# Volunteering For Threatened Flora

Teacher Guide



Coastcare Victoria School Kit

Coastcare Victoria

VICTORIA State Government | Energy, Environment and Climate Action

**Acknowledgements**
Coastcare Victoria would like to acknowledge all our video presenters and individuals who reviewed or assisted with the creation of the Coastcare Victoria School Kit.

**Author**
Coastcare Victoria and Ocean Imaging.

**Photo credit**
Ocean Imaging.

**Acknowledgment**

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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ISBN 978-1-76136-062-6 (pdf/ online/ MS word)

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# Curriculum links

| Year 5 and 6 curriculum | Curriculum code | Content description | Topic covered – link to Learning Intentions |
|---|---|---|---|
| **Science** – Science Understanding – Biological Sciences | VC2S6U01 | Habitats can be described by their physical conditions; changing the physical conditions of a habitat, including by human activity, may affect the growth and survival of organisms | Native plants and gardens support other native species' growth.<br>Weeds have major economic, environmental, and social impacts in Australia. |
| **Humanities** – Geography – Geographical Knowledge and Understanding | VC2HG6K01 | How places and environments are changed and managed by people | Native plants and gardens support other native species' growth.<br>Weeds have major economic, environmental, and social impacts in Australia. |
| **The Arts** – Visual Arts | VC2AVA6C01 | Plan and create artworks using visual conventions, visual arts processes and materials to communication ideas, perspectives and meaning | Native plants and gardens support other native species' growth.<br>Weeds have major economic, environmental, and social impacts in Australia.<br>Botanical illustration helps reveal a plant's physical structure and distinguish from other species. |

| Year 7 and 8 curriculum | Curriculum code | Content description | Topic covered – link to Learning Intentions |
|---|---|---|---|
| **Science** – Science Understanding – Biological sciences | VC2S8U01 | There are similarities and differences within and between groups of organisms living on Earth; the development and use of classification tools, including dichotomous keys, help order and organise human understanding of the diversity of life | Classification is a useful tool to help organise the diversity of organisms.<br>Binomial nomenclature is a "two-part name" referring to the genus and species respectively. |
| **The Arts** – Visual Arts | VC2AVA8P01 | Curate and present examples of visual arts practice and/or artworks to communicate ideas, perspectives and/or meaning to audiences | Native plants and gardens support other native species' growth.<br>Weeds have major economic, environmental, and social impacts in Australia.<br>Botanical illustration helps reveal a plant's physical structure and distinguish from other species. |
| **Intercultural Capability** – Culture, Identity and Belonging | VC2CI8C01 | Change in cultures, including their own, in a range of contexts, and how this influences identity and a sense of belonging and inclusion | Traditional Owners have had a long history of using native species for a diverse range of uses. |

## Key themes

Species identification, invasive species awareness and action, native species and habitat conservation, plant illustration, Traditional uses of native plants.

## Lessons overview

| Activity | Time | Difficulty | Topic & Skills |
|---|---|---|---|
| 1: Quiz | 5 min video<br>15 min quiz | **Simple** | Threatened plants, habitats, invasive species, volunteering activities, biodiversity, and call to action.<br>• Listening comprehension and understanding. |
| 2: Native plant names | 60 min | **Moderate:** Multiple step activity. | Binomial nomenclature, scientific naming conventions, importance of scientific naming conventions, native verses introduced species, plant identification, and biodiversity.<br>• Observation and identification, research skills, using taxonomic resources, data interpretation, scientific literacy, critical thinking, recording and organising. |
| 3: Botanical illustration | 60 min | **Moderate:** Multiple step activity. | Botany, botanical illustration, identifying and describing unique plant characteristics.<br>• Data collection and recording, numeracy and estimation, scientific reasoning, critical thinking, analysis and comparison, evaluation, collaboration and communication. |
| Investigation 1: Native plants and weeds | 60 min+ | **Complex**: Using external resources. Independent learning. | Unique traits of native plants and weeds, understanding flowering seasons, connection between ecosystems.<br>• Research skills, reading comprehension and interpretation, categorising and organising information, ecological connections, and critical thinking. |
| Investigation 2: Gardens for wildlife | 60+ min | **Complex**: Using external resources. Independent learning. | Wildlife-friendly Garden design, native plants and their role in providing food and shelter, habitat structure, ecological sustainability, and planning and implementing a native garden.<br>• Research skills, design and planning, visual representation, problem solving, reflection and communicating. |

## Learning intentions

Students will understand:

- Classification is a useful tool to help organise the diversity of organisms.
- Binomial nomenclature is a "two-part name" referring to the genus and species respectively.
- Botanical illustration helps reveal a plant's physical structure and distinguish from other species.

- Traditional Owners and Aboriginal Victorians have a close relationship to native plants and have long utilised them for a variety of functions.
- Weeds have major economic, environmental, and social impacts in Australia.
- Native plants and gardens support other native species' growth.

## Success criteria

Students are able to:

- Research species using scientific names to find common names to demonstrate the benefits of binomial nomenclature and challenges of using common names.
- Investigate the flowering season and unique features of several native plants and weeds.
- Use botanical illustration to sketch several native plants and weeds.
- Create a flyer to help people understand the threats of introduced weeds.
- Demonstrate how locally native species may be implemented into a well thought out garden design.
- Demonstrate the benefits of planting a native garden.

## Background

This video and lesson features **Naomi Wells,** Communications and Community Engagement Coordinator from the Bellarine Catchment Network. The Bellarine Catchment Network (BCN) comprises representatives from key catchment and coastal organisations with an integrated catchment management focus.

The lesson structure begins by focusing on the importance of identifying native plants and weeds and classification. In biology, binomial nomenclature is how species are named. The name of a species is made of two parts: one indicating the genus and one indicating the species. Binomial nomenclature means "two-part name" or "system of two-part names". The first word is the genus name, the second word is the species name.

Botany, a branch of biology, is the scientific study of plant life and development. Botanical illustrators aim to draw a picture of a leaf or a flower, so that every detail of the object is copied as accurately as possible. Botanical illustration is always a true and lifelike representation of a plant and the emphasis of botanical illustration is on science rather than visual art. It should highlight a plant's particular distinguishing features which enable botanists to tell one plant from another. These illustrations reveal a plant's physical structure such as the arrangement of reproductive parts, leaves, and stems with a three-dimensional quality.

Traditional Owners and Aboriginal Victorians have a close relationship to native plants. In many First Nations societies, making objects from plant fibres was an important activity. Items needed for hunting, as well as for carrying and collecting food, were made along with ritual objects for use in religious ceremonies. Note: a permit is required to collect native plant material from public land.

Establishing a natural habitat garden helps you encourage native animals like birds, bats, lizards, frogs, butterflies and other insects to your garden. Native gardens can also help reduce garden maintenance costs, decrease gardening and time commitments, conserve local native plants and animals and make our urban areas more ecologically sustainable.

## Resources

- Volunteering for Threatened Flora video
- Video transcript
- Presentation slides

- Answers
- Quiz questions
- Native plant names worksheet
- Botanical illustration worksheet
- Investigation: Native plants for People worksheet
- Investigation: Gardens for Wildlife worksheet
- Review questions
- Glossary

## Other useful links

Native plant names

- Supplementary Video: Identifying coastal plants

Native plants for life investigation

- Coastal Plants information booklet
- Indigenous plant use booklet

Gardens for wildlife investigation

- Supplementary Video 2: "Make your garden wildlife friendly"
- Creating a wildlife friendly garden PDF

# Lesson plan

## Activity 1: Quiz

Use this 10-question quiz to assess comprehension and understanding of the video. This could be run as a Kahoot quiz, online form or worksheet.

1. Which of these wasn't a step Naomi gave to protect the habitat?
   a) Always stick to paths
   b) Leave only footprints
   **c) Always go in a large group**
   d) Consider volunteering to help

2. Coastal Moonah woodland is a _____plant community
   a) Large
   b) **Threatened**
   c) Resilient
   d) Critically endangered

3. What are one of the biggest threats that the Moonah woodland faces?
   **a) Invasive woody weeds**
   b) Invasive birds
   c) Pollution
   d) Poor soil quality

4. Polygala myrtifolia is a
   a) Native species
   b) Non- invasive species
   **c) Woody weed**
   d) None of the above

5. *Polygala myrtifolia* drops how many seeds each year?
   a) Hundreds
   b) **Thousands**
   c) Millions
   d) Billions

6. Invasive weeds compete with natives for …
   a) Soil and Water
   b) Fruits and seeds



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c) Carbon Dioxide and Air

**d) Light, Nutrients and Space**

7. What were the volunteers doing in the video?

**a) Removing weeds**

b) Removing native plants

c) Planting native plants

d) Planting weeds

8. What did volunteer Marvyn see once the Polygala was removed?

a) Small native trees and shrubs coming through

b) In season orchids

c) More weeds

**d) Both a and b**

9. Why is this work especially important in this area?

**a) A lot of land clearing in the area so not much native vegetation left.**

b) Few animals live in the area

c) Remote and hard to get to.

d) The area is regularly visited by many people

10. What was one of the other benefits of volunteering that was mentioned?

a) Takes a lot of time

b) Can be hard work

**c) Good for mental health**

d) Make a lot of money

## Activity 2: Native plant names

**This activity helps students understand and apply binomial nomenclature by learning how species are named with a two-part scientific system (genus and species). Students develop research and classification skills by identifying the common and scientific names of Victorian coastal plants and determining whether they are native or introduced.**

**The extension task encourages deeper investigation, having students explore the Latin meanings of scientific names, reinforcing connections between plant characteristics, naming conventions, and scientific observation.**

Firstly, watch the video: Environmental Action: A Practical Guide - Coastal Plant Identification [slide 5]. Naomi walks us through the coastal ecosystem, showing how to identify plants using characters like leaf and seed shape (students will practice this skill in the botanical illustration activity 3). Naomi also calls plants by both their common and scientific names. You can teach your students more about common and scientific names from the lesson slides about binomial nomenclature [slides 6-8].

Then they can complete activity two in their *Native plant names worksheet* [slide 9]. Students are provided the scientific names of eight Victorian coastal plants. Their task is to research the common names, and if they are native or introduced to Australia. The idea is that they will find out that many of these species are known by multiple common names.

> *Wikipedia provides very good taxonomic information including common names, scientific names and often the Latin meaning of a scientific name as well. You can extend the lesson by asking your students to find out what the scientific name means in Latin – it is often descriptive of a plant's unique characteristics, just like their common names are.*

Answers:

| Species Name | Common name(s) |
|---|---|
| *Melaleuca lanceolata* | Black paperbark, Moonah, Rottnest Island tea tree, western black tea tree |
| *Spinifex sericeus* | Hairy spinifex, rolling spinifex, beach spinifex coastal spinifex |
| *Tetragonia implexicoma* | Bower spinach |
| *Alyxia buxifolia* | Sea box, dysentery bush |
| *Apium prostratum* | Sea celery, sea parsley<br>Your students may find this plant has multiple Latin names too:<br>Apium prostratum var. filiforme – headland sea celery<br>Apium prostratum var. prostratum – mangrove sea celery |
| *Leucopogon parviflorus* | Coast Beard-heath, native currant |
| *Carpobrotus rossii* | Kakalla, pigface, sea fig, beach bananas |
| *Microseris walteri* | Murnong / Yam Daisy |

## Activity 3: Botanical Illustration

**This activity helps students develop skills in scientific observation and accurate botanical illustration. By drawing plants with attention to distinguishing features, students learn to record physical structures such as leaves, stems, and reproductive parts in a lifelike, three-dimensional way. The activity also encourages careful observation, attentional to detail, and understanding of plant morphology, supporting students in connecting visual representation with scientific study.**

Botany, a branch of biology, is the scientific study of plant life and development [side 10]. Botanical illustrators aim to draw a picture of a leaf or a flower as accurately as possible, so that every detail of the object is perfectly copied. Botanical illustration is always a true and lifelike representation of a plant, and the emphasis of botanical illustration is on science rather than visual art. It should highlight a plant's particular distinguishing features which enable botanists to tell one plant from another. These illustrations reveal a plant's physical structure such as the arrangement of reproductive parts, leaves, and stems with a three-dimensional quality.

In this activity students will use the *Botanical illustration worksheet*, without sketches to do their own botanical illustrations [see slides 12-14]. A good first step is to have students describe the unique features of each plant.

## Investigation 1: Native plants and weeds

**This activity helps students explore the unique features of common native plants and weeds. Students develop research and categorisation skills by identifying plants, their flowering seasons and unique traits.**

Weeds have major economic, environmental, and social impacts in Australia, causing damage to natural landscapes, agricultural lands, waterways and coastal areas. They are among the most serious threats to Australia's natural environment and primary production industries.

In this activity, print or distribute the Investigation 1: Native Plants and Weeds investigation worksheet. Students can use the Coastal Plants information booklet to find the plant size, flowering season and other unique features of the native plants. Students can use the weeds of Australia website to research the flowering season of the invasive plants. Note that three of these flower year-round but there are seasons when flowering is more common and this information is readily available online.

Answers for the plant and flowering chart are below.



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| Common name | Scientific name | Plant type (grass, tree) | Plant size | Flowering Season | Unique features |
|---|---|---|---|---|---|
| **Moonah** | *Melaleuca lanceolata* | Small Tree | 10m high 6m wide | September to December | • Creamy flower-spikes<br>• Seeds are contained within woody capsules |
| **Hairy Spinifex** | *Spinifex sericeus* | Grass | 60cm high 4m wide | February | • Long flat leaves<br>• Erect orange brown flowers<br>• Clustered flowers that resemble tumbleweeds |
| **Bower Spinach** | *Tetragonia implexicoma* | Creeper / Climber | 3m high 2m wide | August – November | • Red berries<br>• Fragrant yellow flowers |
| **Sea Box** | *Alyxia buxifolia* | Shrub | 3m high<br>3 m wide | Spring - Autumn Ie. Sep - May | • Smooth leathery leaves<br>• Dense shrub<br>• White flowers |
| **Myrtle-leaf Milk-wort** | *Polygala myrtifolia* | Weed | Shrub | 4m high | • Year round but mainly late winter to spring Aug - Oct |
| **Bridal Creeper** | *Aparagus asparagoides* | Weed | Creeper /<br>Climber | 3m high | • July to September |
| **Boneseed** | *Chrysanthemoides monilifera* | Weed | Shrub | 3m high<br>3m wide | • Year round but mostly cooler late autumn and winter ie. May - Aug |
| **Gorse** | *Ulex europaeus* | Weed | Shrub | 2.5m high | • Year round but mostly late winter early spring ie. Aug-Oct |

Colour in the boxes to create a visual flowering chart – pollinators like gardens where flowers are available to feed on all year.

| | Jan | Feb | Mar | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Moonah | | | | | | | | | | | | |
| Hairy Spinifex | | | | | | | | | | | | |
| Bower Spinach | | | | | | | | | | | | |
| Sea Box | | | | | | | | | | | | |
| Myrtle-leaf Milk-wort | | | | | | | | | | | | |
| Bridal Creeper | | | | | | | | | | | | |
| Boneseed | | | | | | | | | | | | |
| Gorse | | | | | | | | | | | | |

## Investigation 2: Gardens for Wildlife

**This activity helps students understand how to create a native habitat garden to support local wildlife and promote ecological sustainability. Students develop research, planning, and design skills by investigating locally native species, exploring habitat needs, and creating a garden plan using the 6D's framework.**

**The activity also encourages critical thinking and reflection, as students consider the benefits of their design, compare ideas with others, and understand how native gardens can support biodiversity, reduce maintenance, and enhance urban ecosystems.**

Establishing a natural habitat garden helps you encourage native animals like birds, bats, lizards, frogs, butterflies, and other insects to your garden [slide 17]. Native gardens can also help reduce garden maintenance costs, decrease gardening and time commitments, conserve local native plants and animals, and make our urban areas more ecologically sustainable.

Watch the video "Make your garden wildlife friendly" by Gardening Australia [slide 18]. Students should create a short list of tips to make a garden more wildlife friendly. There are other videos in the playlist which also may help with the task.

- Native groundcovers and grasses - food and shelter
- Dense shrubbery - protection for creatures
- Planting natives and a diverse range of plants
- Variety of habitats and layers
- Water source

Use slides 19-21. Visit the Gardens for Wildlife Victoria website and click on Elements of a Wildlife Garden as well as the online article Make your garden a wildlife haven.

Your task is to research locally native species in your area and design a native garden for your school or home. Use the basic ingredients listed on the site and create a plan for your garden on the *Investigation: Gardens for Wildlife worksheet*. For extra inspiration on a design students may also like to view the Creating a wildlife friendly garden PDF.

Use the 6 Ds for this lesson.

1. Define - What is your challenge? Read your brief carefully and write a definition of the tasks and challenges.
2. Discover - What makes a good garden for native wildlife? Which species could be selected?
3. Dream - What features would the ultimate garden have?
4. Design - How will the components of the garden come together? How might the garden look?
5. Deliver - Draw a plan for your garden. Label the sections and describe the features and benefits.
6. Debrief - What have you learned from this task? How did your garden compare to others?

## Review questions

1. What are the two parts of a scientific name? (2 marks)

   *Genus and species.*

2. What makes a good botanical illustration? (2 marks)

   *Accuracy of what is really there not making it artistic.*

3. What makes invasive weeds a problem in native habitats? (2 marks)

   *They compete with natives for light, space, and nutrients. They may reproduce and spread rapidly.*

4. What can volunteers do to help threatened flora? (2 marks)

   *Volunteer to plant more natives, remove weeds and pest species, educate themselves and their community about; threatened flora and why they are threatened.*

5. Describe some benefits of planting a native garden (2 marks)

   *Native plants support native animal species, native gardens may use less water, reduce garden maintenance costs, decrease gardening, and time commitments.*



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# Glossary

**Creeper**: A plant with a low-growing or creeping habit.

**Endemic**: Native to a particular locality, region, state or country.

**Exotic**: Not native; from another part of the world (i.e., foreign).

**Fauna:** The animal life in an ecosystem.

**Flora:** The plant life in an ecosystem.

**Introduced:** Something new that has been brought into an environment.

**Native:** A kind of plant or animal that originally grew or lived in a particular place.

**Perennial**: A plant which requires more than two years to complete its life cycle; living for longer than two years.

**Scientific name**: A name used consistently to identify an organism consisting of two words; genus followed by a species name.

**Species**: The basic unit of classification which sorts plants and animals into groupings based on similarities. Each species is a group of individuals able to breed among themselves, but not breed with the organisms of another species.

**Shrub**: A many-stemmed, woody, perennial plant of relatively low height; a bush.

**Threatened**: At risk, having an uncertain chance of continued survival.

**Traditional Owner:** A First Nations and/or Aboriginal person with connection to land and sea, and cultural rights and responsibilities to care for land and sea.

**Tree:** A woody perennial plant of considerable size when fully grown and usually with a single main trunk in evidence.

**Weed**: A plant existing in a place and/or at a time in which it is considered undesirable or troublesome.

**Wildlife:** Wild plants and/or animals that live free of humans.