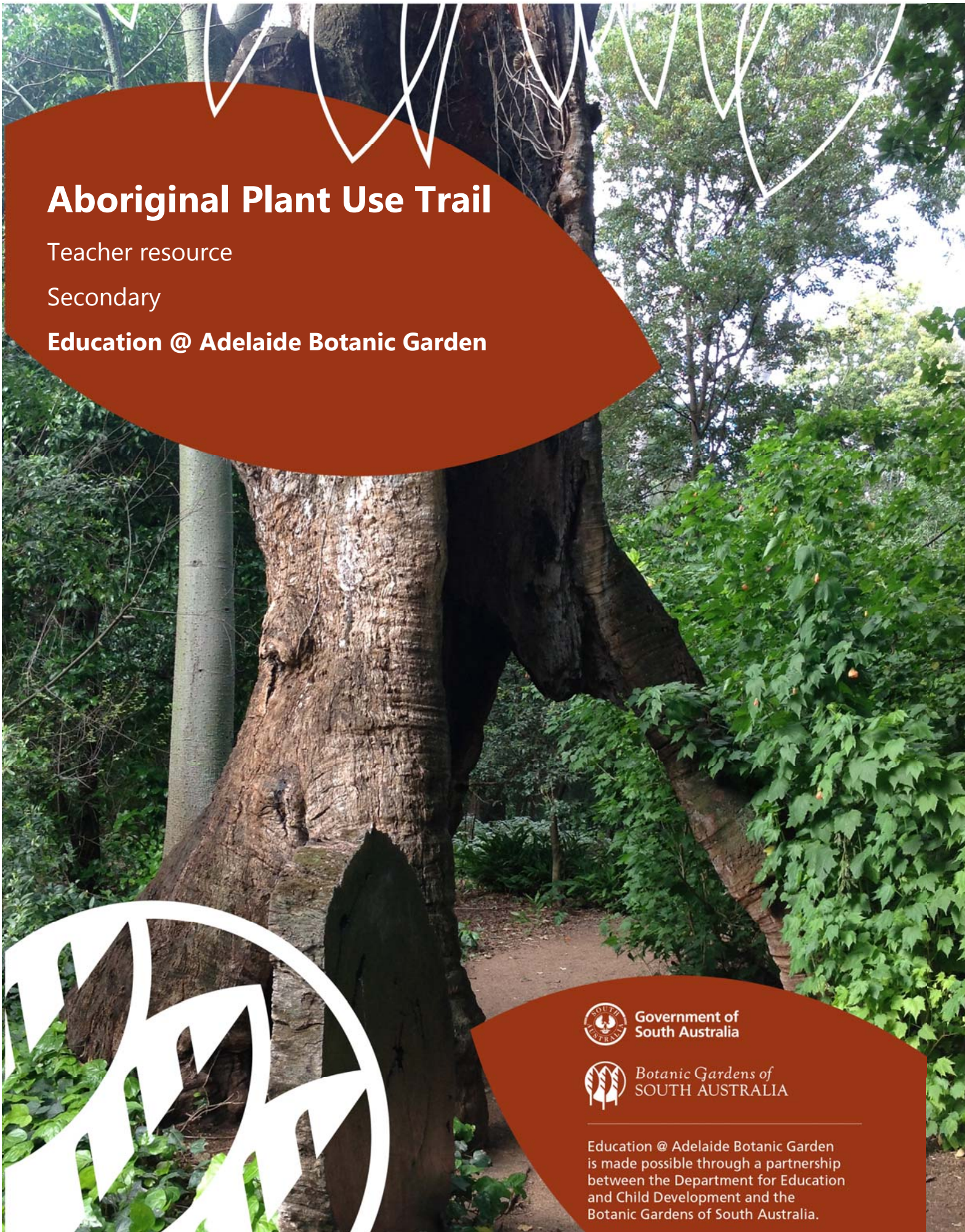


Aboriginal Plant Use Trail

Teacher resource

Secondary

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 Illustrations: Gilbert Dashorst

Contents

Purpose and key idea of the trail

Target year levels: Secondary

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 1.5 hours 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

Learning Areas

Year 8
Geography: Protecting landscapes and internal migration
History: Ancient Australia and use of resources
Science: Biological Science and human endeavour
Year 9
Geography: Biomes, food, connection to places.
History: Making a Nation'
Science: Biological Science and human endeavour
Year 10
Geography: Custodial Responsibilities
History: Rights and Freedoms'.
Science: Biological Science and human endeavour
Year 11
Science: Biological Science and human endeavour

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. What were their movements on the Adelaide Plain?
- What roles would women, men and children have in the family group?

Map


Plane Tree Drive
Hackney Road
Botanic Road
North Terrace
National Wine Centre
Adelaide Botanic Garden
1 Friends Gate
2 Shomburgk Pavilion
3 Goodman Building
4 Main Gate
5 Bus Loading
6 Bus Parking
1 RIVER RED GUM
2 MORETON BAY FIG
3 GRASS TREE
4 RIBBON GUM
5 BANKSIA
6 HOLLOW TREE
7 MACADAMIA NUT
8 PARAPARA TREE
9 BOTTLE TREE
10 MACROZAMIA
11 FOAM BARK TREE
12 FLAX LILY
13 BUNYA PINE
14 CASUARINA
15
16
17
18
19
20

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: Plants on the 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.

STATIONS

1. River Red Gum, Eucalyptus camaldulensis

This tree has been growing here, on what was Kaurna land, for more than 280 years -100 years before Europeans came to South Australia.

Near the River Murray, Ngarrindjeri people cut long slabs of bark from river red gums to make canoes. The bark was best cut when the sap was flowing freely. The pattern of missing bark on the trunk of this tree is similar to the shape cut for canoes. The hard, durable red gum wood was used for a range of utensils and weapons including digging sticks, carrying dishes, shields and boomerangs. Burls or rounded growths, like the one at the base of the northern side of the trunk, were used for bowls.

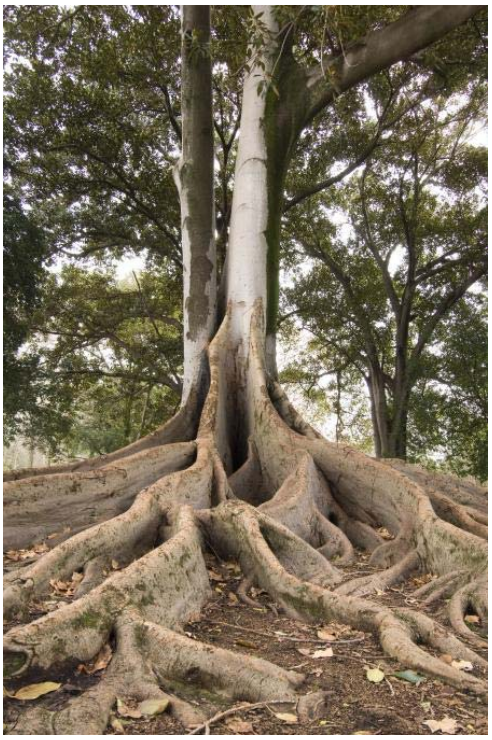
Many insects, birds and other animals which live in and around the tree were hunted. Scratches like the ones on the northern side of the trunk helped hunters locate possums. Possums live in a hollow halfway up the trunk of the tree on the western side. Possums provided food and fur skins to make blankets and cloaks. Directly above the possum hollow is a colony of bees. 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.

It was not considered safe to camp under red gums because of their habit of dropping limbs without warning. Many plants were used for medicines. The smoke from red gum leaves placed on camp fires was used to clear congestion and to chase fevers away.

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

Teaching hints: Treat this tree as a type of Aboriginal 'supermarket'. Encourage students to find the necessary clues around the tree needed to fill in their worksheet table. Discuss the great variety of uses from a single type of plant.

2. Moreton Bay Fig, Ficus macrophylla



This massive tree produces large amounts of fruit and is native to the forests of NSW and Queensland. The fruits of all native figs are edible but vary in quality and size. They taste best when fresh, ripe and soft. When figs were in abundance, they were preserved as fig cakes by mixing the pounded fruit pulp with honey and flour from ground seed. This mixture was then baked in a ground oven to produce fig cakes which were eaten long after the fig crop had finished. Here in Adelaide the fruit drops almost continually filling the air with a distinctive fermenting aroma.

Look for: A long avenue of large, stately fig trees.

Teaching hints: Look for evidence on the ground and on the trees which indicates a plentiful crop. The emphasis here is on preserving food to overcome shortages and to avoid waste.

3. Grass Tree or Yacca, Xanthorrhoea semiplana

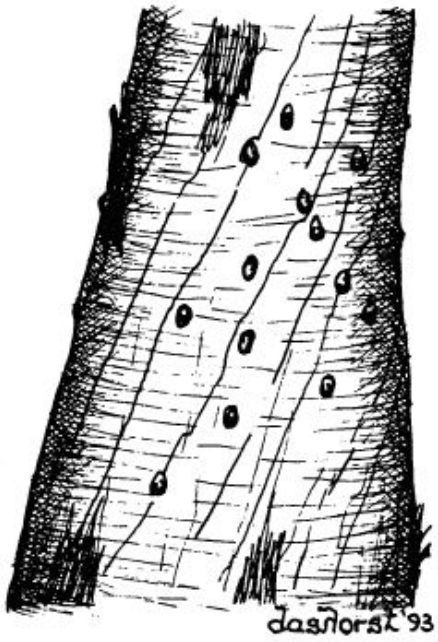
This local plant is a source of sweet nectar in the Spring when the flowers are in bloom. The shaft of the flower spike was used by Ngarrindjeri people for light weight spears and for fire sticks. Grass tree spears were made by attaching a pointed, hardwood end to the stem of the flowering spike. This 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.

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

Teaching hints: If in flower look for birds and bees collecting nectar. Look for dark brown resin oozing from the trunk. **Warning:** Be careful of the sharp edges of the leaves.

4. Ribbon Gum, Eucalyptus viminalis



Look for small holes in the lower trunk. This is 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.

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 creek.

Teaching hints: Students can find the grub holes. Discuss the value of Aboriginal names which describe the animal and where it lives. Discuss food preferences and rules for eating of food in different cultures.

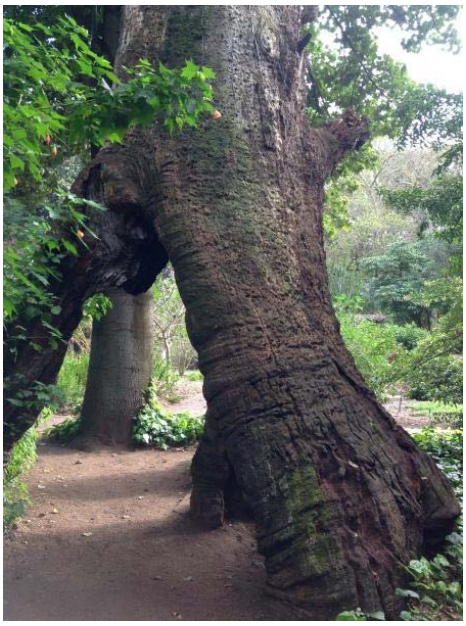
5. Banksia, Banksia sp

Kaurna people licked the sweet nectar which dripped from the dense flower heads of the local silver banksia. They also soaked the flowers in water to make a type of nectar cordial 'kundanye'. The old dried flower heads were clumped together and used to filter water. Some Aboriginal groups used the porous, slow burning central core of the banksia flower head as an instant fire starter.

Look for: Medium sized spreading bush with large, dried flowers heads and prickly leaves.

Teaching hints: Encourage students to gently feel the sharp leaves and soft flower heads. Discuss why Aboriginal people might want to flavour and filter their water.

6. Hollow Tree, Eucalyptus camaldulensis

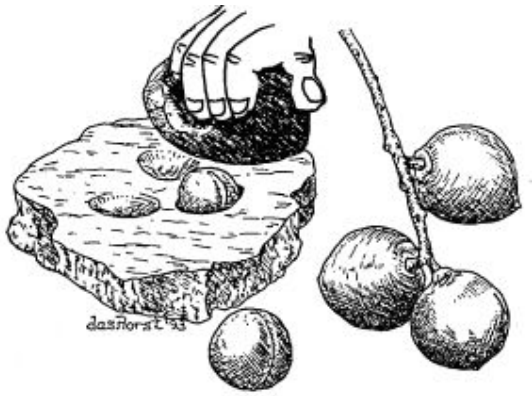


Look for evidence (charcoal) that this old red gum has been burnt. It is likely that Kaurna people burnt the trunk as a basis for a shelter. The shelter would have been made more comfortable by blocking off openings exposed to the weather and lining the dirt floor with bark and animal skin rugs. A verandah, 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. This 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.

Look for: A large, hollow tree trunk on the left of the track.
Teaching hints: Get students to image a family group living in this spot many years ago. Discuss in terms of sustainability, the value of moving through the land using temporary homes.

7. Queensland Nut Tree, Macadamia integrifolia



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' which 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 for horticultural food production.

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.

Teaching hints: Bring in maths to calculate the amount of food these trees may produce. Discuss the design and value of stone tool technology.

8. Parapara, Pisonia umbellifera

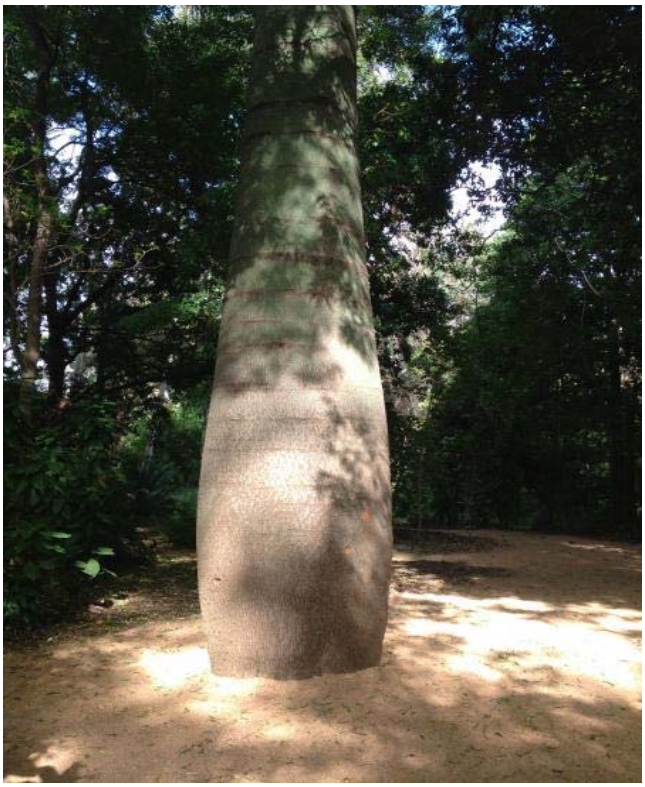
Find and feel the shiny seed cases on this tree. In North Queensland Aboriginal hunters would use the very sticky pods of this plant to trap ground feeding rainforest birds. The birds were caught by placing the sticky parapara pods in a circle surrounding a tasty fruit lure. The pods stuck to the birds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

Look for: Small trees with glossy green leaves. Shiny black fruits may be stuck on leaves.

Teaching hints: Feel the sticky fruits. Encourage students to think about how they could be used to trap birds.

9. Bottle Tree, Brachychiton rupestre

In particularly bad dry spells 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 which 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.

Look for: A distinctive bottle shaped trunk.

Teaching hints: Students can discuss the value using the tree for a sustainable supply of water. Come up with an hypothesis to explain the horizontal scars on the trunk.

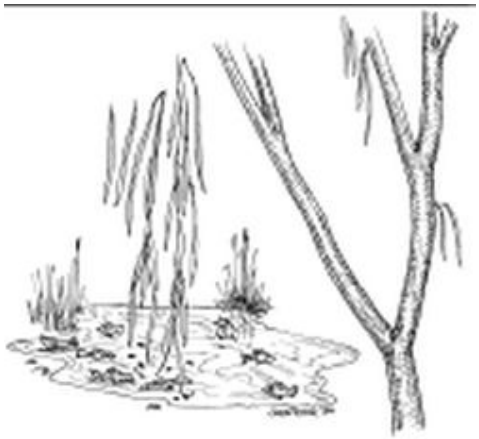
10. Macrozamia, Macrozamia communis

Macrozamia seeds look the perfect food; they are large, rich in starch and borne in abundance on cones in the centre of female plants. The one problem is that the seeds are poisonous to eat, but Aboriginal people devised ways of removing the toxin. Preparation methods varied from place to place but usually involved crushing the seeds, then leeching the poison out using running water followed by roasting. The brown flour produced from the processed seeds made a staple food in some areas of Australia and could sustain gatherings of hundreds of people for weeks at a time. Fire was used in groves of macrozamias to trigger the growth of many seed bearing cones.

Look for: A low growing plant that resembles a small palm. Small cones which are usually visible in the centre of the plant.

Teaching hints: Encourage students to find the cones. Discuss how Aboriginal people learnt to make toxic plants safe to eat and how fire was used to manage the land.

11. Foam-bark, Jagera pseudorhus



This tree is one of a number of Australian plants that have toxic leaves and bark. The bark would be beaten and ground up then placed in water-holes, lagoons or dammed streams. Fish in the water were stunned and easy to collect as they floated up to the surface. The fish only absorbed a small amount of toxin and were generally safe to eat soon after they were caught. In some cases, if left for a short time before eating, the toxins would breakdown naturally.

The poison in this tree is 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.

Look for: A medium sized tree growing near the intersection of two paths.

Teaching hints: A chance to discuss the importance and advantages of using energy efficient methods when hunting.

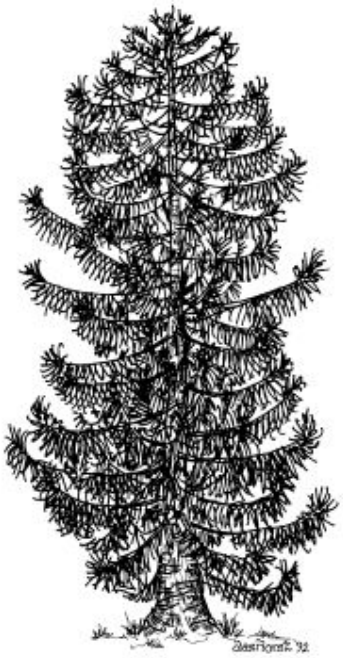
12. Flax-lily, Dianella sp

The Kaurna split the long, strap-like leaves lengthwise to make instant string. The leaves were also pounded to fibre, rolled into a ball and then used as a sponge to gather nectar from the yacca or grass tree flower spike.

Look for: Look for dense clumps of strap-like leaves just before the bridge near the creek.

Teaching hints: Encourage students to find new or old flower heads and to feel the long thin leaves.

13. Bunya Pine, Araucaria bidwillii



The ripening of the massive bunya pine cones 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 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 very sharp leaves (feel them - carefully) would not have made the task an easy one.

Look for: A large tree with numerous thin branches radiating from the trunk all the way down to the ground. Parts of old cones with enclosed seeds may be on the ground.

Teaching hints: Discuss the problems of reaching the 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 Festivals, Almond Blossom etc.

14. Casuarina, Casuarina glauca

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.

Look for: A forest of large trees and thin saplings near the edge of the creek.

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