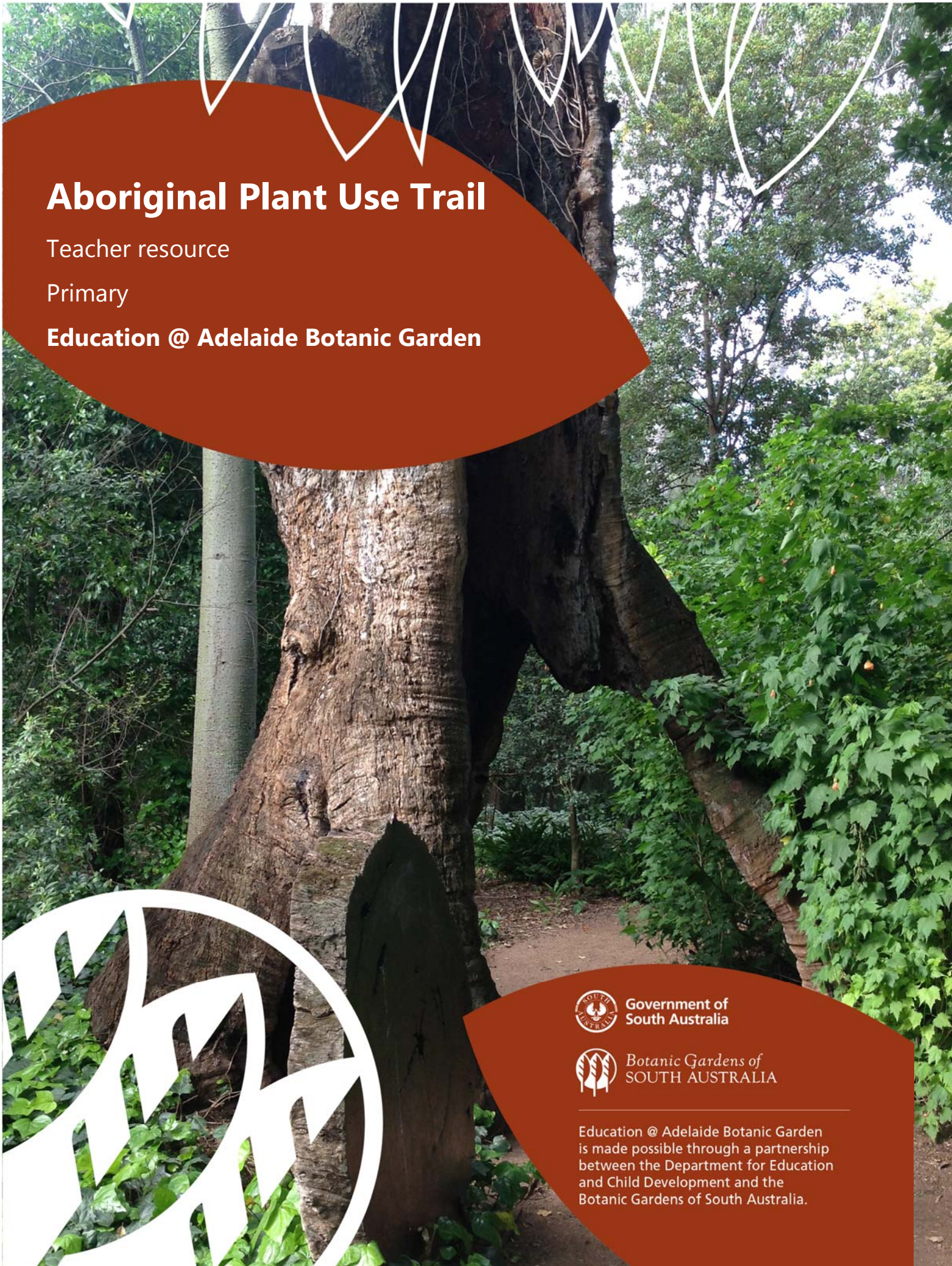


# Aboriginal Plant Use Trail

Teacher resource

Primary

**Education @ Adelaide Botanic Garden**

Government of South Australia

Botanic Gardens of SOUTH AUSTRALIA

Education @ Adelaide Botanic Garden is made possible through a partnership between the Department for Education and Child Development and the Botanic Gardens of South Australia.

## Bookings

***All visits to the Botanic Gardens should be booked as part of risk management.***

### Self-Managed Excursions

Booking online: http://www.botanic.sa.edu.au/index.php/book-online
Booking by email: dehbgschools@sa.gov.au booking form here
Booking by phone: 08 8222 9311

### Education Manager discussions and bookings

ph: 08 8222 9344 or email: Michael.yeo2@sa.gov.au

## Guidelines when in the Garden

Students must be supervised at all times while in the Garden.

Before starting your walk please remind your group that:

- Gardens are peaceful places for people to relax and enjoy.
- Walking slowly and talking quietly ensures everybody and everything will enjoy the gardens.
- Plants are fragile, touch them gently.
- Flowers, leaves, bark, seeds etc. growing on plants or lying on the ground are there for all to enjoy. When you have finished with plant material found on the ground always return it to the garden.
- Keeping to paths and not walking on beds or borders avoids damage to plants.

## Risk Management

- There is a risk management guide to the gardens on the website under bookings.
- Water: The garden has a number of open water bodies and requires close supervision by teachers and supervising adults.
- Weather: Excursions at the Adelaide Botanic Garden are outdoors so sun protection is required, insect repellent at certain times of the year is recommended. Light showers are not an issue in the gardens and at time enhances the experience. There are a number of sheltered areas throughout the garden and raincoats are preferred to umbrellas.
- Washing: After working in the wetland or handling plant material hands should be thoroughly washed particularly before eating.
- Toilets: There are 5 groups of public toilets across the Garden as indicated on the maps.

## Acknowledgments

Information; Steve Meredith and Michael Yeo

## Contents



## Purpose and key idea of the trail

**Target year levels:  year 3 - 7**

**Key ideas:**

- How Aboriginal people used plants to live and survive.
- The importance of plants to Aboriginal people as food, medicine, tools and shelter.

**Students will investigate: A series of plants which have numerous traditional uses. They will be able to investigate the plants closely, discuss cultural issues and consider life in Australia pre- European arrival.**

Students are encouraged to observe, analyse, inquire, record, hypothesize and connect knowledge they already have with new learnings.

TfEL: Provide an authentic context in which to engage learners and build their understanding whilst using a range of learning modes.

**Time:**

Allow about 1 hour for this session.

## Australian Curriculum Connections

### General capabilities

- Literacy
- Personal and social capability
- Intercultural understanding
- Ethical Understanding

### Cross-curriculum priorities

- Aboriginal and Torres Strait Islander histories and cultures
- Sustainability

**Year 3**

Geography: How people's feelings about places influence the protection of places.
History: Who lived here first and their reliance on the environment?
Science: Inquiry skills and human endeavour.

**Year 4**

Geography: People, places and the environment.
History: Life for ATSI people before Europeans.
Science: Living things depend on each other and the environment.

**Year 5**

Geography: Interactions between people and their environment.
Science: Living thinks adapt.

**Year 6**

Geography: Connections of people and their places, their cultures and perceptions.
History: Rights and Freedoms.
Science: Living things growth & survival are affected by the environment.

**Year 7**

Geography: People, places and resources, particularly water.
Science: Interactions between organisms & science inquiry.

## Before the excursion

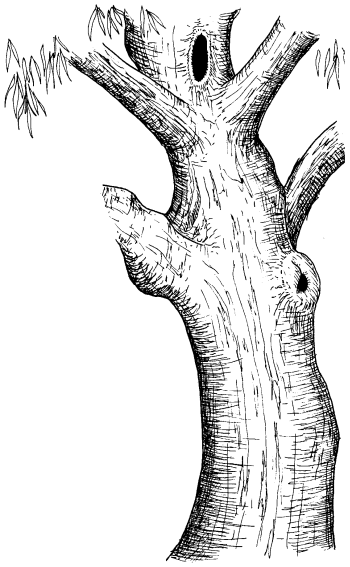
**Discussions:**

- Tyndale map of Aboriginal groups. How is this map useful?
- Ask students to consider why Aboriginal people would move from place to place. Why would they move to the Adelaide foothills in winter?
- What roles would women, men and children have in the family group? Why would they be different?

## After the excursion

**Post-Visit Literacy Activities**

- You get lost in the bush near a water hole surrounded by river red gum trees. Explain how you would use the gums to help you survive until a search party arrived.
- Write out a recipe for preparing and cooking dried fig cakes using only foods that you would have found in the Australian bush over 200 years ago.
- Ngarrindjeri people made rafts from yacca flower sticks. Design and build miniature rafts made from different Australian plants. Compare them to one made from a yacca flower stick. Prepare a display and report your findings back to the class.



- Collect strap-like leaves from different plants. Tear them into long narrow strips and ply them together to make different strings. Design a strength test and work out which plant makes the strongest string. Write up a report and present your results to the class.
- Dreaming stories explain how the land and living things came about. Write your own story to explain the strange design of the Illawarra Plum.
- You are a member of the Kaurna people living on the Adelaide Plains over 200 years ago. Write a family history of a typical year in this region. Explain how you lived with the land obtaining food and moving with the seasons from the coast in summer to the foothills in winter. Include the names of important plants and animals you live with and depend upon.
- Cycad seeds are poisonous but Aboriginal people learnt how to make them safe to eat. Write an imaginary story on how Aboriginal people first discovered a method to make cycads safe to eat.
- The bottle tree has an unusual name because it holds water and is shaped like a bottle. Be creative and design an unusual plant that can help you survive in the bush. Give it a name. Present your plant to the rest of the class.
- Research Kaurna names for plants and animals. Draw a scene of life on the Adelaide Plains from over 200 years ago. Include Kaurna people, plants and animals in your drawing. Label the drawing with Kaurna names you have found from your research.

Map


Plane Tree Drive
Hackney Road
Botanic Road
North Terrace
National Wine Centre
1 Friends Gate
2 Schomburgk Pavilion
3 Goodman Building
4 Main Gate
5 Bus Loading
6 Bus Parking
Adelaide Botanic Garden
1 River Red Gum
2 Ribbon Gum
3 Bunya Pine
4 Hollow Tree
5 Macadamia Nut
6 Illawara Plum
7 Bottle Tree
8 Parapara
9 Fish Killer tree
10 Grass Tree
11 Spear Lily
12 Casuarina

## Teacher background information

This section provides teachers with background information on each plant or station. Some suggested student responses are included; they are by no means exhaustive. The student section is full of activities that are designed to encourage students to observe, record, discuss and use the information they collect.

**Finding the plants:**

The plants on this trail may be found by referring to the map and by looking for the plant nameplate. There is also a photo match or sketch of the plant to help.
Allow about 1 hour to complete the trail.

# STATIONS

### 1. River Red Gum, Eucalyptus camaldulensis

**Look for:** A large solitary gum tree in the lawn near a mulberry tree shelter.

This tree has been growing here, for more than 280 years. That is about 100 years before Europeans came to South Australia. On the eastern side, at the base of the trunk, is a dead wood hollow typical of these trees. Aboriginal people would sometimes burn the dead wood in the centre of big red gums trees to form a shelter. A good example of this can be seen on the trail at station 4. Near the River Murray Ngarrindjeri people cut huge slabs of bark from river red gums to make canoes. The pattern of missing bark on the trunk of this tree is similar to the shape cut for canoes but being smaller it may have been a shield. The hard, durable wood was used for a range of utensils and weapons including digging sticks, carrying dishes, shields and boomerangs.

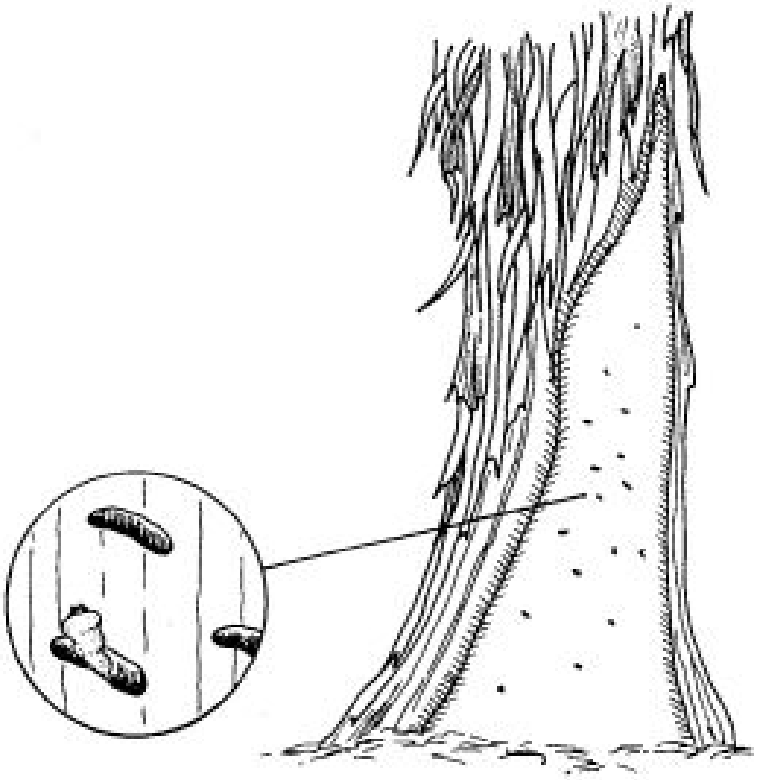
Large trees like this provided habitat for many insects, birds and other animals that live in and around the tree. The scratches on the northern side of this tree are possum marks. Possums live in a hollow halfway up the trunk of the tree on the western side. Possums provided food as well as fur skins to make blankets and cloaks. On occasions introduced bees make their home in a small hollow above the possum home. Native bees were a source of honey and wax.

Hollows also provided homes for birds like parrots, kookaburras and wood ducks, all of which could be hunted for food and their feathers used in ceremonies. Many plants were used medicinally. Different types of crushed gum leaves provided relief from congestion and when laid on a fire the vapours were said to smoke out fever. A bit like using Vicks on the chest at bedtime when people have colds.

**Teaching suggestion:** Encourage students to find animal homes and to think about the different types of 'shops' this tree was for the Aboriginal people. Hardware, chemist, clothing etc

## 2. Ribbon Gum, Eucalyptus viminalis Terma

**Look for:** A very tall gum tree with ribbons of bark hanging from upper trunk. The lower trunk has a distinctive dark brown colour. The tree is growing near the edge of First Creek.

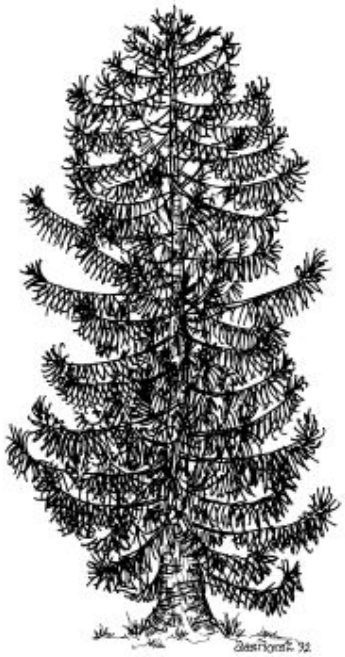


The holes are where edible moth or beetle grubs have burrowed into the tree. Fresh sawdust coming out of these holes is a sign live grubs are inside. The grubs were often removed using a fine, flexible, sharp stick. Grubs found in tree trunks were called 'barti' and were considered men's food only. Grubs dug from roots were called 'koope', they could be eaten by anyone in the group.

**Teaching idea:** Students can find the grub holes then work out what lives inside and how you get them out.
**Discussion**s: Why eat insects; the value of Aboriginal names which describe the animal and where it lives; rules for eating of food in different cultures; what were the roles of men and women in the family that might have helped design the rules about who could collect food from where. (eg Men were hunters and would be moving quickly and quietly. The grubs in the trunk are quick and easy to access.)

## 3. Bunya Pine, Araucaria bidwillii

**Look for:** A large tree with a clearing around the base. Many long thin branches which are dry and spikey around the base.



The ripening of the massive Bunya pine cones usually occurred every 3 years. This signalled the time for many groups of Aboriginal people from south eastern Queensland to come together for a harvest festival. Sustained by a plentiful food supply it was a time for social and cultural celebrations that included feasting, celebrations, sport, gossip, dance and music. To obtain fresh juicy young seeds these massive trees were scaled by women using vine ropes and notches cut into the bark of the tree. The size of the trees, and the very sharp leaves (feel them - carefully) would not have made the task an easy one.

**Teaching suggestion:** Discuss the problems of reaching the fresh, green cones which grow at the top of these trees. Focus on how the plants helped to set the social calendar. Do we have similar celebrations today based around plants? (eg Wine Harvest and Almond Blossom festivals in South Australia)?

## 4. Hollow Tree, Eucalyptus camaldulensis Karra

**Look for:** A large, hollow tree trunk on the left of the track.

Check inside the hollow of the tree for evidence (charcoal) that this old red gum has been burnt.

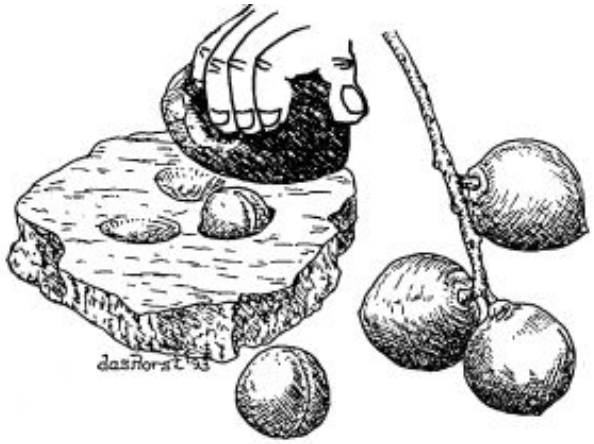
It is likely that Kaurna people burnt the trunk as a basis for a shelter. The shelter would have been made more comfortable by blocking off openings exposed to the weather and lining the dirt floor with bark and animal skin rugs. A verandah, made of leaves, bark and branches, probably extended the size of the shelter. The tree shelters or 'wattowadli' were most often used in winter as family groups moved inland to escape the cold winds and flooded wetlands near the coast.

Aboriginal groups often moved through different parts of their land at different times of the year. In part they would follow a food trail where the plants had ripening fruits and nuts. It also allowed the plants to regenerate and the animals to repopulate areas after they had moved on. Next time the group visited the area the land could support them again with food and materials. Seasonal movement also reduced health problems associated with a build-up of human waste.

**Discussion:** Get students to imagine a family group living in this spot many years ago. Image how it was enlarged and made it comfortable to live in. Discuss in terms of sustainability, the value of moving through the land using temporary homes. Many growing cities such as London in the 1700 had terrible problems with many people living in one spot. What were they and how did Aboriginal people overcome this?

## 5. Queensland Nut (Macadamia), Macadamia tetraphylla

**Look for:** A medium sized tree on the right of track. It may have clusters of cream coloured flowers and/or bunches of green nuts (March to June)

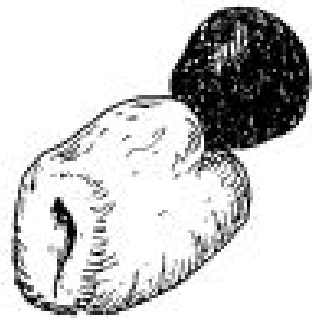


The delicious macadamia nuts from this tree have one of the hardest shells in the world and are difficult to crack without mashing their contents. Aboriginal people in Queensland engineered special 'nutting stones' that consisted of slabs of tough rock with a number of depressions ground into them. Nuts, tightly held in the depressions, were expertly cracked with a blow from a hammer stone. Mature macadamia trees can produce up to 25kg of nuts. Until recently this plant was the only Australian native plant to be used in horticulture as a food crop.

**Discussion:** What is the particular value of a nut like the macadamia when there are no fridges or supermarkets around? The design and value of stone tool technology. Find out if students have tasted Macadamia nuts, discuss flavour and recipes.

## 6. Illawarra Plum, Podocarpus elatus

**Look for:** A large tree with long narrow deep green leaves. Purple plum shaped fruit with a blueberry attached to each amongst the foliage (best time is May or August).



Find some odd looking fruit on the tree. This is not a true fruit but is a small round cone attached to the tree's swollen fleshy stalk. Aboriginal people in NSW ate both parts. The cone contains a small edible seed that has a strong resinous flavour .The soft, fleshy stalk has the colour and shape of a small plum when mature. The flesh has a pleasant tasting jelly-like texture. Today, the Illawarra plum is often featured in bush tucker or Australian plant food restaurants.

**Teaching hints:** Encourage students to spot the 'plums' on the tree or on the ground and to think about why this food could be called a 'double header'.

**Discussion**: Why do trees have tasty fruits?

## 7. Bottle Tree, Brachychiton rupestre

**Look for:** A distinctive bottle shaped trunk with attractive horizontal scars.

In particularly bad dry spells (droughts) in northern Australia this tree could save your life. The shape of the tree may give you a clue as to why! The bottle tree survives long periods of dryness by storing water in its trunk. Aboriginal people needing water would chop into the trunk and squeeze the soft, moist wood to obtain a drink. The wound was sealed with a stone thus making it easier to use again the next time the tree was visited.

The seeds, shoots and roots are edible and the trunk exudes a gum that is the source of starch. Scars formed by the dropping of limbs from the trunk make an attractive pattern on the trunk. The soft wood was used for fire-making and for shields.

**Activity:** Students can tap the tree and guess about what might be inside.

**Discuss:** The advantage harvesting small amounts of water from the tree rather than getting a lot at once by cutting it down. From an evolutionary point of view, what sort of climate has this tree evolved in that would cause it to store water. How do other plants survive droughts?

## 8. Parapara, Pisonia umbellifera

**Look for:** A row of small trees or large bushes with glossy green leaves. Shiny green/black fruits may be stuck on leaves. Just past the bottle tree.

Find and feel the shiny seed cases on this tree. In North Queensland Aboriginal hunters would use the very sticky pods of this plant to trap ground feeding rainforest birds. Placing the sticky parapara pods in a circle surrounding a tasty fruit might lure and catch the birds. The pods stuck to the birds as they crossed the circle of sticky pods making flight difficult and capture easy. Methods that reduced the energy hunters needed to use to catch prey were common throughout Australia.

**Activity:** Feel the sticky fruits. Encourage students to think about how the fruits could be used to trap birds. Try to find a seed with insects stuck to it as a hint. Ask students to think about the importance of saving energy when hunting.

### 9. Fish Killer Tree, Barringtonia racmosa

**Look for:** A tall thin tree on the lower walk of the conservatory behind the seat just under the overpass.

This Queensland tree is one of a number of Australian plants that have toxic leaves and bark. The bark of this tree would be beaten and ground up then placed in water holes, lagoons or dammed streams. Fish in the water were suffocated as the bark absorbed oxygen from the water. They would then be easy to collect as they floated up to the surface. The fish having been suffocated and not poisoned would be safe to eat.

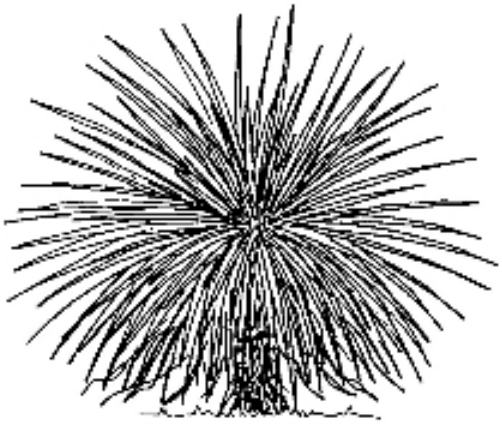
Other trees that did contain poison were also used. Many had a toxin called saponin. It is abundant in the inner bark. Laboratory tests have shown that at concentrations of 1:1000 the saponin from this tree can causes fish to die in less than one hour. In this case there was a need to manage the toxin when eating.

**Teaching suggestion:** Compare all the equipment we use today when we fish with the minimal material used by Aboriginal people. Another chance to discuss the importance and advantages of using energy efficient methods when hunting.

Discussion: Consider the thousands of species of plants in the forests of Queensland and discuss how Aboriginal people might have first discovered how the bark of this tree would help them catch fish without poison. Who would ever think to use bark to catch fish, a spear is more obvious. It leads to the consideration of how long Aboriginal people have been in Australia and how they passed on learnings to their children. What were the children's "subjects" and who were their teachers.

### 10. Grass Tree, Xanthorrhoea quadrangulata

**Look for:** A mass of long, sharp, strap-like green leaves on the end of a short, thick trunk.



This local plant is a source of sweet nectar in the Spring when the flowers are in bloom. Ngarrindjeri people used the shaft of the flower spike for lightweight spears and for fire sticks. Grass tree spears were made by attaching a pointed, hardwood end to the stem of the flowering spike. This sharp end was tied on using kangaroo sinews and a cement resin gathered from the trunk of grass-trees. Both the whitish base of the young leaves and roots of the plant were edible. In summer the seeds were ground to make flour for damper.

The stems of the flower sticks were joined to make rafts that allowed the Ngarrindjeri to collect duck and swan eggs from the deep water. In the Dreaming story Ngurunderi, Ngurunderi's wives escaped across Lake Albert on a raft made from grass tree stems and reeds.

**Activity:** If in flower look for birds and bees collecting nectar. Rub hands together to show how friction can generate heat for fire **Warning:** Be careful of the sharp edges of the leaves.

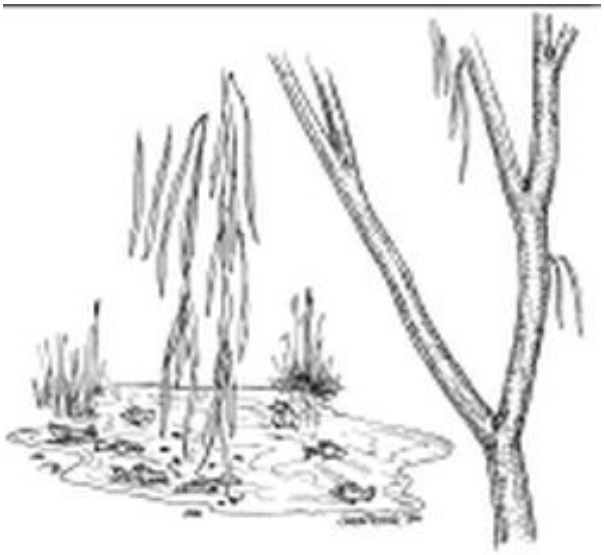
## 11. Spear Lily, Doryanthes excelsa

**Look for:** Long, spear shaped leaves. Long arching flower / fruit spike for part of the year.

The Spear Lily grows in NSW. The large flower stalk was soaked prior to roasting and eating. The edible roots were crushed with rocks and then baked. The flowers attracted many nectar-feeding birds. Camouflaged hunters with nets would hide under the large leaves waiting to capture these birds for food. The leaves can be easily split into strips for weaving mats and baskets.

**Activity:** Draw attention to the ways leaves split into long strips and how they would hide bird hunters. Look through the leaves with the sun behind and you can see the lines which form the string fibres. There are good examples of mats, baskets and weavings in the Museum of Economic Botany next to this plant. Open Wed – Sun. 10 - 4

## 12. Casuarina, Casuarina glauca



**Look for:** A small forest composed of large trees and thin saplings growing near the edge of a creek.

Wood from casuarina is hard and ideal for making a number of implements including spears, clubs, clapping sticks, digging sticks and return boomerangs. A specialised fighting boomerang was made from the junction between the trunk and the root. It is worth noting that not all Aboriginal groups used boomerangs.

Look for small cones high up on the trees. These were soaked in drinking water to provide a lemon flavoured drink. The green needle-like branchlets were chewed to reduce thirst. Casuarina was a good wood for making fire.

**Activity:** Encourage students to find parts of the trees that would provide boomerangs, spears, spear throwers, clubs and digging sticks.