**ACTIVITY: Wetland (repo) connections – ecological and cultural perspectives**

**Activity idea**

In this activity, students use a local wetland (repo) to explore environmental factors and explore cultural perspectives using the Ake Ake model.

By the end of this activity, students should be able to:

* identify a few of the key species in a local wetland or a wetland of interest
* identify some of the characteristics of the wetland that support or influence these species
* look for species’ connections across wetland, dry land and open-water habitats
* consider cultural perspectives and connections with wetlands.

# For teachers

## Introduction/background

Wetlands (repo) are the ‘in between’ places that connect the water with the land so they serve as both aquatic and terrestrial habitats. These natural systems overlap and interact with each other. For example, [ruru](https://www.sciencelearn.org.nz/resources/2993-ruru-and-repo-restoration) are most often associated with upland forests, but they whakapapa to repo too. [Inanga/matamata](https://www.sciencelearn.org.nz/resources/442-whitebait) is another example of a species that has overlapping habitats – freshwater and the open sea.

For some plant and animal species, wetlands are their niche habitat – they cannot survive anywhere else. For example, [Fred the Thread](https://www.sciencelearn.org.nz/images/4302-kopuatai-peat-dome) is a very small caterpillar that is reliant on cane rush (*Sporodanthus ferrugineus*), a bog plant found only in mature peatlands in the Waikato region of Aotearoa.

For Māori, repo connections began centuries ago with the naming of species and landmarks. These connections created mātauranga, tikanga and kupu associated with kaitiaki of the resources within the repo.

As iwi and hapū, landcare groups and others work to restore wetlands, it is important to consider both the ecological and cultural connections. Restoration is rarely about a single species – it is about discovering and enhancing ecosystem relationships. Restoration is also knowing about the plants and animals that were there before and long-term planning and priorities for the future.

***Background resources***

The following resources have information about wetland ecosystems from both scientific and cultural perspectives:

* [Wetlands](https://www.sciencelearn.org.nz/resources/2990-wetlands)
* [Wetland restoration](https://www.sciencelearn.org.nz/resources/2991-wetland-restoration)
* [Cultural indicators for repo](https://www.sciencelearn.org.nz/resources/2992-cultural-indicators-for-repo)
* [Ruru and repo restoration](https://www.sciencelearn.org.nz/resources/2993-ruru-and-repo-restoration)
* [Monitoring kōura](https://www.sciencelearn.org.nz/resources/2994-monitoring-koura)
* [Wetland plants](https://www.sciencelearn.org.nz/resources/2995-wetland-plants)
* [Wetland animals](https://www.sciencelearn.org.nz/resources/2996-wetland-animals)
* [Te whakamahi i ngā rauemi o Tuihonoa *Te Reo o Te Repo* hei whakarite ara whakaako](https://www.sciencelearn.org.nz/image_maps/96-te-whakamahi-i-nga-rauemi-o-tuihonoa-te-reo-o-te-repo-hei-whakarite-ara-whakaako)
* [Peat bogs in the Waikato](https://www.sciencelearn.org.nz/resources/716-peat-bogs-in-the-waikato)
* [Fred the Thread](https://www.sciencelearn.org.nz/images/4302-kopuatai-peat-dome)
* [Wetlands – the river’s kidneys](https://www.sciencelearn.org.nz/resources/426-wetlands-the-river-s-kidneys)
* [Protecting estuaries](https://www.sciencelearn.org.nz/resources/1233-protecting-estuaries)
* [Wetland type habitats worksheet](#StudentsWorksheet)
* [Wetlands](https://teara.govt.nz/en/wetlands) – Te Ara
* [Wetlands](https://www.doc.govt.nz/nature/habitats/wetlands/) – Department of Conservation page
* [Types of wetlands](https://www.wetlandtrust.org.nz/what-we-do/resources/types-of-wetlands/) – National Wetlands Trust
* [Safe places, healthy waters, healthy people](https://static1.squarespace.com/static/58ddbd76e6f2e1241f58acd7/t/5da4eb534c18b6612f3f566a/1571089314138/P%C5%ABniu+River+Care+Inc+Restoration+Guide_English+FINAL.pdf) – Pūniu River Care Inc.

## Teaching suggestions

1. Use the interactive [Wetland ecosystem connections](https://www.sciencelearn.org.nz/image_maps/97-wetland-ecosystem-connections) to introduce the connections between aquatic, wetland and terrestrial ecosystems.
2. Use the [Wetland type habitats worksheet](#StudentsWorksheet) to explore some of the plants and animals associated with particular wetland ecosystems.
3. Choose either a local wetland or a wetland of interest to research.
4. Work through ecosystem and cultural connections suggestions that follow.

*Exploring ecosystem connections*

1. Concepts to consider include:

* the living organisms that are part the wetland ecosystem (biotic factors)
* non-living elements such as water source, pH and nutrient levels that shape the wetland system (abiotic factors)
* the relationships between these factors that influence habitat
* the relationships between these factors that influence food webs
* how dry land and open-water connections shape parts of the wetland ecosystem.

1. Use this information to:

* create a diagram that shows connections between species that live in a local wetland
* draw a food web for the wetland
* create a diagram that shows connections species may have that cross over open-water, wetland and dry land habitats.
* draw food webs that connect species within these different habitats.

***Exploring cultural connections***

1. Use the Ake Ake model to explore cultural perspectives. The model looks at how whānau lived in the past, the present situation and what they want the future to look like. The model considers five components: environmental, economic, cultural, social, and health and wellbeing.

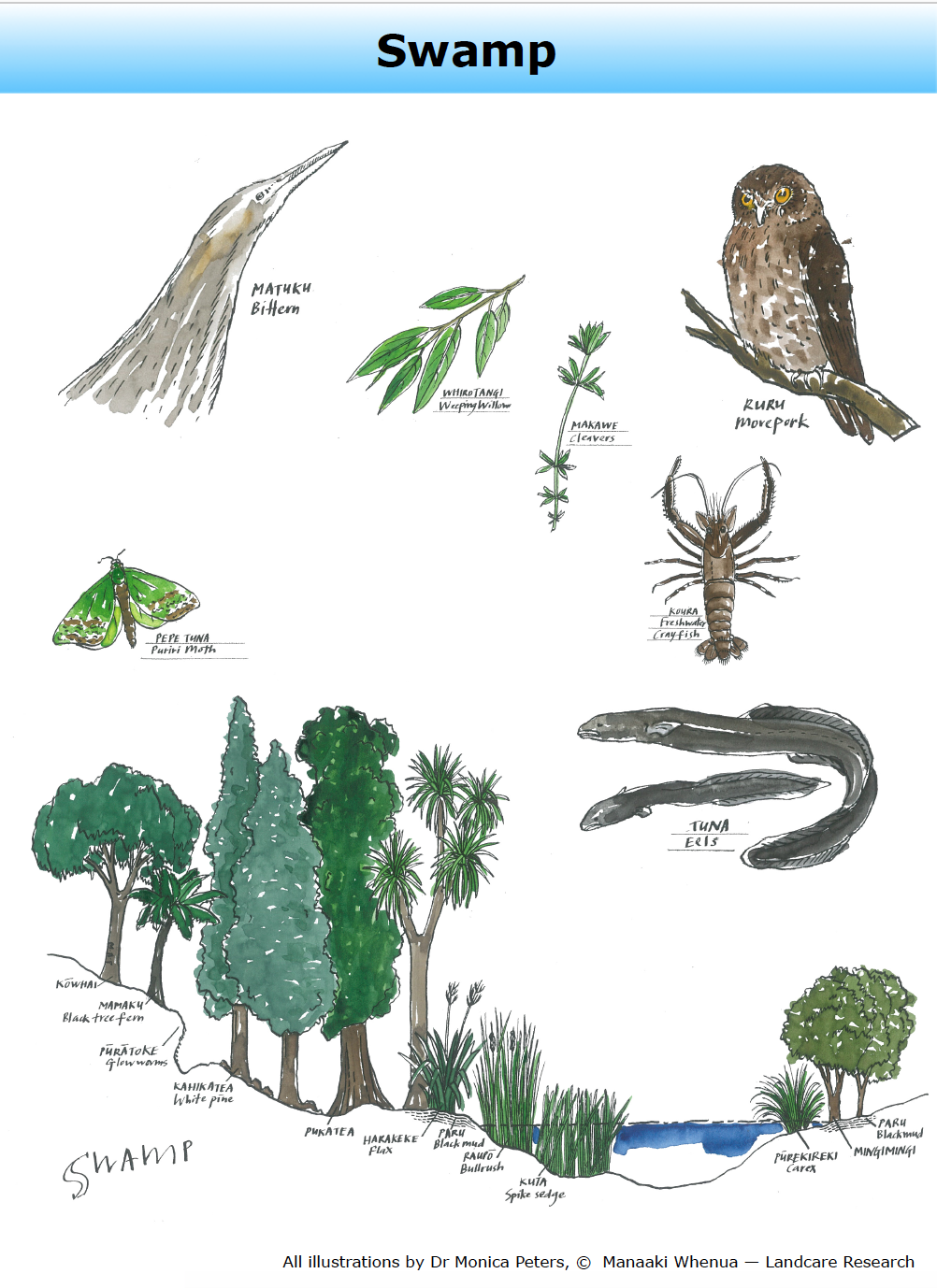
These resources provide a culturally responsive approach and additional background information.

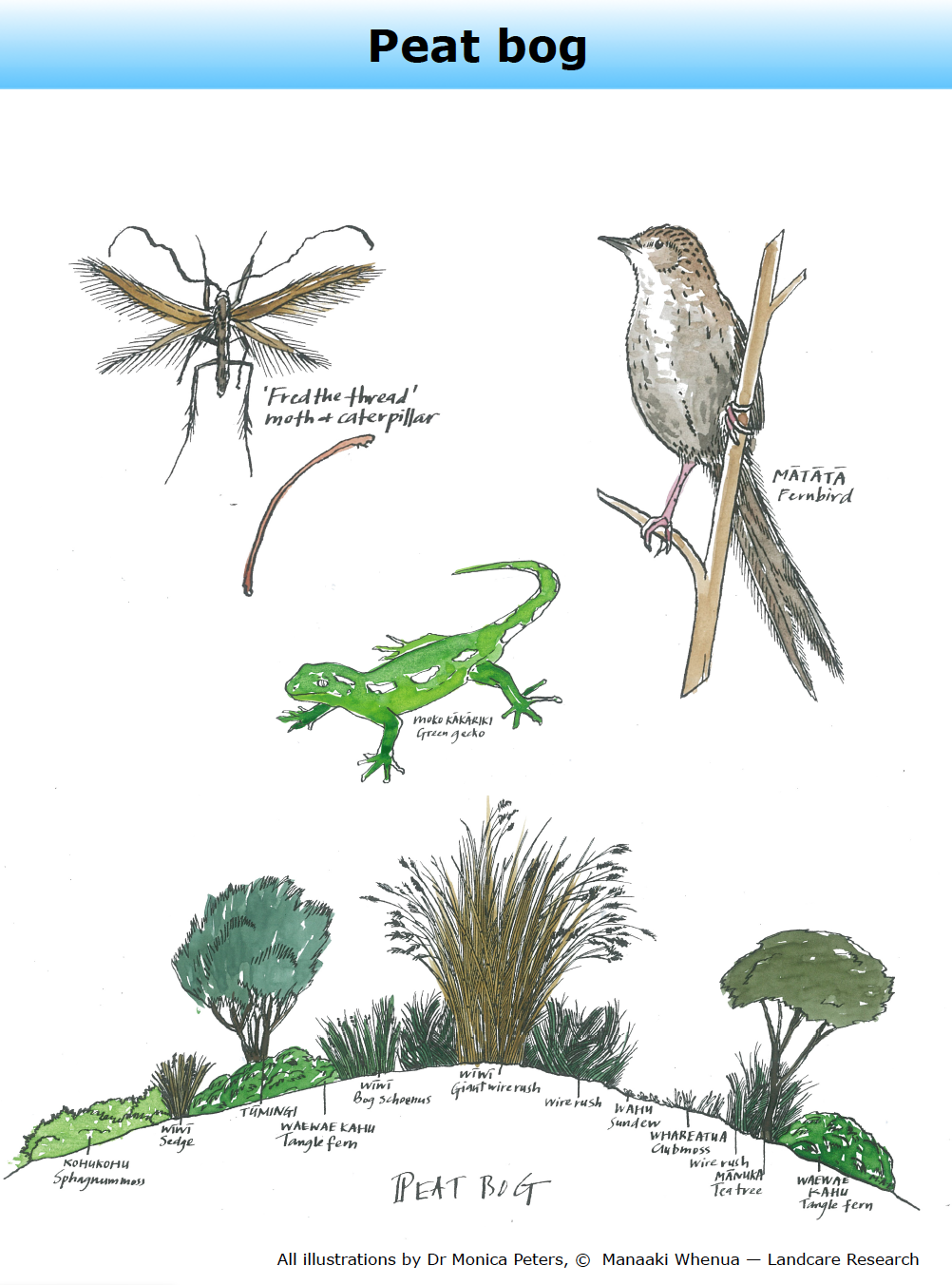
* [Model for identifying cultural indicators](https://www.sciencelearn.org.nz/resources/438-model-for-identifying-cultural-indicators)
* [The Ake Ake model – forever and ever](https://www.landcareresearch.co.nz/uploads/public/Publications/Te-reo-o-te-repo/2_The_Ake_Ake_Model.pdf)

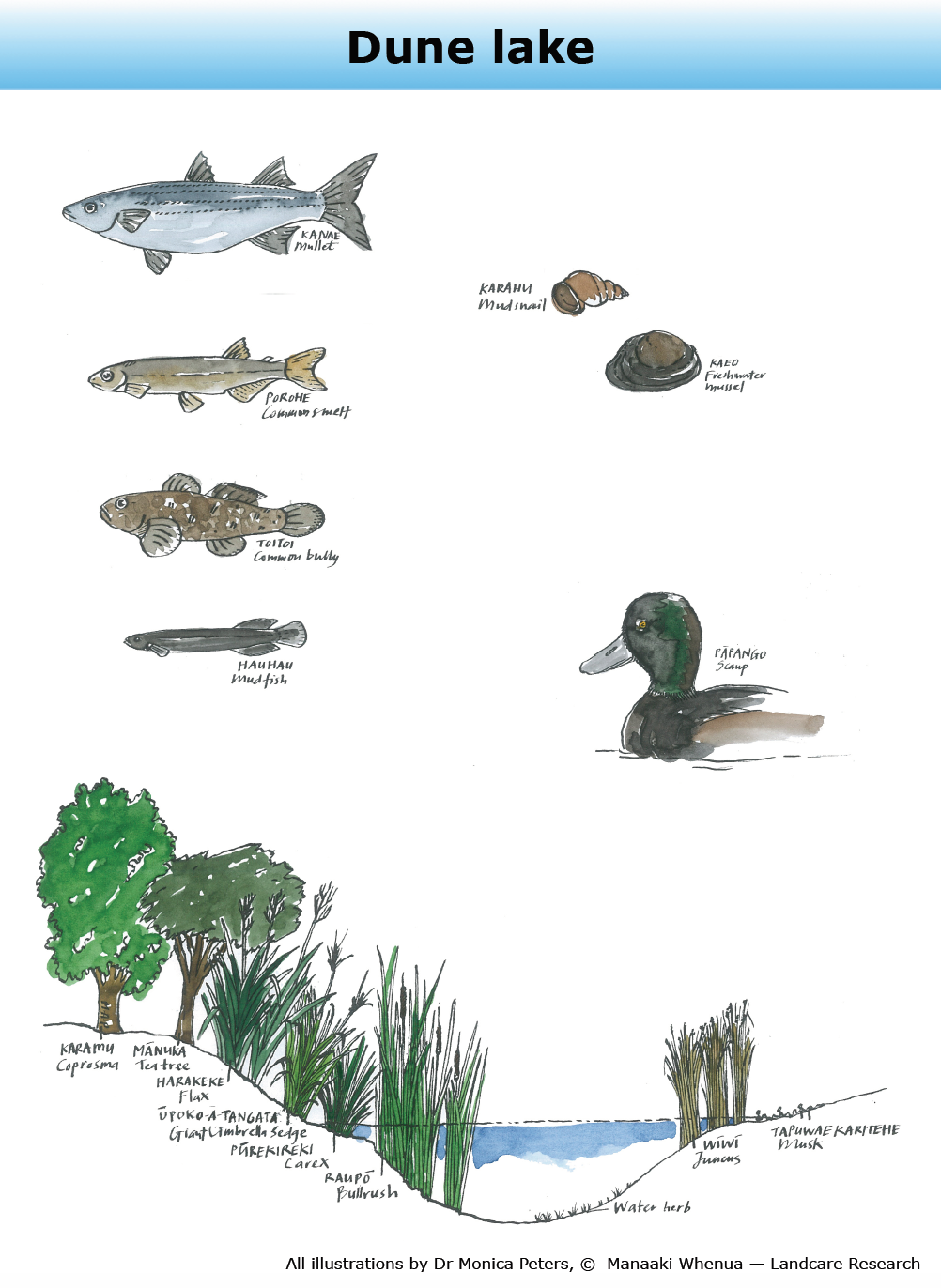
* [Ake Ake – forever and ever](https://www.sciencelearn.org.nz/resources/458-ake-ake-forever-and-ever) – activity
* [Mapping the future](https://www.sciencelearn.org.nz/resources/459-mapping-the-future) – activity

# For students

These illustrations show some of the common plants and animals that are found in wetland types in Aotearoa. (Illustrations are courtesy of Monica Peters.)



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