

# INTRODUCTION

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Repo (wetlands), also known as reporepo, poharu, and roto, are regarded by Māori as taonga with historical, cultural, economic, and spiritual significance. Repo can also be reservoirs for mātauranga (knowledge), wellbeing, and utilisation. They are mahinga kai (food gathering sites) used by local marae (Māori social and cultural centres), whānau (families), hapū (subtribes), and iwi (tribes), and provide significant habitats for a range of taonga (culturally important) plants, animals, fish, birds, reptiles, insects, and micro-organisms. In addition, many repo contain a variety of culturally important medicinal plants for rongoā (Māori medicinal use).

Mallard ducks in flight at Te Pūaha o Waikato, Port Waikato.  
Photo: Cheri van Schravendijk-Goodman



In the last 150 years, more than 90% of repo in Aotearoa New Zealand have been destroyed, and remaining repo are under threat from land modification and other human activities. Māori are becoming increasingly aware of the dire state of repo and this has resulted in many hapū and iwi-led projects centred on the restoration of repo within their rohe (region).

*Te Reo o Te Repo: The Voice of the Wetland*, highlights a range of mahi (work) undertaken by whānau, marae, hapū, and iwi to increase the health and wellbeing of their repo.

The handbook includes processes to facilitate renewed and vibrant connections between whānau and their repo, understanding of cultural resources, and learnings from case studies on repo restoration, cultural indicators, and monitoring – all led by or in collaboration with tangata whenua (indigenous people).

The articles are written by kairangahau Māori (Māori researchers) and environmental managers, as well as researchers who work with iwi and hapū partners. The handbook aims to provide best practice techniques for the enhancement and protection of cultural wetland values to share with tangata whenua throughout the motu (country). It will also help local authorities, research providers, and community groups understand the cultural priorities for repo restoration.

The handbook is a web-based resource, which is intended to be a living document, and supports and enhances the [Wetland Restoration Handbook](#) developed in 2010. In the future, other mahi can be added where whānau, marae, hapū, and iwi can share their stories on repo restoration. The current articles are only a small sample of the range of mahi occurring throughout the motu.

Weavers hui, Te Kaha. Photo: Sue Scheele



## HOW TO NAVIGATE AND USE *TE REO O TE REPO*

### Handbook structure

The articles in *Te Reo o Te Repo* are a small sample of research, contributed by researchers from all over the motu. This edition has many examples from the Waikato region, to the result of a long-standing research partnership between Waikato-Tainui and Manaaki Whenua – Landcare Research. However, research topics from other areas of the motu are also included to provide readers with a broad range of wetland restoration activities. From Northland to the deep South, whānau, marae, hapū and iwi, and kairangahau Māori are working together to enhance cultural priorities for repo restoration. Each article discusses the personal journey taken by the kairangahau and the whānau involved, to promote the connections, understanding, and learnings for the restoration of their repo. The handbook is divided into three sections.

Whitebait spawning habitat restoration Mangatī Stream, Te Pūaha o Waikato. Photo: Cheri van Schravendijk-Goodman

### Section One:

#### Process of engagement – 'Kapu tī'

Environmental restoration work in Aotearoa cannot be undertaken without involving tangata whenua, as the indigenous people whose culture and identity come from the land (hence 'people of the land'), and who have existed within the local environment for many generations. However, making the first step to engage with people from another culture and with a different worldview can be a daunting experience. This section explores some ways kairangahau and whānau, marae and hapū have navigated the initial steps, and the valuable outcomes of those interactions and developing relationships.



Pre-restoration visit to Maurea Islands with local kaumātua.  
Photo: Paul Champion



## Section Two: Cultural Resources

Many things – living and non-living – can be considered to be cultural resources. In the context of *Te Reo o Te Repo*, these are naturally sourced materials associated with repo, which are considered valuable by tangata whenua and are incorporated into the local culture. Articles in this section include taonga (culturally significant) plants for eating – wātakirihi (watercress), and weaving – kuta (giant spike sedge) and harakeke (NZ flax); and a range of fish, birds, and even invertebrates (e.g. insects or microscopic animals) that are highly regarded by tangata whenua.



Pā harakeke. Photo: Sue Scheele

## Section Three: Tools and Approaches

### Tools

The use of herbicides for the removal of unwanted plants within the natural environment can be a controversial approach to restoration. Considerations for the use or non-use of herbicides in repo restoration projects according to the whakaaro (philosophy) of the whānau, marae, hapū, and iwi can be explored collaboratively with research providers. This section investigates some of the work that has been undertaken in this area with the involvement of tangata whenua.

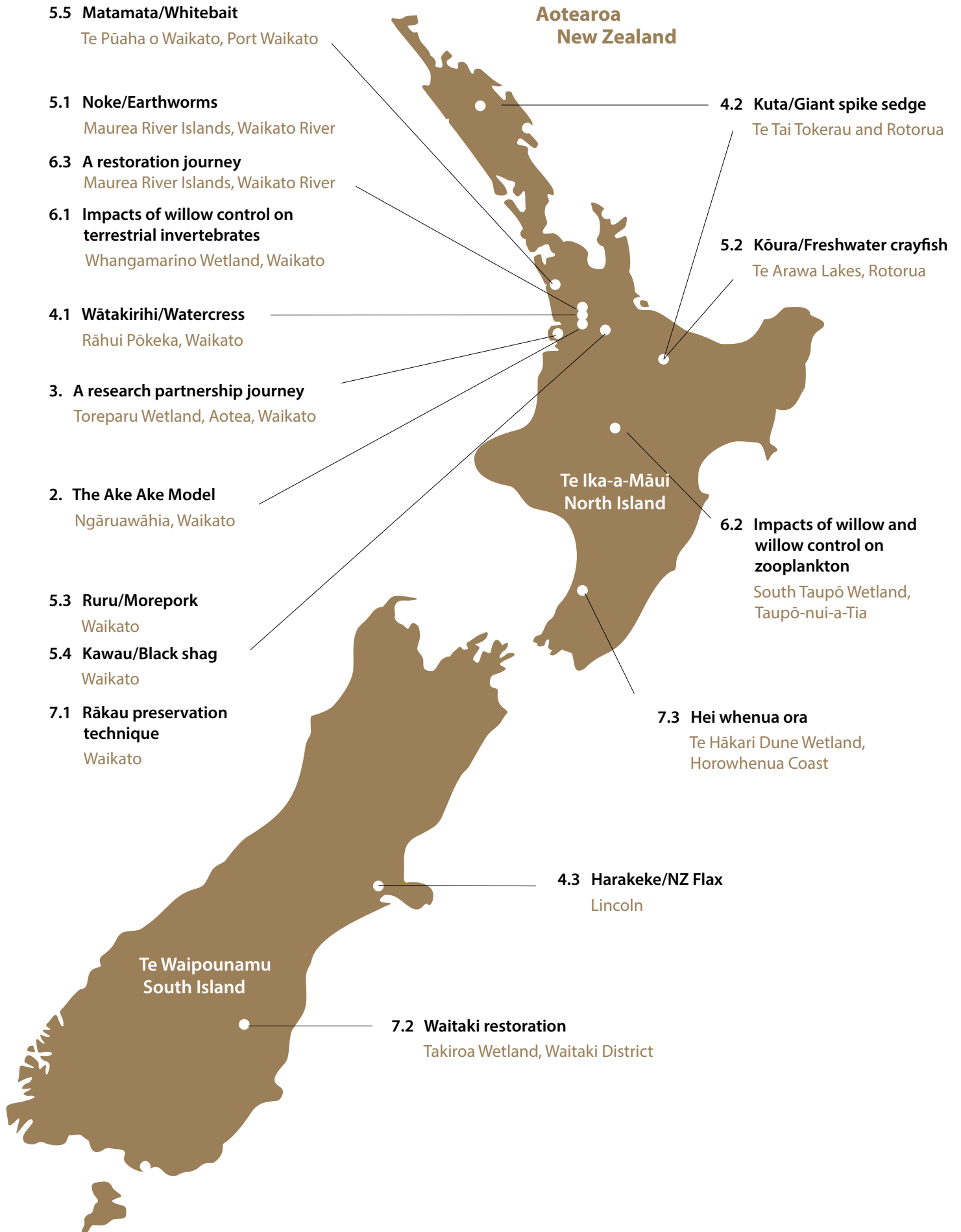
### Mātauranga Māori – Māori knowledge

Mātauranga Māori (Māori knowledge) is a multifaceted knowledge system that reflects an understanding of the world from an indigenous cultural perspective and is intimately linked through whakapapa (connections to place and natural resources). This section explores the application of mātauranga Māori and whakapapa for the restoration of repo by tangata whenua.

Wetlands along Waikato River margin, Te Pūaha o Waikato.  
Photo: Cheri van Schravendijk-Goodman



# HOW OUR STORIES CONNECT ACROSS THE LANDSCAPE



## MĀORI CONVENTIONS USED THROUGHOUT THE HANDBOOK

**Haimona Waititi (Te Whānau-a-Apanui, Ngāti Porou, Ngāi Tahu)**

### Official languages of New Zealand

Throughout the handbook, we have used both te reo Māori and English as they are official languages of Aotearoa New Zealand. A comprehensive glossary of all Māori terms used throughout the handbook can be found at the end of the handbook.

### Bi-lingual names of government agencies

Most government departments and agencies throughout Aotearoa have bilingual names. Throughout the handbook, the Māori name has been used in preference of the English name, for those organisations with registered bilingual trade names. Within the articles the abbreviated version of the organisation may also be used. Agencies with bilingual trade names:

- Manaaki Whenua – Landcare Research/LR
- Te Papa Atawhai/Department of Conservation/DOC
- Āta mātai, mātai whetū/AgResearch
- Taihoro Nukurangi/National Institute of Water and Atmospheric Research/NIWA
- Te Whare Wānanga o Waikato/University of Waikato/UoW

### Flora and fauna species

The Māori names for native flora and fauna species have been used in preference to common and scientific names. A comprehensive glossary of all flora and fauna species used throughout the handbook can be found at the end of the handbook.

### Whakataukī – Proverbs

For many of the articles within the handbook, we have used Māori proverbs called whakataukī or whakatauākī, which are sayings that reflect the thoughts, values, and advice of past generations. They are usually very succinct and often use metaphor to convey key messages. Proverbs are important to the revival of the Māori language – they have flair, imagery, and metaphor embodying the uniqueness of the language. Māori proverbs comment on many aspects of Māori culture, including history, religious life, conduct, ethics, land, warfare, love, marriage, and death. While, some sayings refer to cultural practices or attributes that have since changed or no longer exist, most can be adapted and applied to present-day situations. The Māori proverbs chosen for selected articles within the handbook, help highlight the importance of the topic from a cultural perspective.

Ō Tū Wharekai Wetland, Ashburton Lakes District.  
Photo: Beverley Clarkson



### Tribal affiliations

Māori, the indigenous people of Aotearoa, have a holistic worldview that respects and acknowledges the environments to which they are connected. One of the environments on which Māori place great importance is the natural world. Māori will identify themselves through their connection to an ancestral maunga (mountain), awa (river), moana (ocean), waka (canoe), hapū, iwi, and tūpuna (ancestors) before their own name.

This is known as a pepeha (formulaic tribal identity expression). Because of this symbiotic relationship, the role Māori play as kaitiaki (guardians) is of great importance.

The authors of this handbook have their tribal affiliations following their name rather than their professional title, as you might find in other handbooks of similar format. This is intended to recognise that these authors are first and foremost indigenous to Aotearoa and therefore are upholding their role as kaitiaki. Fortunately, most of our contributors have found employment with research institutions or organisations tasked with environmental management, to allow further expression of their roles as kaitiaki. Their professional title, however, is not at the centre of who they are.

### Tribal dialect

Māori are a tribal people. Each tribe is unique on many levels. These unique characteristics are historical and have developed over time. They can extend from dialectal language differences to tikanga (customs) and are anchor points for tribal identity and mana motuhake (independence, self-determination).

Each of the author's research has remained in the language and dialects that they have chosen to use, and for this reason, no attempts have been made to standardise the Māori terms used across this handbook. Because of these tribal differences, different tribes have different dialects that are used in the handbook. For example, Waikato-Tainui (tribal people of the Waikato region) use double vowels instead of a macron (which is the more common way of writing), i.e. whaanau instead of whānau, hapuu instead of hapū. This style of writing does not change the meaning of the term. Taranaki (tribal people of the Taranaki area) are known for their 'dropped' or aspirated 'h'. Having different names for the same species of plants and animals is also common among tribes – whitebait has many different names throughout the country: matamata, inanga, inaka, karohe, etc.

These differences are acknowledged in this handbook in recognition of the mana motuhake of each tribe.

Tupuna salute, te tira hoe o Waikato, Te Pūaha o Waikato, 2015.  
Photo: Waikato Raupatu River Trust



## TERMINOLOGY

**Beverley Clarkson and Cheri van Schravendijk-Goodman**

Terminology and jargon are everywhere, particularly within the ecological restoration space. Although, the majority of us may be able to communicate in English, it doesn't mean that we actually understand each other! This can definitely be the case when different cultures meet to work on a shared kaupapa (matters for discussion) or take (issue), and even across different research disciplines.

A good example where we can all trip each other up is when we refer to the origin of a species:

- **Native** refers to an organism that is indigenous to, or originating from a given area, in this case Aotearoa New Zealand
- **Exotic** refers to an organism from another country but can sometimes also refer to an organism that comes from another region within Aotearoa. Other similar terms include introduced, alien, non-indigenous and non-native. It is important that everyone becomes clear on which definition applies at the start.

These definitions can be complicated further when references are then made as to whether a species is:

- **Endemic** means that the organism occurs naturally (native) only in Aotearoa or some part of Aotearoa
- **Invasive** is the introduction of an exotic (in most cases) organism, which has the potential to spread and cause harm to human health, the economy and the environment.

Sometimes the words 'pest' or 'weed' are also used in a similar context to 'invasive'. Depending on the situation and goals of the restoration programme, there can be subtle differences:

- A **weed** is usually defined as a plant that is not wanted and requires some type of intervention to remove it. Weeds are mainly exotic species but they can also be native
- A **pest** is more general and refers to both plants and animals (usually insects or small animals). Again, it generally means an organism that is not wanted, and may require some intervention to manage.

Pests and weeds may also be invasive, which can require significant funds to manage, to eradicate, and to repair the damage they have created. It is also important to remember, that something that might be considered a weed or pest to one person or group, may not necessarily mean the same thing to another.

In some situations, 'weedy' or 'pest' organisms may be valued as a culturally important kai (food), e.g. puha (sow thistle) or morihana (common gold fish). Some invasive species may have also held historical value such as the brown bull-headed cat fish which was considered to be an important food item to some Waikato kaumātua (elders) when 'native trout' (adult whitebait) become harder to source.

An exotic tree that is high on the list for recommended control along freshwater systems: alder (or 'rākau Pākehā' as they called it), has an interesting cultural history along the Waikato River, where it was once a source of income for local tangata whenua who worked on the river barges. The trees were harvested to fuel the barges because they can be burnt green (freshly harvested) at high heats. This does not mean that tangata whenua in the area prefer the alder over a stand of kahikatea or native reed bed.

However, understanding the history of an organism (whether exotic or native) opens the door for enhancing understanding of our shared values; provides for greater shared learnings; and may even provide clues as to how these organisms could be better managed and utilised.



Towing barge of harakeke (NZ flax) on the Waikato River near Churchill, Waikato c. 1900. Photo: Sir George Grey Special Collections, Auckland Libraries, AWNS-19000413-6-2



**Examples of native versus exotic plants**

Native plants	
<p>Pūrekireki, pūrei Swamp sedge <i>Carex secta</i> and <i>C. virgata</i></p> <p><i>Carex secta.</i> Photo: Beverley Clarkson</p>	
<p>Ūpoko-a-tangata Giant umbrella sedge <i>Cyperus ustulatus</i></p> <p><i>Cyperus ustulatus.</i> Photo: Wayne Bennett</p>	
<p>Kōwhitiwhiti, poniu, panapana Native watercress <i>Rorippa palustris</i> and <i>R. divaricata</i></p> <p><i>Rorippa palustris.</i> Photo: Jeremy Rolfe</p>	

Exotic plants	
<p>Yellow sedge <i>Carex demissa</i> Grey sedge <i>C. divulsa</i></p> <p><i>Carex demissa.</i> Photo: Trevor James</p>	
<p>Umbrella sedge <i>Cyperus eragrostis</i></p> <p><i>Cyperus eragrostis.</i> Photo: Jeremy Rolfe</p>	
<p>Wātakirihi Common watercress <i>Nasturtium officinale</i> and <i>N. microphyllum</i></p> <p><i>Nasturtium officinale.</i> Photo: Jon Sullivan</p>	

When developing a restoration plan for a repo, it is important then to ensure that all partners understand the values that each may place on an organism, and in turn, what that might mean to the overall restoration goals, objectives and aims. Good relationship building is also about building an understanding of the local social and cultural history of an area so that restoration can more effectively meet the full gambit of aspirations for that community. It is also worth considering the development of a 'common language dictionary' or 'values' glossary as a referral document for the current partners, which can also help those entering the partnership in the future.

**Posters for the classroom or office**


**Māori values and wetland enhancement**

Posters that focuses on Māori values and repo enhancement are included in the handbook, which highlight:

- Māori values – concepts and perspectives
- Māori environmental monitoring – process and indicators
- Māori classification and species

The posters include concepts, monitoring tools and approaches, and a list of taonga species from a cultural perspective. Most of these concepts are discussed in detail throughout the handbook.

The posters are designed to be printed at A2 size for the wall and are included in the handbook.



## 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.

### References

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Harmsworth GR 2007. *Māori values and wetland enhancement: 1. Māori values – concepts and perspective (Revised edition)*. FRST funded programme: Maintaining and restoring wetlands (C09X0508). Palmerston North, Landcare Research.

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Harmsworth GR 2007. *Māori values and wetland enhancement: 2. Māori environmental monitoring – process and indicators (Revised edition)*. FRST funded programme: Maintaining and restoring wetlands (C09X0508). Palmerston North, Landcare Research.

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Harmsworth GR 2007. *Māori values and wetland enhancement: 3. Taonga classification and species (Revised edition)*. FRST funded programme: Maintaining and restoring wetlands (C09X0508). Palmerston North, Landcare Research.

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Howell C 2008. *Consolidated list of environmental weeds*. Department of Conservation Research & Development Series 292. Accessible from [www.doc.govt.nz/documents/science-and-technical/drds292.pdf](http://www.doc.govt.nz/documents/science-and-technical/drds292.pdf)

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Te Taura Whiri i te Reo Māori 2012. *Guidelines for Māori language orthography*. Te Taura Whiri i te Reo Māori. Wellington, New Zealand.

### Useful websites

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Department of Conservation  
[www.doc.govt.nz/nature/native-plants/wetland-forests](http://www.doc.govt.nz/nature/native-plants/wetland-forests)

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Ducks Unlimited NZ  
[www.ducks.org.nz](http://www.ducks.org.nz)

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Fish and Game New Zealand  
[www.fishandgame.org.nz/wetlands](http://www.fishandgame.org.nz/wetlands)

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National Wetland Trust of New Zealand  
[www.wetlandtrust.org.nz/Site/Why\\_Wetlands](http://www.wetlandtrust.org.nz/Site/Why_Wetlands)

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New Zealand Plant Conservation Network  
[www.nzpcn.org.nz](http://www.nzpcn.org.nz)

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Wetland Restoration Handbook  
[www.landcareresearch.co.nz/publications/books/wetlands-handbook](http://www.landcareresearch.co.nz/publications/books/wetlands-handbook)

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Check the websites of your local Regional and District Councils and local marae, hapū, and iwi websites