependency on human intervention. Depending on the success of the national captive breeding programmes additional kākā may be translocated to Boundary Stream to further boost the resident population.
- Kākāriki require low rat populations to successfully establish. Due to the current performance of the self-resetting trap trial, particularly the effectiveness of the lure, this condition has not yet been met. A translocation of kākāriki was planned for September 2015 but this will be postponed until next autumn while the effectiveness of the rat control at Boundary stream mainland island is evaluated.
- The data gathered from the initial release of 20 pāteke about their habitat preferences and causes of death will be used to refine the predator control network in preparation for further translocations in May 2016.
- A translocation proposal will be drafted to assess the feasibility of releasing whio/blue duck on the Maraetotara River once the Cape to City predator control network is established and functioning.
- A translocation proposal to release tomtits/miromiro and North Island robins/toutouwai at Mohi Bush Scenic Reserve in the Cape to City area will be drafted.
- A plan will be drafted and implemented to monitor changes in the long-tailed bat population at Mohi Bush Scenic Reserve in the Cape to City area in response to predator control.
- Bird monitoring in Cape to City will start.

5.4 Habitat restoration

- Planning for 2016 planting will continue, including participating landowners, fencing requirements, willow removal plan and Esplanade Strip Agreements (ESA).
- Plant tender will go out July/August for supply of plants for 2016 planting season.

5.5 Predator control

- The operational testing of the Goodnature A24 self resetting rat trap continues and a new lure formulation will be trialled to assess whether its attractiveness and longevity is an improvement on the current recipe. The results of this over July/August will determine what is further needed to reduce the rat population before more sensitive species such as kākāriki can be released at Boundary Stream.
- Stage 2 wireless trapping meeting is planned for July-August with potential participants with a view to roll out the trial in September-October.

- Trapping layout design for Cape to City will be finalised to allow trapping to begin early 2016. Trap building will begin soon.

6. Broader project alignment and opportunities

Over the last six months opportunities have arisen for Te Matau a Māui to align with other large New Zealand projects that have similar visions. These are described below.

6.1 ZIP

Zero Invasive Predators (ZIP) Ltd is an innovative partnership between NEXT Foundation, DOC, and philanthropists Gareth and Sam Morgan to dramatically transform the way invasive predators are managed on mainland New Zealand. The vision is ambitious – to ensure the long-term resilience of New Zealand's biodiversity by completely removing rats, stoats and possums from large areas of the mainland, and keeping them out. DOC is investing $500,000 (in cash and kind) per annum. The scale of philanthropic involvement gives this project real momentum and the potential to achieve big gains in predator management.

Over a 10-year period a $20 million investment will provide the tools to reduce the impacts of certain predators on New Zealand biodiversity. The focus is predominately on public conservation land not farmland. Members of the project team have had an initial meeting with Devon McLean, Al Bramley and Phil Bell from ZIP. There are a number of areas for alignment in a research context that will provide some useful insights to us around rats and barrier technology, monitoring and surveillance and wireless detection technology. The reality is that ZIP's focus is substantially on public conservation land. Cape to City is focusing on predator control in farmland. The integration of both of these aspects ie farmland and public conservation land is what New Zealand requires for long term biodiversity success. There are three areas we hope to collaborate on:

1. Specific technologies that are relevant to both projects.
2. Sharing information from different habitats (farmland and public conservation land) to build a picture of how to integrate that shared knowledge and get the best biodiversity outcomes.
3. Sharing knowledge and management processes around risks, particularly wireless technology and live capture, and using shared messaging to key stakeholders to manage these risks.

6.2 Biological Heritage National Science Challenge

The National Science Challenges address 10 key issues for New Zealand, and focus on transformational research that will deliver solutions to those particular challenges. They each get around $3 million per year in new science funding. Crown Research Institutes like LCR are aligning some of their core funding to the Science Challenges.

The Biological Heritage National Science Challenge (BHNSC) is now operational. The inaugural Challenge Director is Dr Andrea Byrom, who has had a close involvement with Te Matau a Māui.

BHNSC has three main themes:

1. Real time biological biodiversity monitoring.

2. Reducing risks and threats across landscapes.

3. Sustaining natural capital through resilient ecosystems.

Cape to City has a strong alignment with themes 2 and 3. Senior members of the project and governance teams met with James Bulwulda (Chair, BHNSC), Andrea Byrom (Director, BHNSC) and Peter Millard (General Manager Science, LCR). This was a positive first meeting and James suggested that there would be value in formalising the relationship; what this means has yet to be defined. This approach would enable the connection between BHNSC research and the end-user to be illustrated in an effective way, showing that the research pathway can drive end-user outcomes.

Peter raised the possibility of aligning additional research funding targeted for the BHNSC for the 2015/16 financial year particularly for biodiversity outcomes for Cape to City.

6.3 Predator Free NZ

Predator Free NZ (PFNZ) was formed in 2013. The first project is to create a high-definition map of New Zealand, identifying where major public agencies (DOC, OSPRI and regional councils) are actively managing predators. Stage two will include larger conservation community groups and sanctuaries, followed by smaller organisations.

PFNZ has five focus areas for action in 2014-2017:

1. Produce a defendable and thorough economic analysis of a 'predator free NZ'.

2. Engage with New Zealanders more effectively.

3. Identify who is doing what, where and what measures they are using to indicate success.

4. Improve and expand predator management.

5. Foster research and development.

PFNZ and Te Matau a Māui have a similar vision, especially around predator control and community engagement. Devon McLean (Chair, PFNZ) will be meeting with Campbell Leckie in July -August regarding alignment and opportunities between Te Matau a Māui and PFNZ. Te Matau a Māui Board member, Richard Gordon, is also a trustee of PFNZ.

7. Conclusion

Given the range of challenges expected in a sizeable complex multi-stakeholder project, Te Matau a Māui has gone from strength to strength in its first six months.

Solid foundations have been built to support the project over the next four and a half years. A strong governance team is now operational, with members representing partner organisations, the farming community and iwi. There is only one more position to fill (Māori representative for Cape to City) and a process is in place to fill this position. The project team has developed an operational structure that supports effective delivery of the milestones; ensures risks are managed; ensures opportunities are captured; and optimises communication and integration across the workstreams. Each workstream has delivered a number of outcomes and the project is well on track to deliver the 2015 activities specified in the Aotearoa Foundation contract by the end of December.

Much of the baseline information has been gathered in the Research and monitoring workstream. Various options for research and monitoring methods and approaches have been put forward, discussed and are in the process of being implemented, such as use of wireless and camera trapping, optimal trapping configurations, and possum monitoring. Research into capturing Te Matau a Māui as a case study has been established. This will track the social side of a transformational landscape-scale ecological restoration project with both internal and external stakeholders.

If we are going to achieve the vision of *native species thrive where we live, work and play* people need to value biodiversity and behave in a way that shows understanding that biodiversity is critical to human survival. Community engagement and education is pivotal from this point of view. In the last six months there has been an overwhelming response to the vision of this project – at every event or stakeholder meeting people respond very positively and can't wait to get involved. It seems the time is right for this project and people are hungry for answers to the problems the project is trying to answer. This is evident with high media uptake, political interest, interest from schools, and the number of opportunities that the Cape to City/education launch provided.

The journey that the projects are taking with iwi are at different stages. Poutiri Ao ō Tāne already has strong support from the iwi groups involved. Our collective visions are intertwined and well aligned. However, we need to do a lot more to realise the full potential of these partnerships. The Māori Engagement Strategy will be developed collaboratively and will be an agreed guide by all parties on that journey, to make that potential a reality. Cape to City is in the very early stages of this journey. The key will be to hold the interest in it from iwi groups and to make sure Cape to City provides value for Māori. Progress on iwi engagement will, specifically, be reported on in these interim reports.

Native biodiversity flourishing in our backyards is one of the main outcomes for Te Matau a Māui. Species reintroductions, biodiversity enhancement with effective pest control are key pathways to this outcome. The species reintroductions as part of Poutiri Ao ō Tāne are continuing, with successful translocations of mottled and Cook's petrel, kākā, and (new to the project) pāteke. Unfortunately, since translocation there have been 5 pāteke predated. Therefore management of future translocations of pāteke will need reassessment. However, this has provided information on habitat use and levels of effective trapping required. Biodiversity monitoring design for Cape to city is finalised and will be implemented in spring-summer.

Habitat restoration will provide nature corridors for species to flourish in the wider landscape and eventually make it to urban areas. The Maraetotara River runs through Cape to City and is therefore a good place to start and build on the riparian planting that community groups have begun. Planting for this year has already started and planning is underway for 2016.

This work has also provided significant opportunities for community engagement. There are four international Massey intern students doing planting at present, HBRC is working in partnership with community groups in the area, and a potential partnership with Million Metre Streams is being investigated.

Developing a system of low cost, efficient and effective pest control will be transformational for biodiversity gains in New Zealand. Many groups in New Zealand are working on different aspects of this and the project team has been forming links with these groups, so that we can all learn from each other. The pest control system being developed for Te Matau a Māui will use smart technology like wireless and camera trapping, but the main point of difference is that it is based in a farming rather than natural landscape. Significant inroads have been made with regard to wireless and camera trapping of top predators and further wireless trials are planned in different landscapes. Results of the rat trapping are that the self-setting rat traps are functioning well, however monitoring of rat numbers has shown that the lure is not working effectively and will be changed accordingly.

Overall it has been an exciting six months and the team has learnt a lot. The team is settling into the structure and delivering high quality work. This is a unique project in many aspects and is being received by the community with open arms. Without the support of the Aotearoa Foundation this project would not be possible and would not have brought all the partners together in such a collaborative manner, allowing them to combine resources and knowledge for biodiversity in Hawke's Bay.

Appendix 2. Te Matau a Māui logic model

This is a high level model that assists in planning a project with the end in mind. It explains the five workstreams as inputs (what goes into the project) and a broad outline of the activities and participation (what work is undertaken) that link to agreed outputs (what is produced). The intermediate outcomes describe changes in awareness, attitudes, motivation and behaviours over 5 years. The long-term outcomes are the changes or benefits that result from the project and theses are linked the Hawke's Bay Biodiversity Strategy (in yellow) and DOC's Stretch Goals to 2025 (in turquoise)

Inputs	Activities	Outputs	Outcomes: Intermediate	Outcomes: Long-term
Research and monitoring	• Research on pests and biodiversity • Measuring	• Research papers • Monitoring	• International recognition and exposure • Adaptive management	**We will collaborate effectively, align programmes and share responsibilities to achieve biodiversity outcomes**
Community engagement and education	• Teaching the teachers • Community projects	• Education programmes • Community groups undertaking citizen science	• Public involvement through understanding and valuing project	**50% of international visitors come to New Zealand to connect with our natural places** **Support education, engagement care for the environment, kaitiakitanga and actively connecting communities through biodiversity**
Biodiversity and species	• Reintroduction of threatened species • Increase in current species	• Translocation plans • Monitoring plans	• Provision of model for other sites • Rare and threatened species colonise in wider landscape	**Whānau/hapū/iwi are able to practice their responsibilities as kaitiaki of natural and cultural resources on PCL and water** **90% of New Zealanders' lives are enriched through connection to our nature** **Sustain, protect and improve populations of native species** **We will recognise indigenous biodiversity as a taonga to be protected for future generations**
Habitat restoration	• Planting plans • Operational assessment of public/private land integration	• Water quality monitoring • GIS scoping study	• Increase in landscape connectivity • Increase in habitat	**Sustain, protect and improve native habitats and the ecosystem services they provide**
Pest control	• Wireless trapping • Cameras • Chew cards	• Reduction in pests • Cost savings • Accessible technology	• Resource reallocation due to successful work on lowering pest numbers • Ultra-low cost predator control	**50% of New Zealand's natural ecosystems are benefiting from pest management**

Appendix 3. Project outputs so far

Workstream	Title	Status	Description
Community engagement and education	Backyard Biodiversity teachers resource for primary and intermediate school students (Years 5-8)	Published	Teacher resource that is part of the Backyard Biodiversity education programme
	Cape to City on Nature Watch naturewatch.org.nz/projects/cape-to-city	Published	Cape to City has been set up as a project on Nature Watch
	Project pledges $6m for conservation	Published	HBT 18 Dec 2014 article about Te Matau a Maui signing
	Redressing human impact	Published	HBT Editorial 18 Dec 2014 article about Te Matau a Maui signing
	Hawke's Bay TV presentation	Published	Campbell Leckie gave a presentation on HBTV in June 2015 about Cape to City
	Nature corridor	Published	Short article on Cape to City in May 2015 issue of Bay Buzz magazine
	Trapped pests will trigger text message	Published	HB Today article 30 April about the launch; article syndicated by the Dominion Post and Farmers Weekly
	Back to the way it was	Published	Article on Cape to City in the Profit Magazine May 2015 issue.
	Cape to City on Facebook www.facebook.com/capetocity	Active	Cape to City Facebook page is set up
	Trustworthy Biodiversity measures www.landcareresearch.co.nz/science/plants-animals-fungi/animals/birds/biodiversity-measures/research-updates	Published	Highlights the results from the Building Trustworthy Biodiversity Measures focus groups
	Andy Lowe gave a speech at the Deer Industry Conference www.youtube.com/watch?v=tARCD82ACy8 (4 hr 14 min)	Published	Link to Andy Lowe's speech at the Deer Industry Conference in May 2015.
	Sir Jerry visits Sanctuary	Published	HB Today, 11 June 2015, p5. Governor General visited Cape Sanctuary with Andy Lowe and Ruud Kleinpaste; a small part of the article is about Cape to City
	Hawke's Bay DOC update	Completed	Dave Carlton gave a talk to Napier branch Forest & Bird about DOC, but focused on Te Matau a Māui.

Workstream	Title	Status	Description
Biodiversity and Species	Pāteke fly home after time away	Published	Newspaper article about the pāteke release in the Hastings Leader, May 27th, 2015, page 6.
Research and monitoring	Milestones 1.1 and 1.2 report on integrated research workstream of Te Matau a Māui activities	Completed	The report summarises the main activities within the research workstream, including aligned components that are not directly related to this contract.
	Optimising translocation efforts of mottled petrels (*Pterodroma inexpectata*): growth, provisioning, meal size and the efficacy of an artificial diet for chicks storify.com/Seabirders/wstc1	Published	Link to Rachael Sagar's presentation at inaugural world seabird twitter conference
	MacLeod L, Dickson R, Leckie C, Stevenson B, and Glen AS. (submitted). Possum control and bird recovery in an urban landscape, New Zealand. *Conservation Evidence*.	Submitted	Bird recovery in an urban landscape
	Glen A, Dickson R (2015). Wide-scale predator control for biodiversity in Hawke's Bay. *Kararehe Kino/Vertebrate Pest Research (25*): 6–7.	Published	Newsletter article on wide-scale predator control
	Jones C, Norbury G, Glen A, Dickson R 2015. Predator control benefits native species but not rabbits. *Kararehe Kino/Vertebrate Pest Research (25*): 14–15.	Published	Newsletter article on effects of Predator control on native birds and rabbits
	Glen A, Perry M, Ruscoe W (2014). Wide-scale trapping suppresses predators and promotes biodiversity in Hawke's Bay. Proceedings of the 28th Australasian Wildlife Management Society Conference. Brisbane, AWMS.	Conference	Effects of wide-scale predator control on biodiversity
	Ruscoe W, Glen AS, Perry M, and Forrester G. (in prep). Impacts of rabbit grazing on pasture in Hawke's Bay, New Zealand. *New Zealand Journal of Ecology*.	In prep	Rabbit grazing impacts on pasture production
	Norbury G, Jones C (2015). Pests controlling pests: does predator control lead to greater European rabbit abundance in Australasia? *Mammal Review (45)*: 79-87.	Published	Predator and rabbit interactions

Workstream	Title	Status	Description
Research and monitoring (cont.)	Glen AS, Anderson D, Veltman CJ, Garvey PM, and Nichols M. (submitted). Wildlife detector dogs and camera traps: a comparison of techniques for detecting feral cats. *New Zealand Journal of Zoology*.	Submitted	Comparing techniques for detecting cats
	Nichols M, Garvey P, Glen AS, Ross J (in prep). Influence of camera trap orientation on detection rates of invasive predators. *New Zealand Journal of Ecology*.	In prep	Camera trap orientation and predator detection
	Nichols M, Gormley A, Garvey P, Glen AS, Ross J (in prep). Estimating abundance of feral cats: a comparison of techniques. *Methods in Ecology and Evolution*.	In prep	Feral cat abundance estimates
	Garvey P, Nichols M, Glen AS, Pech RP, Clout MN (in prep). Response of mesopredators to removal of feral cats. *Journal of Applied Ecology*.	In prep	Response of mesopredators to removal of feral cats
	Glen A, Dickson R, Leckie C (2015). Wide-scale predator control and fauna recovery: Lessons from Hawke's Bay. NETS conference	Conference	Biodiversity recovery following predator control
	Glen A (2014). Camera traps for monitoring pest animals. In: *Abstracts, NETS Conference*. NPCA, New Plymouth.	Conference	Camera traps
	Perry M, Glen A, Ruscoe W (2014). Quantifying rabbit damage to pasture in Hawke's Bay, New Zealand. P.115 in: *Proceedings of the 16th Australasian Vertebrate Pest Conference* (ed M Gentle). VPC, Brisbane.	Conference	Rabbit damage to pasture
	Milestone 2.1 (LCR contract)	Completed	Proposed strategy for radio-tagging possums in the C2C footprint that will generate detection probability data used for identifying areas of low, medium, and high possum numbers that will enable forecasting where and when control should be applied
	Milestone 2.3 (LCR contract)	Completed	The feasibility of the 'Ramsey' model (which uses occupancy data to estimate population density) for use in analysis of Poutiri Ao ō Tāne camera trap data to generate g0 and sigma values for feral cats is determined

Workstream	Title	Status	Description
Research and monitoring (cont.)	Milestone 2.4 (LCR contract)	Completed	A scoping report on optimising a monitoring design for Cape to City using cameras including a critical review of potential gaps that should be addressed, using initial data from the Poutiri Ao ō Tāne camera trap work to date, in order to minimise risks associated with the use of the method.
	Milestone 3.1 (LCR contract)	Completed	Identifies 4 or 5 possible scenarios for predator control to test based on the actual property footprint for Cape to City. Includes the implications of 'friction surfaces' (e.g. poorly accessible areas) for contractors (in consultation with contractors in the project)
	Milestone 4.4 (LCR contract)	Completed	Based on learnings from the Poutiri Ao ō Tāne project and other wide-scale predator control initiatives (e.g. the Aorangi proposal being developed by LCR for OSPRI), a 10 page scoping document was produced (linking to the high-level milestones developed for the Aotearoa Foundation) outlining the design for biodiversity monitoring in the Cape to City footprint

Appendix 4. Terms of Reference for the Governance Group

Purpose
The purpose of this document is to:

- Describe the context and objectives of the project.
- Describe the roles and tasks of the Governance Group.
- Ensure vision, mission and goals are kept current with comments by project team.

Context
Te Matau a Māui is a five-year overarching project that includes the existing Poutiri Ao ō Tāne project and a new Cape to City project in the Hawke's Bay. The vision of Te Matau a Māui is: *Native species thrive where we live, work and play.* Experience gained from Poutiri Ao ō Tāne over the last three years has created the learning and opportunity to establish the Cape to City project and this transformational vision.

This project has commitment from key partners, including the Hawke's Bay Regional Council (HBRC), Landcare Research (LCR), Cape Sanctuary, iwi and the Department of Conservation (DOC). The project includes wide-scale pest control, habitat protection and enhancement, species re-introductions, community engagement, research and monitoring.

The combined investment for Te Matau a Māui over the next five years is $6.2million. DOC has been nominated the grant holder under the agreement with the Aotearoa Foundation.

Objective
The objective of the project is to support the vision by demonstrating a template for landscape-scale ecological restoration activities across farmland including wide-scale predator control. These activities align restoration and pest management which are key components needed to successfully deliver the Hawke's Bay Regional Biodiversity Strategy.

Status
The Governance Group is the overarching body of the Project governance structure, established by the partner organisations. The Project's administrative structure is depicted in document xxx.

Purpose and responsibilities
The purpose of the Te Matau A Māui Governance Group is to oversee the Cape to City and Poutiri Ao ō Tāne Projects and direct the multi-agency partnership effort dedicated to the project towards achieving the Project's objectives.

The Governance Group is responsible for:

- The Governance Group actively considers and manages Health and Safety within the project
- Ensuring that the vision, mission and goals of the Project are the key focus of project activities.
- Approve the development of the annual work programme to deliver the vision, mission and goals of the Project.

- Monitor and ensure key milestones are met on budget on time
- Receive reports, via the Project Management Team, on activities that relate to implementation of the Project work programme reviewing and endorsing project reports to contributing organisations
- Direct or request the development of issue-related decision papers to effectively manage higher level project risks or capitalise on broader opportunities the project may present or align with
- Where appropriate act as advocates for the vision of the project
- Ensure financial contributions / commitments to the project are effectively and efficiently utilised to deliver project goals and objectives
- Individual members of the Governance Group will be the champions for the project within their organisation and address performance and / or resourcing issues if the need arises

Membership
The committee is comprised of representatives with appropriate governance skills appointed from a range of key partners.

- Hawke's Bay Regional Council
- Department of Conservation
- Landcare Research
- Cape Sanctuary
- Māori representatives (2)
- Farmer representative

Senior officials from all partner organisations may attend from time to time as requested by the governance group as advisory members.

Chairperson
The chairperson is a member of the committee agreed to by members of the committee.

Quorum
At least 3 members of the Governance Group shall be present to form a quorum.

Frequency of meetings
The Governance Group will meet 4-monthly, with additional meetings or workshops, if required. It is likely that it may meet 3 monthly for the first 9 months of the project.

Servicing of meetings
Documentation and logistical support for the Governance Group meetings is coordinated by staff from DOC or HBRC.

The Chair of the project management team is responsible for reporting to project governance.

Draft minutes of the Governance Group meetings will be recorded and circulated to the Governance Group members for correctness within 10 days following a meeting. Minutes will be confirmed at the following meeting. Points noted as approved for action are to be forwarded to relevant people for following up in the interim between meetings.

A draft agenda will be prepared by the project management team. This will be approved by the Chair of the Governance Group. The approved agenda, minutes of the previous meeting and relevant order papers are distributed no later than 4 working days prior to a meeting.

Appendix 5. Risk register

Risk description	Likeli-hood	Impact	Total risk (likelihood x impact)	Risk response (mitigations)	Actions taken
Insufficient pest control intensity to achieve desirable biodiversity outcomes	2	5	10	Management through adaptive practices	
Perception that rabbit numbers increase after predator control	3	3	9	Good communication backed up by research and monitoring.	HBRC and LCR have published a scientifically credible review that demonstrates rabbit numbers are driven by bottom up influences such as climate, disease and pasture growth rather than predator control
Farm/urban cat-killing backlash	3	3	9	Good communication backed up by research and monitoring.	Kill traps only used in areas where farm/urban cats not likely to be
Lack of landowner participation and cooperation in predator control programme	3	4	12		Preliminary discussions with landowners in the footprint have been positive and it is expected there will be a solid level of uptake
SSRT lure not effective enough at the operational frequency we require	3	3	9	Changing lure recipe over winter. If not successful, shown by tracking tunnel rates revert to bait stations	
Predator control at Poutiri Ao ō Tāne not maintained at required level	3	3	12	If not maintained a burst of more intensive trapping will be done	
Insufficient area prepared for annual plantings	3	2	6	Preparation and planning to be undertaken	Annual programme of a total of 215,000 trees to be planted over the next five years
Weather disrupts plantings through flood or drought	3	4	12	Contingency plans made early in the event of a large weather disruption	

Risk description	Likeli-hood	Impact	Total risk (likelihood x impact)	Risk response (mitigations)	Actions taken
Weather disrupts plantings through river levels dropping and stock crossing river	3	3	9	Contingency plans made early in the event of a drought and talk to landowners early about risks and mitigations	
Lack of landowner participation and cooperation in planting along the Maraetotara River	3	3	9	Esplanade Strip Agreement signed by neighbours	Maraetotara Tree Trust has developed an Esplanade Strip Agreement to be signed by affected landowners. Planting can only occur if both sides of the river are fenced off or if the river is deep enough so that stock can't cross over.
Lack of landowner participation and cooperation along the Maraetorara River	3	3	9	Phone call and letter from HBRC to repeat offenders	A process is being put in place at present
Not delivering aftercare maintenance of plants	3	3	9	One release (spraying/hand-releasing) in about October and if required watering	
Not planting for species outcomes	3	3	9	Make sure plants will provide good habitat for native species	
Milestones are not met due to education scope creep	3	3	9	Use a Project Register to highlight the potential for scope creep	
Cape Sanctuary facilities not ready in time for education programme	3	4	12	Robyn McCool and Campbell Leckie working with Paul Dippie and Andy Lowe to make sure it is ready	
Reorganisation or restructuring of DOC and/or HBRC	5	2	10	Early communication within the team about possible scenarios	
Weather postpones petrel translocations until the following season	3	3	9		

Risk description	Likeli-hood	Impact	Total risk (likelihood x impact)	Risk response (mitigations)	Actions taken
Adequately sized founder population cannot be achieved due to limited numbers of source birds	3	3	9		
Established populations result in negative impacts on the community or industry. E.g. potential kākā impacts on horticultural production	3	3	9	Early communication with stakeholders around these risks	
The Aotearoa Foundation milestones for community engagement are not be met	3	4	12	A resourcing discussion on scope and delivery by the Governance Group is required as a range of current engagement activities are delivering to the wider national and regional engagement picture, and the uptake of the project vision (including the ability to upscale the project at a regional/national level). This work is likely to increase as the project gains momentum and will be a substantial draw on current project management and team resources	

Risk description	Likeli-hood	Impact	Total risk (likelihood x impact)	Risk response (mitigations)	Actions taken
Recognition of project and partners not met through communications	3	3	9	The project has a range of communications opportunities and risks. It is important to ensure that the project partners get appropriate national and regional recognition for their investment and effort in the project. The wide range of activities happening across the workstreams needs to be managed to ensure that this opportunity is captured.	
Loss of key project team member	2	5	10	Ensure all project systems are easily accessed by the team. Make sure all team members are well versed and up to date in the project. Ensure team members are identified and trained to take over other roles if need be	