

## Planning pathways using native trees resources



This [interactive diagram](#) groups Hub resources into key science and teaching concepts. It provides a selection of pathways that allow for differing approaches and starting points. The aim is to assist educators with their planning of lessons and units of work by providing options that cover multiple science concepts. Click on the labels for links to supporting articles, media, data and student materials.

To sort and annotate these resources for later reference, log in and use our collections tool.

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## Transcript

### Uniquely New Zealand

Aotearoa New Zealand is unique in many ways. Geologic isolation has meant that our plants evolved alongside other unique species with no introductions of new species until humans discovered Aotearoa. Humans have only been able to impact/modify our forests for a few centuries. A rough and rugged landscape creating geographic isolation within the country has helped to keep some native ecosystems protected, allowing us a glimpse into our ecological history.



Tony Foster, *Bushmans Friend*

#### Related articles

- [Trees and ecosystems](#)
- [The uniqueness of New Zealand plants](#)
- [New Zealand's unique ecology](#)
- [How the Ice Ages spurred the evolution of New Zealand's weird and wiry native plants](#)

#### Related media

- [Ecology of New Zealand – video](#)
- [Tectonic plates – video](#)
- [Our changing ecosystems – timeline](#)

Image: Tony Foster, [Bushmans Friend](#)

### Ecosystems and interactions

New Zealand has a wide range of ecosystems, and trees play a major role in many of them. Ecosystems consist of all the living organisms in an area and the interactions between them and the physical environment. Interactions include key concepts such as energy transfer, interacting systems and cycles.



Geoff de Lisle

#### Related articles

- [Ecosystems](#)
- [Trees and ecosystems](#)
- [Honeydew ecosystem](#)
- [Insects and forest ecosystems](#)
- [Trees and natural cycles](#)
- [Kererū – our native pigeon](#)
- [Population biology](#)

#### Related media

- [Honeydew: The Food of the Ngahere – video](#)
- [Bird pollination in New Zealand – video](#)

- [Tūī feeding](#) – image
- [Male bellbird feeding](#) – image
- [Kererū feeding on kawakawa](#) – image

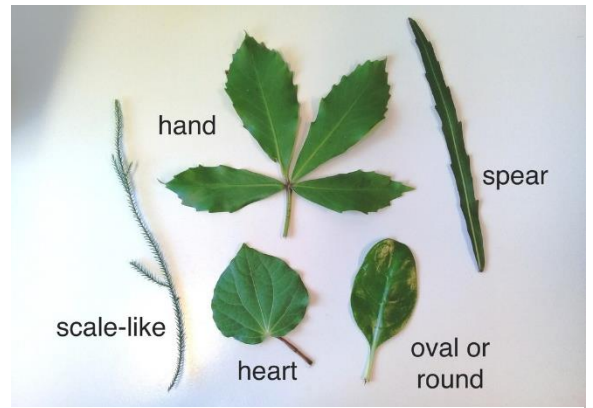
#### Related activities

- [New Zealand bush ecosystems](#)
- [Building homes for tree wētā](#)
- [Abiotic and biotic factors for takahē](#)

Image: Geoff de Lisle

### Classification and identification

All plants have certain characteristics that aid us with their classification and identification. Observing their physical features (leaves, bark, flowers and seeds) is a long-standing and useful method. Increasingly, DNA analysis is providing us with a deeper understanding of the evolution of plant species and the relationships between them.



*The University of Waikato Te Whare Wānanga o Waikato*

#### Related articles

- [Classification system](#)
- [He pūnaha whakarōpū | Classifying and identifying plants](#)
- [What is a tree?](#)
- [What is a plant?](#)
- [Identifying native plants](#)
- [Seed-bearing plants](#)

#### Related activities

- [Making a life-size leaf collection](#)
- [Native plant leaves – DIY classification system](#)
- [Insect mihi](#) (use the activity outline but substitute insects with tree species)

Image: The University of Waikato Te Whare Wānanga o Waikato

### Primary industries

Māori have known about the medicinal properties of native trees and plants for centuries. As modern science verifies the values of these properties, products from native trees have become global commodities.

Research is ongoing. Consumers are willing to pay extra for natural products with low environmental impacts. Growing native trees for primary industries appears to be good for local ecosystems and for the economy.



*cloud9works, 123RF Ltd*

Exotic trees form a major part of our horticulture exports. New Zealand research plays a significant role in the development of new fruit varieties.

## Native trees

### Related articles

- [Honey to heal – introduction](#)
- [Honeybees and Mānuka trees](#)
- [Mānuka plantations research for medical-grade honey](#)
- [From bees to bandages](#)
- [Mānuka – a natural weedkiller?](#)
- [Distilling oils and hydrosols](#)

## Exotic trees

### Related articles

- [Breeding red-fleshed apples – introduction](#)
- [Avocado pollination](#)

### Related media

- [Assessing apple attributes – interactive](#)

Image: cloud9works, 123RF Ltd

## Threats and diseases

Aotearoa New Zealand's native trees face a number of threats. Some threats, like deforestation and dieback due to possums, have been around for decades or more. Other threats are relatively new. New Zealand scientists are working to stop the devastation of diseases like kauri dieback and myrtle rust. Climate change and the disruption of weather patterns introduce the possibility of future threats, including forest fires.



Scion and Public domain

### Related articles

- [Fighting kauri dieback and Kauri dieback](#)
- [Myrtle rust](#)
- [Myrtle Rust Reporter](#)
- [Deforestation](#)
- [1080 – an overview](#)
- [Managing fire risk in the outdoors](#)
- [Invasive weeds and wildfires](#)
- [Low-flammability garden saves home](#)

### Related media

- [Kauri Dieback: Death in the Ngahere – video](#)
- [Detecting myrtle rust in New Zealand – interactive](#)
- [Rural fires – video](#)
- [Rural fire risk – interactive](#)

Image: Wildfire and myrtle rust images courtesy of Scion. Deforestation image, public domain.

## Citizen science

We are becoming more aware of our native forests and the valuable ecosystem services they provide. As a result, thousands of people regularly volunteer to help with restoration and other citizen science projects.

The following resources explore the science that underpins restoration.

### Related articles

- [Restoration](#)
- [Riparian restoration](#)
- [Planting stream edges](#)
- [Te whakatō otaota ki ngā tapa kōawa](#)
- [River islands](#)
- [Bringing back the birdsong](#)



Manaaki Whenua – Landcare Research

The following resources highlight some of the citizen science projects on the Hub.

### Related articles

- [Community conservation and a community nursery](#)
- [Mānuka – a natural weedkiller?](#)
- [Students help restore mauri to the Oruarangi Stream](#)
- [Can we make New Zealand pest-free? – introduction](#)

### Related activities

- [Environmental thinking and planning with ecosystem-based management \(EBM\)](#)

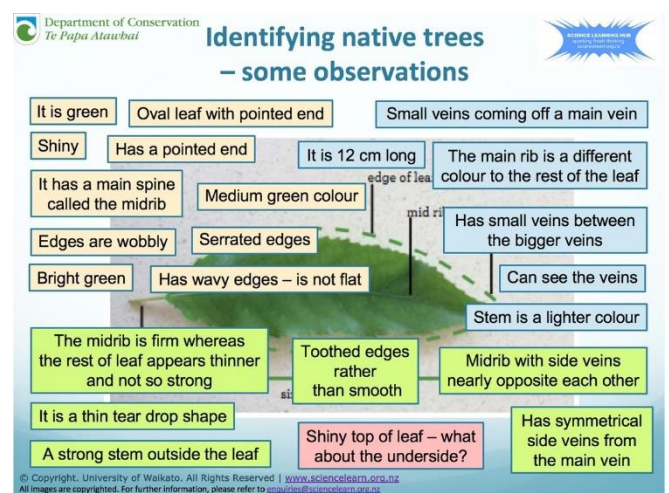
Image: Manaaki Whenua – Landcare Research

## Pedagogy webinars

The following professional development resources provide pedagogical advice and resources when using trees and/or conservation as a topic of learning or inquiry.

- [Our native trees – webinar](#)
- [Eco-explorers – webinar](#)
- [Eco-champions – webinar](#)
- [Inquiry outside the classroom – webinar](#)

Image: The University of Waikato Te Whare Wānanga o Waikato



The University of Waikato Te Whare Wānanga o Waikato