

1. TE HAERENGA O NGĀ PUKAPUKA REPO CONNECTING WETLANDS AND PEOPLE THROUGH STORIES

YVONNE TAURA (NGĀTI HAUĀ, NGĀTI TŪWHARETOA,
NGĀI TE RANGI, NGĀTI RANGINUI, NGĀTI UENUKU),
CHERI VAN SCHRAVENDIJK-GOODMAN
(TE ATIHAUNUI A PĀPĀRANGI, NGĀTI APA, NGĀTI
RANGI), BEVERLEY CLARKSON (MANAAKI WHENUA)

Ngā mihi

Introduction

Handbook number one. Wetland Restoration
– a handbook for freshwater systems

Handbook number two. Te Reo o Te Reo – The Voice of the
Wetland: Connections, understandings and learnings for
the restoration of our wetlands

Handbook number three. Te Reo o Te Repo – Kei konei
tonu au: The Voice of the Wetland – I am still here

Te haerenga o ngā pukapuka repo – developing the
wetland handbook series

Te haerenga tika – the right process

Where to next?

Want to learn more?



Mehemea ka moemoeā ahau, ko ahau anake Mehemea ka moemoeā tatou, ka taea e tātou

If I dream, I dream alone. If we dream together, we shall achieve

Princess Te Puea Herangi (Waikato)

We wish to acknowledge all the authors and contributors – whānau, hapū and iwi members, and collaborating researchers – and the wide readership and supporters of the wetland handbook series. Without your incredible insight, wealth of knowledge, and passion to protect and restore wetlands throughout Aotearoa New Zealand, these handbooks would never have had the same impact.

We particularly acknowledge Monica Peters for her role in developing the *Wetland Restoration – a handbook for New Zealand freshwater systems*, helping to transform a scientific technical guide into a user-friendly resource for local communities undertaking wetland restoration. Monica has continued her contribution for *Te Reo o Te Repo – The Voice of the Wetland* handbooks, as both a peer-reviewer and illustrator. We also acknowledge Abby Davidson for her stunning layouts and design interpretation, which helped bring the shared narratives to life.

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– Ngā mihi, nā Yvonne mātou ko Cheri, ko Bev

With the release of *Te Reo o Te Repo – Kei konei tonu au*, the wetland handbook series of collected stories of Aotearoa New Zealand wetlands increases to three. It has taken a little over a decade to get to this point, and each handbook has been an evolution of the narratives that shaped the previous handbook. This chapter outlines our journey of developing the wetland handbook series, how the handbooks have helped enrich relationships between people and their wetlands, and more important, the interpersonal relationships of these communities.



What a recreated restiad wetland might look like in 5 years' time. Using digital aids to visually see the long-term goals. Photo: Monica Peters

HANDBOOK NUMBER TWO TE REO O TE REPO – THE VOICE OF THE WETLAND

Connections, understandings and learnings for
the restoration of our wetlands

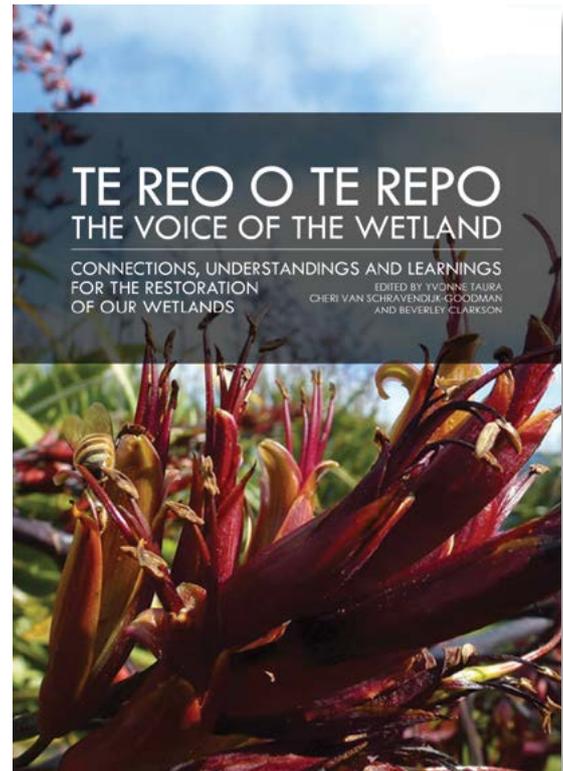
**Yvonne Taura, Cheri van Schravendijk-Goodman,
and Beverley Clarkson**

Following the *Wetland Restoration* handbook, this culturally focused handbook simmered for 4 years within an associated wetland research programme before it manifested in 2014–2016. *Te Reo o Te Repo – The Voice of the Wetland* was published in early 2017.

Te Reo o Te Repo – The Voice of the Wetland: Connections, understanding and learnings for the restoration of our wetlands was framed around a series of projects undertaken by iwi and hapū across the motu (country). The handbook also included stories exploring broader interactions between Māori and some of the more well-known native wetland plant and animal species, such as kuta (giant spike sedge; kutakuta, ngāwhā; *Eleocharis spachelata*), harakeke (NZ flax; *Phormium tenax*), kōura (freshwater crayfish; *Paranephrops* spp.), and matamata (whitebait; īnanga, īnaka; *Galaxias* spp.). However, as we explored the stories from our contributing authors, we discovered additional gaps in the ways our narratives were being shared.



Ruru. Credit: © Janice McKenna



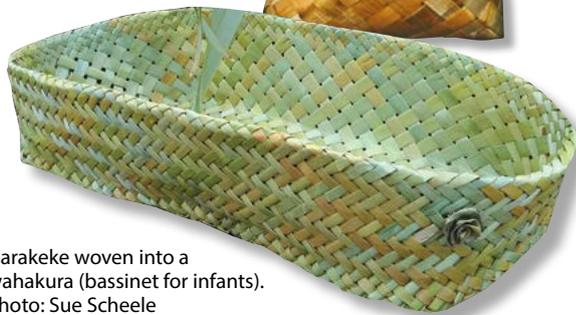
We found that cultural narratives about native wetland species were slowly fading due to ongoing wetland decline and limited funding opportunities. National priorities also directed funding towards key species, often based on popularity, such as terrestrial bird species, rather than on iwi priorities. As a consequence, iwi and hapū were faced with the difficult decision of compartmentalising their mātauranga (knowledge) and targeting protection efforts when and where they could.

Overtime, *Te Reo o Te Repo – The Voice of the Wetland* took on a life of its own, and we realised that we needed to promote priorities identified by Māori that were being overlooked due to the national prioritisation and decision-making frameworks at the time. We reflected on kōrero shared within our mahi (work programmes), or read in literature, and realised that our repo were asking us to consider the 'big picture'.

As a result, we decided to highlight some of the lesser appreciated native wetland species such as noke (earthworms; various species), ruru (morepork; kōkōu, rurukōkōu; *Ninox novaeseelandiae*), and kawau (black shag; *Phalacrocorax carbo*), and even diatoms – microscopic aquatic organisms – zooplankton. Interspersed with this are narratives on herbicidal versus manual control of weed species, and wetland restoration according primarily to a broader Māori worldview. This handbook provided a much-needed space to record lived experiences and observations.

Te Reo o Te Repo – The Voice of the Wetland was launched on World Wetlands Day (2 February 2017), and the conversation that was started between our people and their wetlands and wider freshwater systems gradually became louder and louder. We are not sure of the role this handbook played in encouraging this conversation. We would like to think it might have connected multiple, wide-reaching conversations that helped reveal centuries-worth of interactions and environment-human resilience, as well as highlighting the value of traditional knowledge in better understanding the needs of our repo.

Kuta woven into a small kete (kit) made with split kuta remnants. Photo: Mieke Kapa



Harakeke woven into a wahakura (bassinet for infants). Photo: Sue Scheele



Te Reo o Te Repo – The Voice of the Wetland was launched on World Wetlands Day 2017 at Lake Rotopiko, Waikato. Event was hosted by the National Wetland Trust. Co-editor Yvonne Taura is pictured with Keri Thompson, General Manager of Ngāti Hauā Mahi Trust. Photo: National Wetland Trust



Women fish for matamata on the Waikato River near Tuakau, Waikato. Photo: Te Ara – The encyclopedia of New Zealand



Hon. Eugenie Sage, Minister of Conservation 2017-2020, receives a copy of *Te Reo o Te Repo – The Voice of the Wetland*. Pictured alongside Mahuru Wilcox, Yvonne Taura, and Beverley Clarkson. National Wetland Trust symposium 2018, Napier. Picture: Supplied by Yvonne Taura

HANDBOOK NUMBER THREE TE REO O TE REPO – KEI KONEI TONU AU

The Voice of the Wetland – I am still here

**Yvonne Taura, Cheri van Schravendijk-Goodman,
and Beverley Clarkson**

Te Reo o Te Repo – Kei konei tonu au: The Voice of the Wetland – I am still here is the third of the wetland handbook series. Our intention was to continue advocating the voices of our repo through the voices of our people and we were prompted by a tohu (sign) from our kaitiaki (guardian) – he tuna (freshwater eel; *Anguilla* spp.). Recognising that our repo are still sadly declining, we felt we needed to maintain their presence in national conversations. *Te Reo o Te Repo – Kei konei tonu au* gifted its name as our mahi progressed, and the handbook was published in 2021.

Throughout 2020, the worldwide pandemic COVID-19 wreaked havoc on global social and economic infrastructure. Wetlands also suddenly dominated discussions with respect to:

- climate change – as important repositories for carbon sequestration
- land use and sustainability – in the provision of ecosystem services such as nutrient attenuation and flood mitigation
- retention of important biodiversity – as biodiversity hotspots and buffers
- the health and well-being of freshwater and marine ecosystems – as important buffers for land-based activities and sea-level rise.

Te Reo o Te Repo – Kei konei tonu au reminds us of the wetland systems, landscapes and interconnections that we once had, and what we are at risk of losing. The continued lack of recognition for local knowledge in relation to this loss feature throughout the handbook. The most notable observation was the decline in understanding te whakapapa o te repo – the broad relationships and connections between repo and wai (water), repo and whenua (land), and more important, repo and tāngata (people). We continue to watch the sad interplay between economics and environment, with wetlands often losing out to a financially driven line between tāngata and te taiao (natural world).



It is, however, encouraging to think the tide may finally be turning, with provisions for protection of wetlands included in the new Essential Freshwater package. This package includes the National Policy Statement for Freshwater Management 2020 (NPS-FM 2020), which has policies to avoid further loss of natural inland wetlands, protect wetland values, and promote wetland restoration.

Decline in local knowledge was originally noted in the development of *Te Reo o Te Repo – The Voice of the Wetland* but became obvious when the editorial team began compiling *Te Reo o Te Repo – Kei konei tonu au*. This was very much the case when we elected to include chapters on native wetland plant and animal species that once dominated our wet-scapes and featured in traditional accounts of tangata whenua life in Aotearoa. As we began to explore those recollections, we found 'knowledge short-circuits' where the accounts suddenly disappeared or were limited. Due, we believe, to the loss of whenua (raupatu – confiscation) and resources suffered by tangata whenua in the late 19th Century, including the suppressing of unique tribal mita (dialects) and te reo (language). Widespread conversions of wetlands to pasture, and associated hard engineering of river systems to accommodate land conversions and other human activities (e.g. hydroelectricity) followed. It is not hard to trace how knowledge and language were initially forced underground, and then began to dissipate with the significant modification of the environment and the passing of our cherished kaumātua (elders).

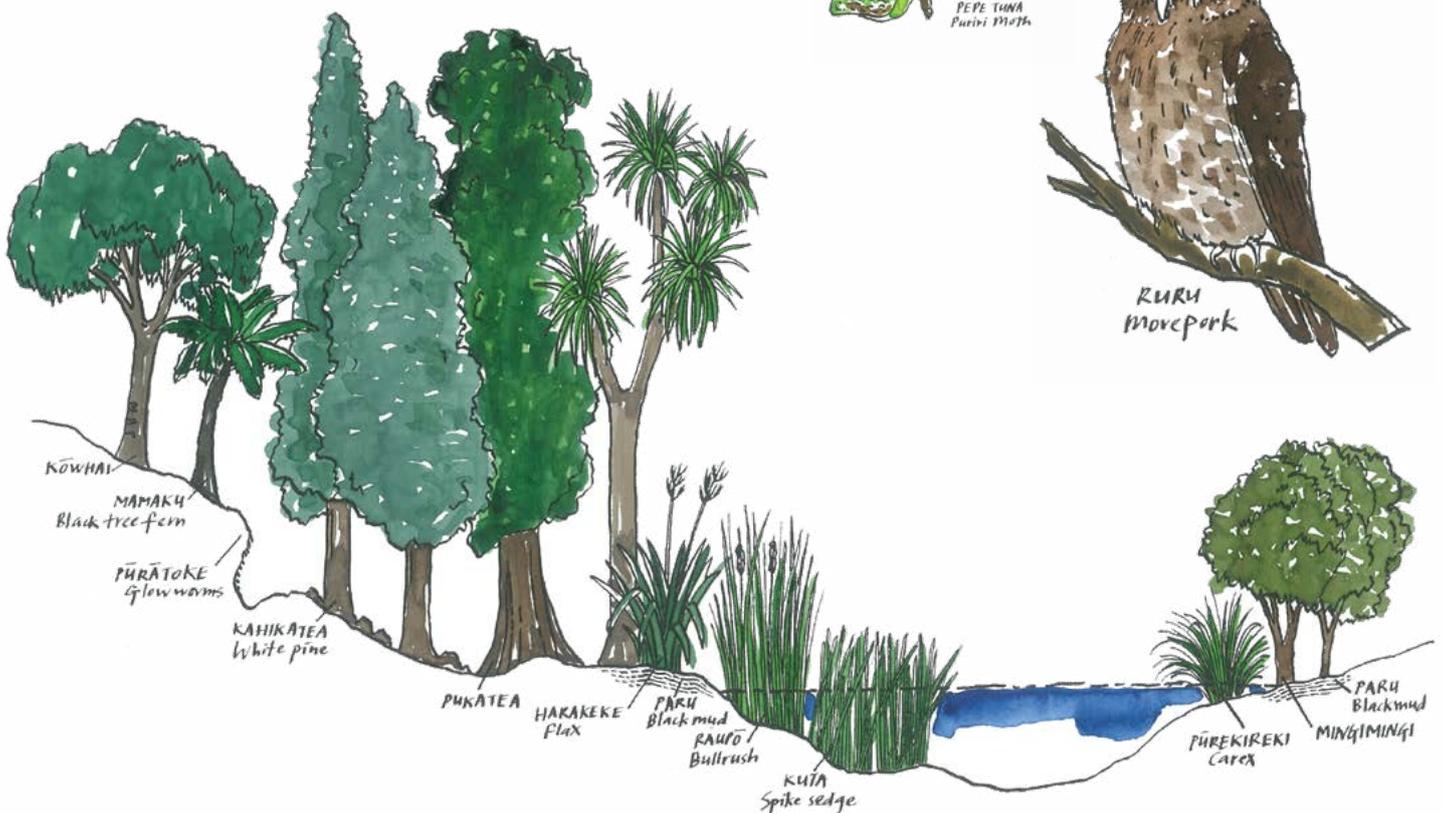
As we advocate to see greater positioning of mātauranga Māori (Māori knowledge) within environmental management decisions throughout Aotearoa, we continue to lose mātauranga as valued native species and natural habitats disappear. Thankfully, we managed to recover some suppressed mātauranga for this handbook, offering some confidence that indigenous knowledge can be revealed if prompted carefully. We are even more heartened by the moves of iwi and hapū to examine and explore their own mātauranga, and in doing so, inspired the crafting of chapters that we hope encourage journeys for others.

More than just a handbook – the process of people and cross-cultural collaboration

Te Reo o Te Repo – Kei konei tonu au reveals that nothing is ever truly lost. Knowledge recovery and its application, however, rely on three elements:

- rediscovery of knowledge is guided by tangata whenua
- leaders both within Te Ao Māori (Māori world view) and Te Ao Pākehā (mainstream world view) with the patience, trust, and understanding to continue the journey
- the support for collaboration to bring together the best teams of people to uncover knowledge appropriately.

Wetland Restoration – a handbook for freshwater systems focussed on wetland restoration from a biophysical perspective. *Te Reo o Te Repo – The Voice of the Wetland* was centred on reconnecting relationships between wetlands and people. *Te Reo o Te Repo – Kei konei tonu au* is about hope. It encourages us to recognise the importance of existing wetlands and to build on our remaining indigenous biodiversity and their habitats, by using our own mātauranga gifted to us from our tūpuna (ancestors), ngā taonga tuku iho o ngā tūpuna.



Profile of swamp habitats showing characteristic plants and animals.
Illustrations: Monica Peters

TE HAERENGA O NGĀ PUKAPUKA REPO DEVELOPING THE WETLAND HANDBOOK SERIES

Knowledge affiliation refers to those with whom the knowledge resides. For some projects this may focus on western science experts in wetland ecology. Ecology is the study of the relationships between living organisms and their physical environment to understand ecosystem functioning. It also includes more reductionist, bottom-up approaches where the repo is broken into its components to better understand how the 'bits work', e.g. different nutrient acquisition mechanisms of co-habiting species that enable each to thrive in nutrient-deficient conditions. Restoration best practice, through a western science lens, involves bringing the bits back together to re-instate appropriate biota, environment and their interactions.

Knowledge from a mātauranga Maori lens is often considered more inclusive and holistic by adding additional and different dimensions, e.g., practices, observations, and knowledge transfer that informs the interactions between people and place. There are tangible benefits for integrating both western science and cultural approaches to restoration, resulting in much enhanced outcomes for the health and well-being of our repo and our people.

Many restoration practitioners work to an invisible timer attached to what feels like a pressure cooker. We feel the urge to move fast, however our presence on this earth is also much shorter than the lifetime of the natural environments in which we are attempting to work. Trying to test or 'fix' something is constrained not only by the resources available, but also by the length of time it might take for a system to change in either a positive or negative way. For some processes this can take tens, or even hundreds of years, i.e. intergenerational. This can make the lifespan of an individual human researcher feel very insignificant in the greater scheme of things. Through the narrative of those who went before us, however, we do have the benefit of hindsight, an often-unappreciated gift.

As alluded to in the wetland handbook series, local knowledge is the key to better understanding how to navigate the challenges of restoration and protection of our repo. In this regard, those who hold centuries of connection to a landscape and its resources are important architects in building the necessary holistic evaluation and decision-making framework for those spaces. In other words, they hold the key to seeing the 'pieces' as a whole. We must ensure, though, that we do not presume we have a right to claim that knowledge on the basis that we think it will help.

Crafting the wetland handbook series has demonstrated that access to local – especially indigenous – knowledge comes through a careful process of relationship building that should not be time-bound. Developing meaningful relationships requires a long-term commitment from all parties, over multiple years, and involves patience, trust, and understanding.

Kaitiakitanga at work – community support for the lake environments, Te Hiku schools planting day, Lake Onepū, Te Tai Tokerau (Northland). Photo: © Rawhitiroa Photography



TE HAERENGA TIKA THE RIGHT PROCESS

Based on our collective experience, we have identified important elements for developing the wetland handbook series:

- Co-identifying a need for cultural knowledge – Māori wetland values
- Being clear with all parties about boundaries and expectations – the roles of everyone involved
- Building trust among ourselves, and with authors and contributors – the benefits of collaboration
- Having a shared vision – with authors and contributors in wetland restoration
- Ensuring equity in decision-making for how knowledge should be shared – controlled by authors and contributors
- Broadening the influence of the wetland handbook series – appealing to younger audiences (future kaitiaki) in our communities
- Evaluation and feedback of the wetland handbook series – monitoring the website and continued demand from the public.

Table 1 provides more detail of the journey taken to create the *Te Reo o Te Repo* cultural wetland handbook series.



Tauira from Taupiri School helping to restore their local Whangamaire Wetland, Waikato. Photo: Manaaki Whenua

Table 1: Te haerenga o ngā pukapuka repo – the journey of the *Te Reo o Te Repo* cultural wetland handbook series

Action	What did we do?	Who was involved?	Result
Co-identification of a need for cultural knowledge <i>Where to find stories from tangata whenua about their repo?</i>	<ul style="list-style-type: none"> • A cultural knowledge gap was co-identified 	<ul style="list-style-type: none"> • Waikato-Tainui technicians and tribal members • Manaaki Whenua wetland researchers • Authors and contributors – whānau, hapū and iwi, and researchers and scientists • External peer-reviewer and graphic designer 	<ul style="list-style-type: none"> • Co-produced cultural wetland handbooks: <i>Te Reo o Te Repo – The Voice of the Wetland</i> and <i>Te Reo o Te Repo – Kei konei tonu au</i>
Clarity about boundaries and expectations <i>Who does what, when, and why?</i>	<ul style="list-style-type: none"> • Discussions of intent for the cultural wetland handbooks with Waikato-Tainui • Formalised proposed outcomes • All boundaries and expectations were revisited at every stage 	<ul style="list-style-type: none"> • Waikato-Tainui technicians • Editing and design teams – both wāhine Māori and Pākehā with a shared passion for repo • Authors and contributors 	<ul style="list-style-type: none"> • Waikato-Tainui: acknowledging their role as co-designers of the <i>Te Reo o Te Repo</i> series • Editing and design teams: regular hui and clear communication • Authors and contributors: clear process of control over chapter content

Action	What did we do?	Who was involved?	Result
Building trust <i>What are the co-benefits of working together?</i>	<ul style="list-style-type: none"> Regular hui and clear communication Agreed on control of process: authors control over chapter content and intent; editors/ design team ensure consistent format and style Recognised author contributions with a koha (gifting) of a printed hardcopy 	<ul style="list-style-type: none"> The editing and design teams Authors and contributors 	<ul style="list-style-type: none"> For some authors and contributors: their chapter was their first publication For others: the handbook provided much recognition that they were not alone on their journey The collaboration resulted in cultural wetland handbooks that were relatable to a wider audience
A shared vision <i>Why, and for whom are we doing this?</i>	<ul style="list-style-type: none"> Created a space to share kōrero Reached out to whānau, hapū and iwi undertaking wetland restoration Extending to researchers and scientists working in fields connected to wetland systems 	<ul style="list-style-type: none"> The editing and design teams Authors and contributors Feedback from readers and users of the wetland handbook series 	<ul style="list-style-type: none"> Important for readers to see themselves in the content Promoting stories 'through the voices of authors' and 'the voices of their people and cultural landscapes'
Equity in decision-making, particularly knowledge sharing <i>Who decides what?</i>	<ul style="list-style-type: none"> Co-identified ideas and aspirations with authors and contributors Ensured authors and contributors controlled the sharing of what (knowledge) and how (language) Shared priority-setting within editing team based on feedback of previous wetland handbooks 	<ul style="list-style-type: none"> The editing and design teams Authors and contributors Feedback from readers and users of the wetland handbook series 	<ul style="list-style-type: none"> Ensured authors and contributors had full control over their chapters: content (knowledge and language), images, and layout Permissions sought with relevant owners of copyright and intellectual property Lead authors were first point of contact
Broadening the influence of the wetland handbook series <i>What other ways can these stories be shared?</i>	<ul style="list-style-type: none"> Transformed knowledge for educational purposes – appeal to younger audience 	<ul style="list-style-type: none"> The editing and design teams Authors and contributors Science educators – Science Learning Hub Maori educators and translator Feedback from kura and kaiako 	<ul style="list-style-type: none"> Developed a suite of bilingual digital educational wetland resources from a Te Ao Māori perspective Suitable for kura kaupapa Māori (Māori language immersion) and mainstream schools throughout Aotearoa Ensured relevant authors and contributors were involved to guide and support development Permissions sought with relevant owners of copyright and intellectual property
Evaluation and feedback of the wetland handbook series <i>How do we know we have hit the mark?</i>	<ul style="list-style-type: none"> The wetland handbook series are available online and free to download. Monitoring web page usage and collection of statistical data suggests regular activity Hard copies of the wetland handbook series are distributed to tribal members, wetland managers, government agencies, and community groups. 	<ul style="list-style-type: none"> Whānau, hapū, iwi, and tribal members Wetland landowners and managers Wider public of Aotearoa 	<ul style="list-style-type: none"> Enhanced health and well-being of repo and associated communities as a result of using the wetland handbook series Greater appreciation and understanding of cultural wetland values Demand for reprinting of the handbook series

WHERE TO NEXT?

Our role as the editing team was to promote and raise awareness of wetland values through sharing Māori knowledge, perspectives, priorities and aspirations, and restoration approaches from kaitiaki (guardians) and kairangahau (researchers) around the motu (country). More recently, collaboration with Pokapū Akoranga Pūtaiao (Science Learning Hub), a team of experienced web-based science educators, produced a suite of bilingual digital educational wetland resources drawn extensively from Māori-led wetland research in the *Te Reo o Te Repo* cultural wetland handbook series. The Hub team were actively seeking opportunities to showcase mātauranga Māori driven science research to meet the growing demand from kaiako (teachers) to understand Te Ao Māori relating to Te Ao Tūroa (the natural world). Our purpose was to create resources that enable understanding of wetland ecology, connect kura (schools) to their local repo, and increase engagement with science in partnership with mātauranga Maori. Such understanding and involvement will encourage kaiako, taura (students), and whānau to become effective kaitiaki of repo in Aotearoa.

The continual sharing of wetland cultural narratives belongs now to the champions of future wetland restoration projects – our tamariki (children), mokopuna (grandchildren), rangatahi (youth), kaitiaki and local communities. Never underestimate the wisdom of our younger generation – they absorb and observe more than we realise. When designing hui (gatherings) with tangata whenua, and with the guidance of the hapū, whānau and iwi, make sure tamariki and rangatahi are accommodated and engaged in the discussions.

For those seeking to help communities play a stronger role in the decision-making for wetland restoration and protection, we return to this guiding whakatauaiki (proverb):

*Mehemea ka moemoeā ahau,
ko ahau anake. Mehemea ka
moemoeā tātou, ka taea e tātou*

If I dream, I dream alone. If we dream together, we can achieve

Princess Te Puea Herangi (Waikato)

The importance of developing a wetland handbook series became obvious for a number of communities – both Māori and Pākehā. This wetland series enabled us to capture the shared narratives and experiences of all parties and create resources that told the story of our repo more equitably. We could not have achieved our vision without the many whānau, hapū and iwi, and experts (both Māori and Pākehā) who offered to contribute to this kaupapa (project). Our repo were calling for help and we have tried to raise their voices, either through the voices of their affiliated people, or the voices of the plant and animal species that are dependent on these repo.

*Our repo are still here...
they are worth fighting for!*



Hon. Eugenie Sage, Minister of Conservation 2017-2020, visits taura at Taupiri School, Waikato, to discuss the importance of wetlands and their restoration. Photo: Manaaki Whenua

WANT TO LEARN MORE?

Note: If you are having problems with the hyperlinks below try copying and pasting the web address into your browser search bar.

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Useful websites

Essential Freshwater package

<https://environment.govt.nz/what-government-is-doing/areas-of-work/freshwater/e/freshwater-reform>

National Policy Statement for freshwater management

<https://environment.govt.nz/acts-and-regulations/national-policy-statements/national-policy-statement-freshwater-management>

Educational resources

EnviroSchools

<https://enviroschools.org.nz>

Fish and Game

<https://fishandgame.org.nz/education/wetlands-activities>

Manaaki Whenua

<https://www.landcareresearch.co.nz/discover-our-research/biodiversity/species-and-ecosystem-conservation/restoring-wetland-ecosystem-functioning>

National Wetland Trust

<https://www.wetlandtrust.org.nz/what-we-do/resources>

Science Learning Hub – Pokapū Akoranga Pūtaiao

Resources in te reo Māori
<https://www.sciencelearn.org.nz/images/4473-tuihonoa-te-reo-o-te-repo>

Resources in te reo Pākehā

<https://www.sciencelearn.org.nz/resources/3001-repo-wetlands-a-context-for-learning>

Te Papa Atawhai

<https://www.doc.govt.nz/get-involved/conservation-education/resources/wetland-life>

Whitebait Connection

<https://www.whitebaitconnection.co.nz>

Contact details for Yvonne Taura

Email: tauray@landcareresearch.co.nz