

Water, Fire and Tree-House Walk

Guides Notes

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Themed walk with options for:

- 'adventure' on stepping stones,
- weather,
- no stairs

Guides notes have information about a lot of plants along this walk. Select examples of plants that grow in or near water, that have various impact of fire, and that are near the treehouse.

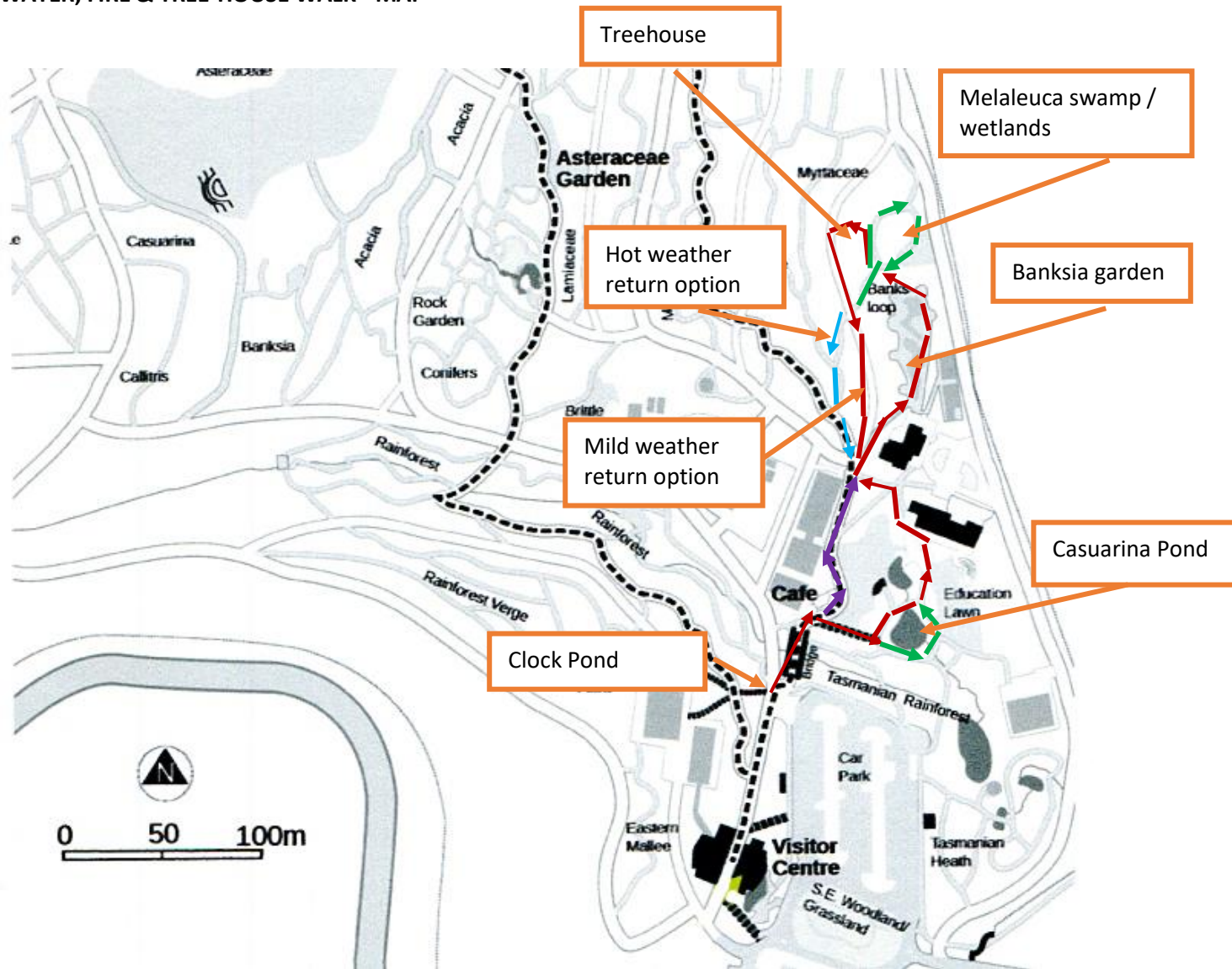
When preparing, please note that the walk can be noisy during school holidays, e.g. plan to use wetland loop path rather than go into Treehouse

Guides Notes may change due to construction in gardens before October 2021





Flowers are fabulous in January



WATER, FIRE & TREE-HOUSE WALK - MAP



Key

	Usual route
	Avoid stepping stones
	Return – Option 2 – Leptospermum and Callistemon
	Stairless walk with some red and green loop at Melaleuca Swamp

Water, Fire & a Tree-House walk – Overview

Theme is water and fire.

Water essential to life on earth. Wetlands are essential too, and protected in several states including Tasmania. Today we will look at where plants usually grow **in** or **near** water or in **dry or well- drained** areas. We shall also look at a wetland.

Fire can be warm or hot and/or productive, or friendly or dangerous. Today we shall look at some plants that **rely on or respond well** to fire, and some others that are **killed by fire** and rely on seed banks in the soil, along with an example of an area where fire rarely occurs.

Fire rarely occurs naturally in Melaleuca wetland areas.

We shall see an after-fire display, a wetlands area, and a charred tree-house next to a wetlands area.

Notes:

ANBG has accepted the change of name from “Callistemon” to “Melaleuca” but not all labels and signs have been changed yet.

Location L = Left

Location R = Right

Start at the Clock

Introduction

What are wetlands?

A highlight of the walk will be to see a Melaleuca Forest, a Tasmanian type of wetland; a coastal and marine wetland.

CLOCK POND

Location	Name	Common name
Clock Pond in water	<i>Carex fascicularis</i>	Tassel sedge
	<i>Azolla filiculoides</i>	Water Fern
	<i>Ludwigia peploides subsp montevidensis</i>	Water Primrose
	<i>Myriophyllum crispatum</i>	Water Milfoil
	<i>Phragmites vallatoria</i>	Tropical reed
	<i>Vallisneria australis</i>	Ribbon Weed

BOLLARDS AND CAFÉ BRIDGE

On the right on the bollards, rock wall (also nick-named ‘banana bend garden’)

Location	Name	Common name
R, Bollards access path, rock wall garden	<i>Banksia spinulosa</i> “Birthday Candles”	Birthday candles

Between Bollards and Bridge.

Story: *Xanthorrhoea* (Grass tree)- Great from Top to Toe.

Location	Name	Common name
L	<i>Xanthorrhoea glauca subsp angustifolia</i>	Grey Grass Tree
Café bridge	<i>Dicksonia antarctica</i>	Soft Tree Fern

Cross bridge, turn right, down steps to Casuarina Pond. Then either turn left to go over stepping stones or veer right to walk around the back edge of the Casuarina Pond .

CASUARINA POND

Location	Name	Common name
Pond near water	<i>Lomandra longifolia</i>	Long-leaved Matrush, Spiky-headed Matrush
	<i>Casuarina cunninghamiana</i>	River Oak
In pond	<i>Typha domingensis</i>	Cumbungi
Stepping stones		Mosses, liverworts, Water ferns

Story: the ship “Casuarina”

Walk along paved path towards Crosbie Morrison building, walk along paving and curve up to the junction between the Ellis Rowan and the Crosbie Morrison buildings, with the tall Callistemon.

Location	Name	Common name
Section 310	<i>Callistemon (Melaleuca) viminalis</i>	Weeping Bottlebrush

Turn right, onto the tarred track, and walk along the path into Banksia Garden.

BANKSIA GARDEN

Story: Banksia Garden - introduction

Location	Name	Common name
R	<i>Banksia menziesii</i>	Firewood Banksia, Port Wine Banksia, Strawberry Banksia
R	<i>Banksia baueri</i>	Possum Banksia, Woolly Banksia
R	<i>Banksia solandri</i>	Stirling Range Banksia
L	<i>Banksia baxteri</i>	Baxter’s Banksia , Bird’s Nest Banksia.
R	<i>Banksia brownii</i>	Feather-leaved Banksia or Brown's banksia
In front, as walk from the canopy	<i>Banksia blechnifolia</i>	-
R, in and near creek	<i>Banksia robur</i>	Swamp Banksia, Broad Leaved Banksia.
R, near creek	<i>Banksia robur “Purple Paramour”</i>	Banksia “Purple Paramour”
R, in sand dunes	<i>Banksia integrifolia</i>	Coast banksia
R & in display about fire on Left	<i>Banksia serrata</i>	Saw Banksia, Old Man Banksia, Saw-Tooth Banksia, Wiryagan by the Cadigal people

SECTION 178 – MELALEUCA WETLAND or MELALEUCA SWAMP

Australia's wetlands

Why are wetlands important?

Value of Melaleuca forests and Melaleuca swamps – a threatened community

Name: mela = black, leuca = white, named by Linnaeus – as the first specimen had fire blackened white bark. This was the inspiration for the tree house.

Location	Name	Common name
L & R Paperbark Lawn and Melaleuca Swamp	<i>Melaleuca ericifolia</i>	Swamp Paperbark

Pause just before the “board walk”.

Location	Name	Common name
L	<i>Dicksonia antarctica</i>	Smooth Tree Fern
L	<i>Ficinia nodosa</i>	Knobby Club-rush
L	<i>Muehlenbeckia gunnii</i>	Macquarie Vine
L & R	<i>Epacris petrophila</i>	Snow Heath
L	<i>Blechnum penna-marina</i>	Antarctic hard-fern, Alpine waterfern, pinque (Sp Ch)
L	<i>Viola sp (hederacea?)</i>	Native violet
R?	<i>Juncus usitatus</i>	Common Rush, Pin Rush, Mat Rush
L	<i>Carex gaudichaudiana</i>	Fen Sedge
L	<i>Blechnum nudum</i>	Fish-bone Water Fern
L	<i>Persicaria decipiens</i>	Slender Knotweed

Location	Name	Common name
	<i>Blechnum wattsii</i>	Hard water fern
	<i>Blechnum sp (cartilagineum?)</i>	Gristle Fern, Soft Water Fern

GRASSES, SEDGES AND REEDS

Talk about differences in Grasses, Sedges, and Reeds.

Turn left onto stepping stones

For kids – can they see the adults and junior frogs?

Location	Name	Common name
R	<i>Gahnia sieberiana</i>	Red-fruit Saw-edge.
R	<i>Carex appressa</i>	Hook Sedge, Tall Sedge
R	<i>Carex inomitata</i>	Hillside Sedge

Up steps to tree house

TREE HOUSE

Story: Tree House

Go up to top of tree house and look out onto Melaleuca Swamp, if walkers are happy to do so, otherwise talk about the Melaleuca and its uses on the main level.

Uses of Melaleuca

Fire rarely occurs naturally in Melaleuca wetland areas. Melaleuca Swamps and wetland are Threatened Communities. Lighting fires is a threat to the Melaleuca wetland areas and is prohibited in Tasmania

Location	Name	Common name
L	<i>Callistemon pallidus</i>	Lemon Bottle brush
L	<i>Callistemon salignus</i>	Willow Bottle brush

Exit Treehouse

About halfway along the walk way / ramp, pause and talk about the plants in the green plant guards. Some on right has grown above plant guard.

Location	Name	Common name
R , along ramp Green plant guards	<i>Eucryphia lucida</i>	Leatherwood

Tar Path - Directly opposite

Location	Name	Common name
Opposite	<i>Melaleuca styphelioides</i>	Prickly Paperbark

Turn Left onto tarred path

Location	Name	Common name
R 3 plants side by side	<i>Sannantha pluriflora</i>	Tall Baeckea
L		Info about Tree House
R	<i>Melaleuca thymifolia</i>	Thyme-leaf Honey-myrtle
R	<i>Austromyrtus tenuifolia</i>	Narrow-leaf Myrtle

Story: **Tasmanian Devil** model – (ask kids what is this animal?)

Location	Name	Common name
R	<i>Leptospermum polygalifolium</i> subsp <i>polygalifolium</i>	Tantoon

Story: **Leptospermum**, and how it got the name “tea-tree”

At this point there is **OPTION 1** of continuing along the tar road if the weather is mild,
OR
OPTION 2 of going into Section 12 and walk in some shade.

OPTION 1: MILD WEATHER OPTION - continuing along tar road.

Pause at cul-de-sac near Baxter’s Banksia and talk about design and horticulture of Banksia Garden.

Location	Name	Common name
L	<i>Banksia ashbyi</i>	Ashby's Banksia
L	<i>Banksia baxteri</i>	Baxter's Banksia, Bird's Nest Banksia
L	<i>Banksia prionotes</i>	Acorn banksia
L	<i>Banksia speciosa</i>	Showy Banksia

R, near "feathers" sign	<i>Kunzea ambigua</i>	White Kunzea; Tick Bush
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Location	Name	Common name
R	<i>Calothamnus quadrifidus</i>	One-sided Bottlebrush, Common Net Bush

OPTION 2: HOT WEATHER OPTION

Turn right into S12, between the two signs for S12, onto dirt path

Location	Name	Common name
R	<i>Leptospermum polygalifolium subsp polygalifolium</i>	Tantoon
R	<i>Calothamnus macrocarpus</i>	-
R	<i>Melaleuca linariifolia</i>	Snow-in-summer, Narrow-leaved paperbark, Flax-leaved paperbark

Fork left

Section 12 is on left and Section 11 is on the right

Location	Name	Common name
R	<i>Callistemon "Apricot Pink"</i>	
R	<i>Calothamnus torulosis</i>	-
L, set back from path	<i>Callistemon viminalis "Captain Cook"</i>	<i>Callistemon</i> Captain Cook

Junction, then Turn left onto Main Path

Location	Name	Common name
R	<i>Callistemon citrinus</i>	"Crimson Bottlebrush"
R	<i>Leptospermum "Aphrodite"</i>	
L	<i>Kunzea ambigua</i>	White kunzea, poverty bush or tick bush,

BOTH OPTIONS

Walk to Ellis Rowan building.

Pause at Friends Lounge door, talk about Friends.

Recap on water and fire theme.

- We have seen plants that grow in and near water as well as those that prefer to grow in well-drained soils.
- We have looked at the value of ponds and wetlands / swamps where fire rarely occurs.
- Including the endangered community of Melaleuca Swamp, and the use of Melaleucas.
- Melaleuca swamps in Tasmania and many other swamps are endangered community and need protection.
- We have looked at fire, with *Banksia spinulosa* "Birthday candles", effect on *Xanthorrhoea*, *Banksia serrata* display. Some plants rely on fire, some cope well with fires, some are killed by fire and rely on seed bank.
- We looked at the interesting charred timber Treehouse, next to the wetland area.
- And a few stories about a ship named *Casuarina*, and how leptospermum became known as TEA TREE because of Capt Cook's and his crew on his voyages. Different from TI-TREE oil from Melaleuca.

Facilities: toilets, café, carpark, bookshop.

Close

Fire, Water & a Tree-House – Notes

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Fire can be warm or hot and/or productive, or friendly or dangerous. Today we shall look at some plants that **rely on or respond well** to fire, some others that are **killed by fire** and rely on seed banks in the soil, as well as an example of an area where fire rarely occurs. For example:

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Introduction

What are wetlands?

Wetlands are areas of land (marine & coastal or inland or human-made) where water covers the soil – all year or just at certain times of the year. Wetlands may be natural or artificial and the water within a wetland may be static or flowing, fresh, brackish or saline. There are even underground wetlands.

They include:

- swamps, marshes
- billabongs, lakes, lagoons
- saltmarshes, mudflats
- mangroves, coral reefs
- bogs, fens, and peatlands.

Artificial wetlands could include dams, fish ponds, irrigated agricultural land, salt pans, reservoirs, and gravel pits, sewage farms and canals.

A highlight of the walk will be to see a Melaleuca Forest, a Tasmanian type of wetland; a coastal and marine wetland

CLOCK POND

The pond here contains a number of aquatic flowering plants, but there are also aquatic ferns, liverworts and algal forms. These plants have special adaptations to live submerged in water or floating on the surface including spongy tissues. The spongy tissues circulate air which helps the plants manage low oxygen levels in the water.



These plants are classified as





- Emergent : rooted in the water/ soil but with parts of the plant above the surface (example Water Milfoils(*Myriophyllum crispatum*)
- Submerged: which grow totally underwater eg ribbon weed (in the stream near the tree house)
- Free floating : which are suspended on water surface and not attached to the bottom eg *azolla filiculoides* (water fern)

Aquatic plants are very important for the environment having a cleansing function e.g. removing excess nitrogen, phosphorus and sediment from the water, as well as providing food for fish and wildlife.

These plants are generally visible, but sometimes during the year they are pruned or culled.


Let’s look for examples of emergent, submerged and free-floating aquatic plants both here and in other water ways we encounter on this walk?

Location	Name	Common name	Comment
Clock Pond In water	<i>Carex fascicularis</i> 	Tassel Sedge	Lower left of pond Perennial tall plant to 1m, with pendulous, bright green spikelets which appear in spring and later turn brown. Flowers: Arranged in spikes at the tops of the flower stems, the uppermost spike male, the lower spikes female with occasionally a few male flowers at the tips. Flowering spring–summer. Grows in swampy areas; widespread on coast and tablelands. ACT, NSW, Qld, Vic, Tas, W.A. S.A. Uses: Excellent for floral arrangements
	<i>Azolla filiculoides</i> 	Water Fern	A native free-floating fern of slow flowing streams and rivers, ponds and lakes where the minimum water temperature remains above 0°C throughout the year. Plants can change colour from green to brown and red as a result of changes in sunlight intensity (and shade) as well as ambient temperature. Flowers: none; spores. It can also be dispersed on the feet and feathers of water birds. Use: The species has nitrogen-fixing ability and it often grown in paddy fields as a fertilizer. Can be a nuisance in dams. An infestation can double in area every 4-5 days. It is capable of completely covering pond and lake surfaces in a matter of weeks or months.

Location	Name	Common name	Comment
	<p><i>Ludwigia peploides subsp montevidensis</i></p> 	<p>Water Primrose</p>	<p>Leaves are glossy green with hairs on the underside. Bright yellow flowers on long petioles /stalks. Grows at the moist and muddy margins of water and trails across the water with floating stems that develop roots at the nodes. Common downstream of the ACT Use: Valuable wetland plant providing habitat for fish, seeds for water birds, removes phosphorus and other nutrients. It has been introduced into the constructed wetlands of North Canberra and Gungahlin. Very useful for habitat restoration, it does well in the wetlands and river margins at Woodstock Reserve where the Murrumbidgee leaves the Territory.</p>
	<p><i>Myriophyllum crispatum</i></p> 	<p>Water Milfoil</p>	<p>The submerged whorls of leaves are feathery; the above-water leaves are succulent. The Water Milfoils (e.g. <i>Myriophyllum crispatum</i>, <i>M. variifolium</i> and the reddish <i>M. verrucosum</i>). Grows in shallow to moderately deep parts of rivers and creeks, and sometimes form beds at the margins of farm dams or pools in wetlands. All three common species enjoy rocky riffles and associated sandbars. Use: Good habitat plant absorbing nutrients and providing cover.</p>
	<p><i>Phragmites vallatoria</i></p> 	<p>Tropical Reed</p>	<p>Right side of pond. Upright rhizomatous, perennial, grass-like or herb or (aquatic reed), to 6 m high. Grows in sunny areas around margins of permanent water; in and on the banks of streams, lakes and billabongs in rainforest, vine-forest, various types of woodland and wooded grassland. Red soils, river washed sand, clay loam, basalt. A lowland species with an altitudinal range from near sea level to 150 m. Native to NT, NE QLD, WA.</p>
	<p><i>Vallisneria australis</i></p> 	<p>Ribbon Weed</p>	<p>Forms extensive beds of submerged strap-like leaves, very often covered with silt and diatoms (tiny algae in their own glass houses). The spiral female flower-stalks are visible in spring and summer. Grows in rivers and lakes, and occasionally in farm dams and artificial wetlands. Native to all states and Territories</p>

BOLLARDS AND CAFÉ BRIDGE



On the right on the bollards, rock wall (also nick-named 'banana bend garden')

Location	Name	Common name	Comment
Bollards access path, rock wall garden	<p><i>Banksia spinulosa</i> "Birthday Candles"</p> 	<p>Birthday Candles</p>	<p>Candle shape flowers. In other contexts, birthday candles are a pleasant form of fire theme</p> <p><i>B. s. var. spinulosa</i> 'Birthday Candles', the original trailblazer (as a cultivar), is a compact plant growing to 45 centimetres (18 in) tall and up to 1 metre (3 ft) across. The leaves are narrow with attractive lime green new growth. Stems and branches naturally crooked.</p> <p>Flowers: red-styled gold flowers. The provenance of the original material grew in well-drained soils on an exposed headland near Ulladulla on the New South Wales South Coast.</p>

Between Bollards and Bridge.

Story: *Xanthorrhoea* (Grass tree), Great from Top to Toe.



- Flowers: white. Nectar for birds. Soak in water, strain for a cool drink
- Seeds: food for birds, can grind for cooking
- Stem: light spear shaft, floats. Now spears mostly made for tourism. Also very resinous so a good fire starter.
- Leaves: chew base of fresh young leaves. Old leaves tough and sharp, some species serrated, and good cutting. Fibre for use in making straps, and nets, tie on spearhead / spear tip. Dead leaf skirt ignites easily.
- Trunk: formed by loss of leaves. Glassy resin that exudes from trunks when mixed with saliva and water, etc, makes good glue, e.g. to glue on spear tip. The resin was also used as varnishes, and when mixed with some other things was also used as an explosive.
- Roots: nutritious starch type of food.
- Many species produce new foliage and stems after **fire** and/or smoke


Location	Name	Common name	Comment
L	<i>Xanthorrhoea glauca</i> subsp <i>angustifolia</i> 	Grey Grass Tree	Tree-like perennial herb, trunk to 5 m high, often with 2 or more trunks. Trunks with a pithy core surrounded by the flattened glossy bases of old leaves. Young plants without trunks. Leaves clustered at the top of the trunk(s) or forming an erect tuft, greyish to grey-green, rigid. Leaves 4-sided, diamond-shaped in cross-section. Flowers: flowers cream, with 6 'petals' in two rows. Usually July–December. Mass flowering at any time, including after fire or strong smoke . Grows in dry forest, woodland, and rocky slopes, e.g. Western Slopes, Kosciuszko National Park, and the ACT. Only species of Xanthorrhoea that occurs naturally in the ACT. Protected in ACT and NSW. Endangered Vic.
Café bridge	<i>Dicksonia antarctica</i> 	Soft Tree Fern	Terrestrial ferns with an erect rhizome forming a trunk, large spreading fronds and are very hairy at the base of the stipe. Up to 15m in height; canopy of up to 6m diameter. Spores, not flowers . Grows in moist areas with high water content in wet sclerophyll forests, along creek beds, in gullies and occasionally at high altitudes in cloud forests. Endemic to Australia. Wide-spread species growing from south-eastern Queensland, through the NSW and Victoria coast and in Tasmania. Use: food source with the pith of the plant being eaten either cooked or raw and is a very good source of starch The uncurled fronds of tree-ferns, called croziers, are also edible, and have a juicy, slimy, sometimes bitter taste. Name: in honour of James Dickson, 1738-1822, a Scottish nurseryman antarctica - 'southern', or from the Antarctic regions.

Cross bridge, turn right, down steps to Casuarina Pond. Then either turn left to go over stepping stones or veer right to walk around the back edge of the pond.

CASUARINA POND

This pond is part of the ANBG irrigation system. Popular with families with children. Children holiday activities include water testing and recognising fauna (e.g. dragonflies, insects, water midges, etc).

Location	Name	Common name	Comment
Pond Near water	<p data-bbox="245 208 501 237"><i>Lomandra longifolia</i></p> 	<p data-bbox="606 208 813 344">Long-leaved Matrush, Spiky-headed Matrush</p>	<p data-bbox="833 208 1490 775">Description: Perennial rhizomatous herb. Leaves are glossy green, shiny firm, flat. From 40 cm to 1 m long. Tips of leaves are prominently toothed. Flower head is a panicle of clusters of sessile cream to yellow flowers. Fruit are orange / yellow berries Grows: near water. From Northern Territory to QLD through NSW to Victoria. Uses: Aboriginal people use the leaves to make strong nets and baskets and they consume the base of the leaves as food. Excellent river or creek bank stabiliser. Name: <i>Lomandra</i> - from <i>Loma</i> (Greek) meaning edge, border and <i>aner</i>, man, male because of the bordered anthers of some species. <i>Longifolia</i> - from <i>longi</i> - (Latin) meaning long and <i>-folia</i> (Latin) meaning leaf.</p>
Near water	<p data-bbox="245 813 459 882"><i>Casuarina cunninghamiana</i></p> 	<p data-bbox="606 813 785 882">River-Oak, River She-oak</p>	<p data-bbox="833 813 1490 1771">Medium size to tall tree to 20m. Subsp <i>cunninghamiana</i> grows to 35m tall. Evergreen tree with slightly pendulous branchlets, fine greyish green with tiny scale-like foliage. Usually erect trunk with rough bark. Flowers are reddish-brown in the male and red in the female. In spring–summer. Cone-like fruits are small, nearly round to elongated. Each valve contains a seed. Usually grows near water. The native range in Australia extends from Daly River in the Northern Territory, north and east in Queensland and eastern New South Wales. Subsp <i>cunninghamiana</i>, Eastern New South Wales, north and east Queensland Use: The roots have nitrogen-fixing nodules. Valuable source of timber and firewood. Important tree for stabilising riverbanks and for soil erosion prevention, accepting wet and dry soils. Widely used as a screening plant on windy sites and is also suited to coastal areas. The foliage is quite palatable to stock. Introduced into several other countries for the purpose of agroforestry Story of <i>Casuarina</i> ship (see below)</p>

Location	Name	Common name	Comment
In pond	<p><i>Typha domingensis</i></p> 	Cumbungi	<p>Grass-like perennial forb to 4m tall. Leaves in 2 rows up the stems, with underground stems (rhizomes) Individual separate male and female flowers on same stem, with male above, and female flowers below forming a dense brown rod 85- 260mm long that persist for a long time.</p> <p>Fruit is a dry single seed with a whorl of long silky hairs. Grows in still or slow-moving water. This aquatic plant grows all over Australia.</p> <p>Use: Important habitat for birds and other wildlife. Valuable water cleanser, bank stabilizer. Aborigines used plant for multiple purposes including rhizome for bread after preparation, for twine, spears, new shoots were eaten like asparagus and seed fluff used for bandages and to start fires and ceremonial decoration</p>
Stepping stones		Mosses, liverworts Water ferns	Mosses and liverworts grow in moist humid conditions. Note mosses on fern tree trunks, and floating liverworts and/or ferns

Story: the ship “*Casuarina*”:


The French scientific expedition led by Nicholas Baudin in 1801 – 1803 collected so many samples, that he sent one of his ships, *Le Naturaliste* to Europe with the results of his voyage, and the expedition needed another ship. He bought from Governor Philip Gidley King in Sydney the 20-ton schooner *Casuarina* and duty captain was Louis Freycinet.

In April 1802 the Baudin expedition met Matthew Flinders and his expedition at Encounter Bay, in what is now South Australia.

The Baudin expedition went along west coast of Australia to Timor. After leaving Australia, the expedition sailed back to France, via Mauritius, where he died of tuberculosis on 16 September 1803.

Many crew members had also died during the expedition. All remaining crew sailed on to France in the ship *Géographe*, and *Casuarina* was left behind at Mauritius. *Géographe* returned to Le Havre port in France on 23 March 1804, under Frigate Captain Milius.

Walk along paved path towards Crosbie Morrison building, walk on and curve up to the junction between the Ellis Rowan and the Crosbie Morrison buildings, with the tall Callistemon.

Location	Name	Common name	Comment
Section 310	<p><i>Callistemon (Melaleuca) viminalis</i></p> 	Weeping Bottlebrush	<p>Pendulous foliage</p> <p>Red flowers. Peak flowering time is late spring. It is common for the species to flower in spring and autumn or bear small numbers of flowers all year.</p> <p>Fruits are 5-6 mm in diameter and the seed is held for a few seasons. New growth emerges from the ends of the inflorescence and the young leaves have bronze-coloured hairs.</p> <p>Grows along watercourses in North NSW & Qld.</p> <p>Two callistemon species are found in Tasmania and some in SW Western Australia. At least some species are drought-resistant.</p> <p>Useful as a screen plant, in erosion control or as a specimen or street tree, where it exhibits smog tolerance</p> <p>For kids; the branch grows through the old flower head each year. How old is this branch ?</p>



Turn right, onto the tarred track, and walk along the path into Banksia Garden.



BANKSIA GARDEN




Banksia Garden - introduction



Pause at entry to Banksia Garden and give an introduction to Banksias generally.



- Great diversity. Have been with us since about 60 million years ago
- Different heights: prostrate to tall trees
- Different inflorescences; candle-like, cup-like, upright or pendulous.
- Different foliage; about 13 different patterns and we shall see many of them.
- Some grow in dry well-drained areas, others like growing near water. Some on quickly draining mounds, others beside creek
- Fire and /or smoke stimulates or kills. Fire and/or smoke can stimulate new growth and /or flowering in some species. Nuts open with the heat and seed sits until rain or appropriate humidity. Fire kills other species which rely on seedbank in soil. If fires too frequent these latter plants become extinct.
- Attractive to many pollinators; bees, butterflies, insects, birds.

Location	Name	Common name	Comment
R	<p data-bbox="252 226 480 255"><i>Banksia menziesii</i></p> 	<p data-bbox="683 226 927 327">Firewood Banksia, Port Wine Banksia, Strawberry Banksia</p>	<p data-bbox="1002 226 1477 327">A gnarled tree up to 10 m tall, or lower spreading 1–3 m shrub in the more northern parts of its range.</p> <p data-bbox="1002 333 1477 398">The serrated leaves are dull green with new growth a paler grey green.</p> <p data-bbox="1002 405 1477 539">The prominent autumn and winter inflorescences are often two-coloured red or pink and yellow. Yellow blooms are rare.</p> <p data-bbox="1002 546 1477 611">Generally, grows on sandy soils, in scrubland or low woodland.</p> <p data-bbox="1002 651 1477 752">Dependent on fire to reproduce because its follicles only open after being burnt.</p> <p data-bbox="1002 792 1477 896">It is found in Western Australia, from the Perth region north to the Murchison River.</p> <p data-bbox="1002 902 1477 1037">It provides food for a wide array of invertebrate and vertebrate animals; birds and in particular honeyeaters are prominent visitors.</p> <p data-bbox="1002 1043 1477 1469">A relatively hardy plant, <i>Banksia menziesii</i> is commonly used in gardens, nature strips and parks in Australian urban areas with Mediterranean climates, but its sensitivity to dieback from the soil-borne water mould <i>Phytophthora cinnamomi</i> makes it short-lived in places with humid summers, such as Sydney. <i>Banksia menziesii</i> is widely used in the cut flower industry both in Australia and overseas.</p> <p data-bbox="1002 1476 1477 1541">First described by the botanist Robert Brown.</p>
R	<p data-bbox="252 1547 464 1576"><i>Banksia solandri</i></p> 	<p data-bbox="683 1547 959 1576">Stirling Range Banksia</p>	<p data-bbox="1002 1547 1278 1576">Note very large leaves.</p> <p data-bbox="1002 1599 1477 1700">Flowering is in spring and early summer, the inflorescences are fawn in colour.</p> <p data-bbox="1002 1722 1477 1787">Grows in a sunny aspect and well-drained soil.</p> <p data-bbox="1002 1809 1477 1874">Is extremely sensitive to dieback but is grafted at the ANBG on <i>B. integrifolia</i> .</p> <p data-bbox="1002 1897 1477 1998"><i>B. solandri</i> was first collected by William Baxter in King George Sound, WA.</p>

			<p>The name honours Daniel Solander who accompanied Joseph Banks, who collected the first specimens of Banksia to be scientifically observed. They were on the <i>HMB Endeavour</i> with James Cook in 1770.</p>
R	<p><i>Banksia baueri</i></p> 	<p>Possum Banksia, Woolly Banksia</p>	<p>Shrub to about 2 metres high by 3 metres wide with tough, toothed leaves up to 130 mm long.</p> <p>Large woolly flower spikes. Individual flowers are cream to orange with greyish hairs, in late winter and spring. Seeds are enclosed in follicles attached to a woody cone and are generally retained within the cone until burnt.</p> <p>Grows in well drained soils in full sun to light shade. Tolerates moderate frost.</p> <p>The plant is fire-sensitive. The species relies on seed bank in soil for regeneration.</p> <p>Excellent for attracting honey eating birds.</p>
L	<p><i>Banksia baxteri</i></p> 	<p>Baxter's Banksia, Bird's Nest Banksia.</p>	<p>Shrub 1-5m Branchlets and leaves covered by woolly white hairs when young. Leaves long, wedge shaped zigzags. Flowers mainly Jan-Mar. Pollinated by New Holland and White-cheeked honeyeaters. Grows with other shrubs usually in deep sand and mostly occurs within 50 km (31 mi) of the coast between East Mount Barren and Israelite Bay in WA. Serotinous ie aerial seedbank opened by fire. Seed remains viable for years.</p> <p>Collected by William Baxter from King George's Sound WA in 1829.</p>

Location	Name	Common name	Comment
R	<p><i>Banksia brownii</i></p> 	<p>Feather-leaved Banksia, Brown's Banksia</p>	<p>Shrub 2m can also occur as a small tree. Fine feathery leaves and large red-brown flower spikes.</p> <p>Grows in a sheltered position in well-drained soil. 2 population clusters between Albany and Stirling Range SW WA.</p> <p>Rare and endangered in natural habitat threatened by <i>phytophthora cinnamomii</i> dieback.</p> <p>Fire destroys plants but releases seed from follicles. Intervals of 18 years are recommended so that plants reach maturity. Also, too infrequent fire causes population decline as more plants die of natural attrition without releasing their seed.</p> <p>Collected by William Baxter from King George's Sound in 1829. Named in honour of botanist Robert Brown.</p>
In front as walk from the canopy	<p><i>Banksia blechnifolia</i></p> 	<p>Fern-like Banksia, Southern Blechnum Banksia</p>	<p>Prostrate.</p> <p>Soft hairs on new growth. Red-brown flower spikes appear from the ground in September to November.</p> <p>Grows in white sand, in heath or mallee heath. Native to Western Australia. Annual rainfall about 400mm pa.</p> <p>Named as foliage resembled <i>Blechnum</i>, the fern genus.</p>
R, near creek	<p><i>Banksia robur</i></p> 	<p>Swamp Banksia, Broad Leaved Banksia.</p>	<p>Spreading shrub 2.5m</p> <p>Large leathery tough leaves with serrated margins up to 30cm. New growth colourful – red, maroon or brown with dense felt like covering of brown hairs. Mature leaves are green.</p> <p>Stunning flower spikes up to 15cm are metallic green with pinkish styles in bud, becoming cream-yellow and fading to golden- brown later.</p> <p>Grows in sand or peaty soil in coastal areas from Cooktown Nth Qld to Illawarra region in NSW. Often found in areas seasonally inundated.</p> <p>Plant is lignotuberous regenerating from ground after fire.</p>

			Originally collected by Sir Joseph Banks in 1770 in Botany Bay. Has been growing at the ANBG for about thirty years.
R, near creek	<p><i>Banksia robur</i> "Purple Paramour"</p> 	Banksia "Purple Paramour"	<p>Note there are several plants of <i>Banksia robur</i> "Purple Paramour"; a recently named cultivar.</p> <p>It was named as a result of a competition won by Kate Easton-Jukes from Western Australia.</p> <p><i>Banksia robur</i> 'Purple Paramour' is currently in the process of being commercialised.</p>
R, in sand dunes.	<p><i>Banksia integrifolia</i></p> 	Coast banksia	<p>Tree to 25 metres. Can also be prostrate.</p> <p>Leaves dark green with white underside.</p> <p>Flowers when aged 4-6 years from seed, mainly in autumn when little else is flowering.</p> <p>Grows from coastal dunes to mountains along Eastern coast between Vic and central Qld Near coastal cliffs and headlands, and alongside river estuaries, as well as dunes</p> <p>Does not need fire to trigger release of seed.</p> <p>Used for stabilisation of dunes and for bush regeneration. Widely planted in gardens, parks and streets. It is resistant to dieback and used at ANBG as rootstock for WA species that are susceptible to dieback (<i>Phytophthora cinnamomii</i>).</p> <p>Wood considered highly decorative sometimes used for cabinet panelling. Indigenous Australians obtained nectar by stroking flower spikes or soaking in a coolamon. Flower spikes used as hairbrush. Early settlers used nectar for sore throats and colds.</p>

			<p>Bushmen would use fat impregnated cones as candle. Useful firewood.</p> <p>Originally collected by Sir Joseph Banks in 1770 in Botany Bay.</p>
<p>After - fire display</p>	<p><i>Banksia serrata</i></p> 	<p>Coast Banksia</p>	<p>Banksia serrata is featured in the After-fire display. It shows burnt trunks, fruit opened and new plants growing.</p>
<p>R & in display about fire on Left</p>	<p><i>Banksia serrata</i></p> 	<p>Saw Banksia, Old Man Banksia, Saw-Tooth Banksia, Wiriyagan by the Cadigal people</p>	<p>Tree to 16m. Can be shrub or prostrate e.g. on cliffs.</p> <p>Leaves dark glossy green above, light green below, and margins are serrated.</p> <p>Large yellow or greyish-yellow flower spikes appearing over summer.</p> <p>Seeds release spontaneously depending where they grow.</p> <p>Seedbank in canopy is also released after bushfire. Seedbank is most productive between 25-35 years after previous fire. Follicles also open when part of the plant dies.</p> <p>Grows exclusively in sandy soil, along East coast from Qld to Vic. Outlying populations Flinders Island and Tasmania.</p> <p>Pollinated by many invertebrate and vertebrate animals providing them with food in autumn and winter. Also important food source for honeyeaters. Common plant of parks and gardens.</p> <p>Generally, becomes fire tolerant when 5-7 years age from seed, in that they are able to resprout afterwards. Regrowth is from epicormic buds or possibly a lignotuber.</p> <p>Originally collected by Sir Joseph Banks in 1770 in Botany Bay.</p>

SECTION 178 – MELALEUCA WETLAND or MELALEUCA SWAMP

Australia's wetlands

Australia currently has [65 Ramsar wetlands](#) that cover more than 8.3 million hectares. Ramsar wetlands are those that are representative, rare or unique wetlands, or are important for conserving biological diversity. These are included on the List of Wetlands of International Importance held under the [Ramsar convention](#).

Australia also has more than [900 nationally important wetlands](#). These are wetlands that are a good example in a particular area, an important habitat for native species, or that have outstanding heritage or cultural significance. Nationally important wetlands are listed on the directory of important wetlands.

All Australia's internationally and nationally important wetlands are listed on the [Australian Wetlands Database](#).

Story: Why are wetlands important?

Whether they are coastal and marine, or inland wetlands, they are vital link between land and water. They provide an important range of environmental, social and economic services. We are just beginning to understand the vital services that wetlands provide, and making the case for restoring them. Here are than the top ten (or more) benefits of wetlands:

- **Flood Control.** Wetlands reduce floods and relieve droughts. Wetlands function like a sponge, soaking up water that comes in with the tides, or from periodically flooding rivers. In fact, they control floods much more effectively and efficiently than any floodwall. Inland wetlands such as flood plains, rivers, lakes and swamps function like sponges, absorbing and storing excess rainfall and reducing flood surges. During dry seasons in arid climates, wetlands release stored water, delaying the onset of droughts and minimizing water shortages.
- **Pollution Filter.** If trees are the lungs of the planet, then wetlands are its kidneys. A wetland demonstration project showed significant reductions in nitrates, phosphorus, and heavy metals. Clean and plentiful drinking water depends on healthy wetlands.
- **Wildlife Habitat and Nursery.** Because of its unique location between water and land, salt and freshwater, wetlands shelter a wide diversity of life, including supporting plants and animals that are found nowhere else. Without wetlands, a huge number of songbirds, waterfowl, shellfish, mammals just wouldn't exist.
- **Storm Buffer.** Scientists have estimated that every three miles of healthy wetlands could trim about one foot off a storm surge. For places that have undergone tremendous erosion from oil and gas development and manmade levees, restoring and conserving wetlands is critical. In fact, wetlands provide have saved billions of dollars per year in storm protection services alone; e.g. have saved Australia \$27 billion in storm damage over the past 5 decades.
- **Wind Buffer.** A study co-authored by EarthShare member The Nature Conservancy showed that mangrove forests, which grow in wetlands and coastal areas, can reduce wind and swell waves, significantly; almost 100%, in fact, with 500 meters of forest!
- **Carbon Sink.** Because the soils found in wetlands can store carbon for hundreds of years, they play an important role in fighting climate change.
- **Sea Level Rise Mitigation.** By 2100, we could witness sea level rise of up to six feet. For those living within this rapidly expanding flood zone, wetlands will provide a critical buffer.
- **Primary industry.** For example, they form nurseries for fish and other freshwater and marine life and are critical to Australia's commercial and recreational fishing industries. The staple diet of half

the world's population is rice, which grows in wetlands in many parts of the world. Many commercially important fish species, reeds and papyrus are also harvested in wetlands.

- **Secondary industry.** They are valuable for tourism and recreation. For example, coastal regions provide employment in sectors like trade, and hospitality. Restoring wetlands also provides many jobs, e.g. Jerrabomberra Wetlands.
- **Recreation, Tourism, and cultural history.** Many volunteers have helped to rehabilitate wetlands in Australia. Between bird watching, biking, walking and hiking, and kayaking, wetlands provide people with many ways to enjoy nature. Many wetlands are areas of great natural beauty and many are important to Aboriginal people.

Value of Melaleuca forests and Melaleuca swamps – a threatened community

Name: mela = black, leuca = white, named by Linnaeus – as the first specimen that he saw apparently had some fire blackened white bark. This was the inspiration for the tree house.

Melaleuca forests trap vegetation and debris deposited in coastal areas during floods and storms. This provides **habitat for fish species**, retains and filters water and reduces soil and sediment run-off.

Melaleuca forests also provide **habitat for many species of birds**, including herons, egrets, bitterns and spoonbills. Some birds, such as the great-billed heron, nest and breed only in melaleuca and mangrove trees in tropical estuaries.

In Tasmania, **Melaleuca Swamp forest** is gazetted as a **Threatened Community**.


Fire rarely occurs naturally in Melaleuca wetland areas. Lighting fires is a threat to the Melaleuca wetland areas and is prohibited in Tasmania


Why is *Melaleuca ericifolia* swamp forest important and what are its management issues?

The average patch size identified in TNVC 2014 is only 5 ha, with 92% of patches smaller than 10 ha, and 49% less than 1 ha. Old growth stands that demonstrate a long history of regeneration in the absence of catastrophic disturbance (such as unplanned frequent fire, extreme stock disturbance or logging) are very rare.




Management now includes prohibiting fires and controlling woody weeds.





Dick Burns, who lives in Hobart and is a **Life Member of the Friends of the ANBG** since 1992, provided good deal of Tasmanian plants and advice to the ANBG, including the early plants for this Melaleuca Swamp area in the 1960s. It is marvellous to see how it has grown over the years. The copse has grown by the plants suckering and cloning.




Location	Name	Common name	Comment
L & R Paperbark Lawn and Melaleuca Swamp	<p><i>Melaleuca ericifolia</i>,</p> 	Swamp Paperbark	<p>Tall shrub or small tree. Bark is papery and grey to brown.</p> <p>Flowers creamy yellow in Feb. Many insects, including flower wasps, native bees and various beetles, are attracted to the flowers</p> <p>Grows from the north coast of New South Wales through Victoria to Tasmania, including King Island, usually in coastal areas. Generally occurs as a narrow strip at edge of salt marsh, lagoons and</p>

		<p>rivers, in sites that are poorly-drained or water-logged.</p> <p>Threatened community In Tasmania. The management for these vegetation types are:</p> <ul style="list-style-type: none"> • exclude fire • control woody weeds
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Pause just before the “board walk”.

Location	Name	Common name	Comment
L	<p><i>Dicksonia antarctica</i></p> 	<p>Smooth Tree Fern</p>	<p>Remind visitors of the plants seen at Café Bridge. Previous information above (about page 5).</p> <p>Several ferns in this area were removed for construction then successfully replanted.</p>
L	<p><i>Ficinia nodosa</i></p> 	<p>Knobby Club-rush</p>	<p>It grows to between 15 and 220 cm in height.</p> <p>Inflorescence a dense hemispherical head</p> <p>Grows in wet, sandy coastal areas near lakes and sea in Western Australia, South Australia, Tasmania, Victoria, New South Wales and Queensland.</p> <p>Native to Australia and New Zealand. Widespread in the Southern Hemisphere.</p>
L	<p><i>Muehlenbeckia gunnii</i></p> 	<p>Macquarie Vine</p>	<p>Vine at base of tree house.</p> <p>Glabrous (smooth, no hair or down) twiner with large leaves.</p> <p>Flowers in small clusters most of the year in some places.</p> <p>Grows in Tasmania, common component of wet montane forests away from the coast, especially West Coast.</p> <p>On Aust mainland it appears to be a near-coastal species</p>

Location	Name	Common name	Comment
L & R	<i>Epacris petrophila</i> 	Snow Heath	Green plant guards for these in 2020 & 2021 Small alpine shrub. Erect to c. 80 cm high. Branchlets densely covered with short retrorse hairs (pointing slightly backwards). Leaves appressed to stem. Flowers: solitary at the bases of the upper leaves. Dec.–Feb Grows plentifully in subalpine heathland of the margins of pools, in bogs and in frost hollows. NSW, Vic and Tas. In Victoria, known only from Lake Mountain, the Baw Baw Plateau and the summit area of Mt Howitt.
L	<i>Blechnum penna-marina</i> 	Antarctic hard-fern, Alpine Waterfern	Small pinnate fronds. Sterile and fertile fronds. Pink fronds appear in spring-time. Spores, no flowers . Grows in moist, well-drained soil, in a protected spot, in grasslands, stream banks, rock crevices and <i>Sphagnum</i> bogs. Native to Australia, NZ and Chile (named Pinque in Chile) and some Pacific Islands Sub-species <i>alpina</i> only found in Aust.
L	<i>Viola sp (hederacea?)</i> 	Native violet	A small mauve and white native violet that creates a dense ground cover. Flowers profusely most of the year, but especially June to March with delicate flowers. Grows best in a partly shaded position in moist soil. It is common and widespread in Queensland, New South Wales, Victoria, Tasmania and South Australia.
R?	<i>Juncus usitatus</i> 	Common Rush, Pin Rush, Mat Rush	An emergent, densely tufted, rhizomatous perennial with mostly cylindrical culms to approximately 1.2 m tall Flowers in spring or summer. Old flowers usually remain on the plant all year. Seeds are shed mostly in summer to autumn Grows along the waterways Throughout Queensland, New South Wales and Victoria and has been introduced into South Australia and Western Australia. Common in the Murray-Darling Basin. Provides cover and food for animals, such as frogs and nesting sites for birds and yabbies (<i>Cherax destructor</i>) eat the tender, young stems.

			While it can be a nuisance in poorly drained pastures, its fine, arching stems have led to its use in landscaping and wetland rehabilitation. Due to its adaptation to waterlogged soil it can be an early indicator of dryland salinity.
L	<p><i>Carex gaudichaudiana</i></p> 	Fen Sedge	<p>Rhizome long; shoots ± loosely tufted. Culms erect, 10–90 cm long, c. 1 mm diam. Leaves exceeding culms; blade 2–4 mm wide; sheath pale yellow-brown to orange-brown. The uppermost male spikes are characteristically much longer than the lower spikes.</p> <p>Flowering: spring–summer Nut globose to obovoid, lenticular in cross section, dark yellow-brown.</p> <p>Grows in swamps, creek banks, fens and slow-flowing streams from low altitude to alpine areas. Widespread in NSW Qld Vic Tas and SA.</p>
L	<p><i>Blechnum nudum</i></p> 	Fish-bone Water Fern	<p>Lots near steps Has simple, pinnate fronds of length 40–60 cm. Fronds have a short, thick stipe that is sometimes covered in small hairs. Has distinct fertile and sterile fronds. Fertile fronds are simply pinnate, like the sterile variety, but can be much longer than sterile fronds in this fern. The fern grows through a rhizomic stem, which spreads underground.</p> <p>Grows in areas of higher water availability, and inhabits moist or poorly drained sites. Common along forested stream banks, in deeply shaded gullies and alluvial flats, occasional in more exposed situations in poorly drained areas.</p> <p>In wet eucalypt and rainforests in all Australian states except for Western Australia.</p>
L	<p><i>Persicaria decipiens</i></p> 	Slender Knotweed	<p>Multi-headed juncus near steps. A trailing plant whose stems grow horizontally at first but become more vertical with time, reaching 30 cm high. Leaves narrow-elliptic to lanceolate, often with a purplish blotch near middle of upper surface Spikes cylindrical, slender, rather lax, 2–6 cm long. Flowers mainly Dec.–Apr, deep pink. Outer part of flower segments 1.7–2.5 mm long. Nut 1.5–2.5 mm long, c. 1.5 mm wide, smooth and shining, dark brown to black.</p>

			Grows in in damp situations such as creek and lagoon banks. In eastern Qld, NSW, Vic, Tas, SA, NT and WA
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Location	Name	Common name	Comment
L	<p><i>Blechnum wattsii</i></p> 	Hard water fern	<p>Fronds about 1m long Fronds not clustered but grow dimorphic, pinnate for most of length. Sterile and fertile fronds, latter are longer, generally in the centre of the fern. Young fronds are bronze-pink colour.</p> <p>Grows in many rainforests, and wet sclerophyll forests, preferring damp, shaded areas that are along creek and river beds, on the margins of water courses and waterfalls. This fern prefers a loam/ sandy, well-drained soil that is rich in humus.</p>
	<p><i>Blechnum cartilagineum</i> ??? <i>Pellaea flacata?</i></p> 	Gristle Fern, Soft Water Fern ??? Sickle Fern???	<p>It is a resilient and abundant fern in rainforest and eucalyptus forest. The new growth is often pink or reddish in colour. Stipes covered with black scales</p> <p>Grows in sheltered sites along creek lines up to 200m above sea level, with moist but well-drained fertile soils. Sites are usually within dry sclerophyll forest or on the margins of wet sclerophyll forest. It is very tolerant of dry conditions once established in a shady area. In NSW Qld Vic Tas.</p>

GRASSES, SEDGES AND REEDS

Talk about grasses, sedges and reeds.

Talk about running water, seepage, tannins, collecting the iron (the rust coloured sediment in water), etc.

Grass stems are typically round or flat and hollow. Grasses are common worldwide, but there are usually more species of grass found in tropical and warm temperate climates than in cold ones. Typically, grasses thrive in dry, open habitats.



Sedges look like grasses but have hard solid triangular or round stems. Sedges are also found worldwide, but prefer colder, wetter regions than grasses. Sedgelands are dominated by plants of the Cyperaceae family and include species such as Tall Rush *Carex appressa*.


Reeds are tall stiff with round hollow stems which are rooted deep into the wet ground and emerge out of the salty or brackish water. Reeds belong to the Poaceae family. They usually occur in areas which are inundated for extended periods of time. The main species in NSW wetlands is the Common Reed *Phragmites australis* which can grow in water over 1m deep and is often used as a nesting site by small birds. Reeds are important stabilisers for wetland banks as without these deep-rooted plants, much of the mud and soil along the edges of wetlands would be eroded

away during times of high rainfall. They also trap polluted sediment flowing into wetlands and help remove excess nutrients.

Turn left onto stepping stones

For kids – can they see the adult and junior frogs?

Location	Name	Common name	Comment
R	<p><i>Gahnia sieberiana</i></p> 	<p>Red-fruit Saw-edge</p>	<p>Perennial tussock-forming <u>sedge</u> growing to 1–3 × 2–3m tall. The sharp-edged leaves are flat, brown-sheathed, a 2.5m long, narrow, spiral stem. The flowering stems are stout, often sprawling before becoming erect. Flowers are in spikelets, and may be drooping. Seeds are smooth, dark reddish-brown to orange-brown, and resemble a nut.</p> <p>Grows in most soils and climates but grows best if given plenty of water</p> <p>Gahnia species may be used to attract birds and butterflies. The plants provide safe habitat for nesting birds, butterflies, caterpillars and other insects and animals, including threatened species like the eastern barred bandicoot. Better than Pampas Grass in gardens. Ghania species are used by indigenous peoples and Aboriginal Islanders for basket-weaving and rope-making. The nuts were pounded and ground into flour to make bread, and the young bases of plants growing in wetter locations may be eaten. Also craft objects, wooden furniture, baskets, ornaments, decorative artwork, and furniture items. It is also used decoratively in vases and flower pots, and can be planted as an ornamental garden species.</p> <p>Name: <i>Gahnia</i>; after Henricus Gahn, a Swedish botanist. <i>sieberiana</i>; after Franz Sieber, an Austrian botanist.</p>
	<p><i>Carex appressa</i></p> 	<p>Hook Sedge, Tall Sedge</p>	<p>Rhizome short; shoots densely tufted. Culms (stems) erect 40–120 cm long Flowering spring, summer, brown colour. Inflorescence erect, narrow, 4–45 cm long, compound, with numerous short spikes solitary at nodes or on appressed spike-like secondary branches to 3 cm long Nut ovoid, lenticular in cross section, yellow-brown</p> <p>Grows in damp places. Widespread In all States except NT.</p> <p>Uses: An ornamental tussock grass for damp localities, wetlands, ponds, dams and watercourses. Tolerates seasonal or temporary inundation.</p>

			Butterfly attracting, caterpillar food. Habitat for small birds. Appropriate in biofiltration systems and rain gardens.
R	<p><i>Carex incomitata</i></p> 	Hillside Sedge	<p>Hairs point backwards: “retrorse”</p> <p>Rhizome short; shoots loosely tufted. Culms erect to spreading. 25–90 cm long, with numerous short spikes solitary at nodes or on appressed, spike-like secondary branches. Retrorsely scabrous at least near apex</p> <p>Flowering spring–summer. Inflorescence erect and narrow, erect, 3–12 cm long, compound, with numerous short spikes solitary at nodes or on appressed, spike-like secondary branches to c. 1 cm long. All spikes with male flowers above female flowers. Inflorescence darker than <i>C. appressa</i></p> <p>Nut obovoid to ellipsoid, lenticular in cross section, pale yellow-brown.</p> <p>Grows in drier habitats than the similar <i>Carex appressa</i> from which it differs in the loosely tufted habit, the usually shorter inflorescence, the utricle not thickened at the base, and the leaves with denser, retrorsely scabrous margins (except near the apex, where the scabrosities may be erect or antrorse). In NSW and Vic.</p>

Up steps to tree house

TREE HOUSE

Story: Tree House

Sydney-based arts collective, Cave Urban, designed and built the Treehouse for this clearing near a copse of *Melaleuca* thriving in spring fed boggy ground. The Treehouse is a ramp-accessible platform on three levels: the understorey below-decks; a two and a half metre-high platform; and a ladder-connected crow’s nest in the forest canopy. Fire was an important element in the design of the Paperbark Treehouse.

The surrounding *Melaleucas*’ myriad filo-pastry-thin layers of bark not only protect the living trunk against the ravages of fire, they harbour epicormic buds that sprout after the trunks have received damage by fire or storm. This concept sparked the idea of applying the ancient Japanese technique of Shou Sugi-Ban, literally translated as “burnt cedar board”. The carbonised outer layer provides a natural weather shield, is antifungal and gives extra protection against fire by resisting ignition.

There are nine different types of wood in the treehouse. The boards were cut longitudinally as wedges from Victorian silver ash logs in a revolutionary process known as radial sawing. The blackened poles and ‘board’ contoured edges complement the layers of paperbark.

The majority of building materials came from recycled sources. The charred tree trunks, including a Red Box, are from the Gardens. The turpentine piers, joists and decking came from demolitions of old wharves including one from Bateman’s Bay. The rosewood handrail and ladder rungs are 100 year old Central Queensland fence posts from the filmset of Baz Luhrmann film “Australia”.

A Chilean sculptor, Carolina Pinto, created the organic steelwork that grows on and around the trunks of the tree columns and allows native vines to grow through the structure whilst linked to the forest floor.

The Friends of the gardens assisted in the on-site charring of the burnt wood through the Japanese art of “**yakisugi**”, or carbonising wood. The work involved the use of rather large blowtorches. The tree house funding including donations from the Friends Public Fund for this Treehouse,

Go up to top of tree house and look out onto Melaleuca Swamp, if walkers are happy to do so, otherwise talk about the Melaleuca and its uses on the main level.

Uses of Melaleuca

The foliage of several Melaleuca species contains **essential oils (such as tea-tree oil) that have medical and pharmacological uses**. Some have germicidal and antibacterial properties and are used to treat a range of minor conditions. This was worth \$15.20 million at the farm gate in 2013. The main active ingredient is terpinene-4-ol but various species produce different oils and it can vary markedly within the group depending on the location of the plants. Some produce something very close to eucalypt oil, some others have lemon scented oils. There is even a cinnamon scented oil used commercially to flavour ice cream.

Other oils from *Melaleuca ericifolia* are used in **aromatherapy** and enerolid/rich oil in *M. quinquinervia* has an established market in perfumery – used as a base oil in many delicate flowering aroma complexes. In species that produce high levels of oil the glands can be seen in the leaves when held up to the light.

There have been plenty of scientific studies that support the use of **tea-tree oil** as topically applied antibacterial and antifungal and as a repellent for mites and lice. Since the last decade or so, its **anti-cancer properties are being investigated**. Researchers report that the compound inhibits the growth of melanoma cells in laboratory studies. It seems poetically appropriate that the country with the highest incidence of skin cancer could find an answer to the disease within the leaves of an indigenous plant. (Dr Joe Brophy, Uni of NSW chemist).

Melaleuca **wood** is particularly **durable in water** and **is highly resistant to termites**. Melaleuca **timber** has historically been used for marine pilings, knee joints for vessels, framing and flooring.

Below is a photo of a canoe made by Tasmanian aborigines from melaleuca, seen at the National Museum of Australia



Melaleuca is used for **brushwood fencing**, ornamental trees and shrubs for **gardens and street planting**. About 60 species have been used in **bonsai**.

Used in farm shelterbelts and for **rehabilitation of salt affected lands**.

It has also been used in the manufacture of **garden furniture, gazebos, pergolas, gates, hanging baskets and decorative bird feeders, lobster pots in WA**.



Woodchip – produces medium density fibreboard


Melaleuca can provide honey and a sweet drink from flowers.

Bark is used in traditional houses in PNG and in Australia, and for bark paintings, infant’s **pillows and mattresses**.

Fire rarely occurs naturally in Melaleuca wetland areas. Lighting fires is a threat to the Melaleuca wetland areas and is prohibited in Tasmania


The following two callistemon may be in flower during a visit, when it may be useful to have this information handy.

Location	Name	Common name	Comment
L	<p><i>Callistemon pallidus</i></p> 	Lemon Bottle brush	<p>Upright hardy shrub with slender spreading branches growing to a height of 3 m by 2 m across. Grey-green foliage Flowers, yellow, profuse cylindrical spikes 50-100 mm long. September to January. Grows in rocky sites of the eastern ranges and occurs naturally in NSW, ACT, Vic & Tas.</p> <p>Name: <i>Callistemon</i>...from Greek <i>kalos</i>; beautiful and <i>stemon</i>; stamens</p>
L	<p><i>Callistemon salignus</i></p> 	Willow Bottle brush	<p><i>S178 & 11</i> Small tree has attractive narrow foliage and white papery bark</p> <p>Flower-spikes are generally white or greenish but pink, red and mauve forms can be found. Spring, Summer, Autumn</p> <p>Grows in damp places in forests and woodlands from south-east Queensland to southern New South Wales,</p> <p>Use: An excellent garden and street tree which grows 5 to 12 m tall.</p> <p>Name: <i>salignus</i>...from Latin <i>salignus</i>, of the willow, referring to supposed similarity of the leaves to the willow, <i>Salix</i></p>


			
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Go along walk way to exit Treehouse




About halfway along the walk way, pause and talk about the plants in the green plant guards. Some on right have grown above plant guard.

Location	Name	Common name	Comment
R & L of plank, in Green guards	<p><i>Eucryphia lucida</i></p> 	Leatherwood	<p>Medium-sized tree with a compact crown of glossy green leaves. Masses of white, showy flowers that have a honey scent.</p> <p>Grows in cool temperate rainforest. An endemic Tasmanian tree in moss forests in the wetter areas of Tasmania's western side.</p> <p>The honey produced is the famous Leatherwood honey that is well known and enjoyed by many in Australia. It is exported to discerning gourmets across the world, too.</p> <p><i>E. lucida</i> also produces a fine timber.</p>

Tar Path - Directly opposite

Location	Name	Common name	Comment
Opposite	<p><i>Melaleuca styphelioides</i></p> 	Prickly Paperbark	<p>Note epicormic re-growth of this tree after damaged in a strong storm. This epicormic regeneration is similar to that after a fire. Flowers in summer in cream or white cylindrical "bottlebrush" spikes Grows along stream banks or other moist situations, mostly in coastal areas from Nowra NSW into Queensland Use: variety of situations ranging from swampy to hot and dry; e.g. lawn grows under because of deep root.</p>

Turn Left onto tarred path

Location	Name	Common name	Comment
R 3 plants side by side	<i>Sannantha pluriflora</i> 	Tall Baeckea	Flowering shrub or small tree species, up to 4m high. Flowers , white in groups of 3 to 7 between Oct & April in native area. Chiefly Oct–January Fruits 2.5 to 3.5mm in diameter. Grows in eucalypt forest close to watercourses on deep sandy soils, widespread on the coast and coastal ranges; south from Port Stephen in NSW to Victoria.
L	Sign about the tree house		
R	<i>Melaleuca thymifolia</i> 	Thyme-leaf Honey-myrtle	Bushy shrub 1–2 m high, 1 to 3m wide. Leaves similar shape to the herb, thyme. Purple flowers , Nov-Feb Grows in mild, moist areas and light soils in New South Wales and Queensland. Is frost hardy in the Australian National Botanic Gardens Really heavy watering or high rainfall brings beautiful large, soft flowers in profusion, but plants may droop, revealing tough papery branches. The branches recover, however, by curving inwards again and pruning is seldom necessary to keep a shapely plant
R	<i>Austromyrtus tenuifolia</i> 	Narrow-leaf Myrtle	Bushy shrub 1–2 m high Flowers solitary, white. Late spring through to summer Fruit 4–5 mm diam., purplish when immature, maturing white with dark spots. Grows in wet sclerophyll forest, often beside streams or in damp places, Sydney Basin NSW. Use: The fruit is edible and makes an interesting jam

Left.

Story: Tasmanian Devil model – (ask kids what is this animal?)

The Tasmanian devil (*Sarcophilus harrisii*) got its name from early European settlers who upon hearing mysterious unearthly screams, coughs and growls from the bush decided to investigate further. Finding the dog-like animal with red ears, wide jaws and big sharp teeth led them to call it "The Devil". This display is performed more from fear and uncertainty than from aggression.


Aboriginal people also had several names for them, one of which is "*purinina*".

The world's largest surviving carnivorous marsupial, the devil has a thick-set, squat build, and adult males weigh up to 12 kg. In the wild Tasmanian devils live up to six years.

Devils once occurred on mainland Australia, but became extinct on the mainland some 3,000 years ago - probably due to increasing aridity and the spread of the dingo,

Tasmanian devils were considered a nuisance by early European settlers of Hobart Town, who complained of raids on poultry yards and in 1830 the Van Diemen's Land Co. introduced a bounty scheme to remove devils, as well as Tasmanian tigers and wild dogs, from their northwest

properties: For more than a century, devils were trapped and poisoned. They became very rare, seemingly headed for extinction. But the population gradually increased after they were protected by law in June 1941. During 1996 it became evident that Tasmanian devils were again under threat – this time from the [Devil Facial Tumour Disease \(DFTD\)](#), a fatal transmissible and contagious disease causing cancers around the mouth and head. Devil numbers have dropped by 75% since 1996 and they were listed as endangered in 2009. There is considerable research into the treatment for and prevention of DFTD

Location	Name	Common name	Comment
R	<p><i>Leptospermum polygalifolium</i> subsp <i>polygalifolium</i></p> 	Tantoon	<p>A shrub, often 0.5 to 3 metres in height, or a slender to stout trunked tree to 7 metres or more, the bark usually being close and firm but soft, thick and flaky in some forms.</p> <p>Flowers: Solitary, white, August–January</p> <p>Grows usually in sandy or sandstone-derived soils but sometimes found in basalt soil or rocks, often in moist depressions or along watercourses.</p> <p>South coast of New South Wales to Cape York in far north Queensland extending beyond the inland ranges for a distance of up to 500 km. Also found on Lord Howe Island.</p> <p>Name: <i>Leptospermum</i>...from Greek <i>leptos</i>, thin and <i>sperma</i>, a seed, a reference to the small seeds.</p> <p><i>polygalifolium</i>...from Latin <i>folius</i>, a leaf; ie. with leaves resembling the genus <i>Polygala</i>.</p>

Story: *Leptospermum*, and how it got the name “tea-tree”

When Lieutenant James Cook arrived in New Zealand in 1769 and on second voyage, his crew steeped leaves of *L. scoparium* in hot water, which they drank both as a substitute for tea and to offset scurvy, a practice continued by early settlers in Australia, and hence the common name, Tea Tree.




It is different from Ti-Tree (*Melaleuca alternifolia*), the source of oil referred to as Ti-Tree Oil.



**At this point there is OPTION 1 of continuing along the tar road if the weather is mild,
OR
OPTION 2 of going into Section 12 and walk in some shade.**

OPTION 1: MILD WEATHER OPTION - continuing along tar road.


Pause at cul-de-sac near Baxter’s Banksia and talk about design and horticulture of Banksia Garden.

Location	Name	Common name	Comment
	<i>Banksia ashbyi</i>	Ashby's Banksia	Shrub or small tree to 8m sometimes forms lignotuber. It has smooth grey bark, deeply serrated, hairy leaves and spikes of bright orange flowers .

			<p>Grows on red sand dunes near the coast on the mid-Western Australian coast from Exmouth to Geraldton. Also extending inland. In the northern part of its range down to Shark Bay, it is a lignotuberous shrub to 2 metres in height. Further south, it is a non-lignotuberous shrub or small tree to 8 metres tall. These plants are fire-sensitive and rely on seed for regeneration. It is not known whether the changes between forms geographically are gradual or sudden.</p> <p>Named for Edwin Ashby one of the collectors of the type specimen. Alex George described two subspecies – <i>Banksia ashbyi</i> subsp. <i>ashbyi</i> grows as tree to 7 m in height lacks a lignotuber and is fire sensitive; <i>Banksia ashbyi</i> subsp. <i>boreoscaia</i> grows as a sprawling shrub no more than 2m. high and is lignotuberous.</p>
L	<p><i>Banksia baxteri</i></p> 	<p>Baxter's Banksia, Bird's Nest Banksia</p>	<p>Shrub 1-5m Branchlets and leaves covered by woolly white hairs when young. Leaves long, wedge shaped zigzags. Flowers mainly Jan-Mar. Pollinated by New Holland and White-cheeked honeyeaters. Grows with other shrubs usually in deep sand and mostly occurs within 50 km (31 mi) of the coast between East Mount Barren and Israelite Bay in WA. Serotinous i.e. aerial seedbank opened by fire. Seed remains viable for years.</p> <p>Collected by William Baxter from King George's Sound WA in 1829.</p>
L	<p><i>Banksia prionotes</i></p> 	<p>Acorn Banksia</p>	<p>Shrub or tree, reaching to 10m, smaller in more exposed areas of range. Serrated dull green leaves. Large bright flower spikes initially white before opening to bright orange. February to June. Seed release is triggered at relatively low temperatures, and is also released without fire.</p> <p>Grows almost totally restricted to the swales and lower slopes of dunes, with a very strong preference for deep white or yellow sand. Native shrub or tree to SW WA. It is the dominant plant in scrubland or low woodland.</p>

			<p>Observations suggest that it is always killed by fire in the north of its range, which is relatively hot and dry, and where individual plants are usually smaller, but may survive fire in the cooler, moister, south.</p> <p>Because of its higher susceptibility and lower reliance on fire for reproduction, the optimal fire interval for <i>B. prionotes</i> is higher than for other <i>Banksia</i> species with which it occurs. An interval of 18 years was optimal.</p> <p>Use: Pollinated by birds. Provides food to wide array of vertebrate and invertebrate animals in winter. An important source of food for honeyeaters and is critical to their survival as it is the only nectar producing plant in flower at some times of the year in the Avon wheat-belt.</p>
	<p><i>Banksia speciosa</i></p> 	<p>Showy Banksia</p>	<p>Large shrub or small tree, up to 8m. it is a single-stemmed plant that has thin leaves with prominent triangular "teeth" along each margin.</p> <p>Prominent cream-yellow flower spikes appear throughout the year.</p> <p>The flowers attract nectar- and insect-feeding birds, particularly honeyeaters, and a variety of insects.</p> <p>Grows on white or grey sand in shrubland. Native to south coast of Western Australia between Hopetoun and the Great Australian Bight.</p> <p>Highly sensitive to dieback. Plants are killed by bushfire, and regenerate from seed. Need several years to reach maturity and produce viable seed.</p> <p>Featured in sculpture on the Banksia Centre.</p>
<p>R Near "feathers" sign</p>	<p><i>Kunzea ambigua</i></p> 	<p>White Kunzea; Tick Bush</p>	<p>Hedge-like example</p> <p>Up to 5m high and wide. though is usually much smaller (from 1 m).</p> <p>Small white flowers from September to December or January, and sweetly fragrant.</p> <p>Grows mainly on sandstone soils in eastern Australia; New South Wales through Victoria and into Tasmania. Abundant in Flinders Island and North East Tasmania.</p> <p>It is killed by fire and regenerates from seed. Plants can also colonise unburnt sites with ample sunlight.</p>



			<p>Used in native gardening, it attracts native insects.</p> <p>Also used in amenities planting and sand dune stabilization.</p> <p>Australian Aboriginal communities used it to relieve irritated skin, muscle tightness and pain.</p> <p>Kunzea essential oil is now registered with the Australian Therapeutic Goods Administration (TGA) as providing temporary relief of the pain of arthritis. <i>Kunzea ambigua</i> has since been used as the active ingredient in topical products for relieving muscles, joints and inflammation.</p> <p>Name: The early settlers noticed that the native animals slept under the bush to rid themselves of ticks, as a result the bush was called 'Tick Bush'. Like many native Australian plants with an abundance of essential oils, the plant is not attacked by many insects, as the oil in the leaf is quite unpalatable to most insects and native animals.</p>

Location	Name	Common name	Comment
R	<p><i>Calothamnus quadrifidus</i></p> 	<p>One-sided Bottlebrush, Common Net Bush</p>	<p>Shrub with grey-green, pine-like foliage covered with soft hairs.</p> <p>Red, four-part flowers in spring that line up on one side of the stem.</p> <p>Grows in a wide range of habitats and soils. Endemic to the south-west of Western Australia; common and widespread in the Eremaean (desert) and South-West (mediterranean) botanical provinces,</p> <p>The common name alludes to the arrangement of the flowers in the inflorescence.</p> <p>First formally described in 1812 by Robert Brown from a specimen he collected at Lucky Bay near Esperance during the <i>HMS Investigator</i> expedition with Matthew Flinders about 10 years earlier.</p>

OPTION 2: HOT WEATHER OPTION


Turn right into S12, between the two signs for S12, onto dirt path


Location	Name	Common name	Comment
R	<p><i>Leptospermum polygalifolium</i> subsp <i>polygalifolium</i></p>	Tantoon	See information above. (approx. p23)
R	<p><i>Calothamnus macrocarpus</i></p>	-	Erect shrub, 0.4-2(-3) m high.

	 <small>Photos: J.A. Cochrane</small>		<p>Flowers, red, Feb or Apr or Aug to Dec.</p> <p>Grows in rocky quartzite soils, sand, well-drained slopes. WA</p> <p>Name: from the Ancient Greek words makrós meaning "long" and Karpós meaning "fruit" referring to the unusually large fruit of this species</p>
R	<p>Melaleuca linariifolia</p> 	<p>Snow-in-summer, Narrow-leaved Paperbark, Flax-leaved Paperbark</p>	<p>Small tree growing to a height of 6–10m with distinctive and attractive white or creamy white, papery bark and a dense canopy. The flowers are white to creamy-white, perfumed and arranged in spikes on the ends of branches. October and February.</p> <p>Fruit are woody capsules</p> <p>It grows in heath and dry sclerophyll forest habitats, usually near watercourses or swamps. From the Maryborough district in Queensland to Bawley Point in the Ulladulla district in New South Wales. There is also a disjunct population in the Blackdown Tableland National Park in Queensland.</p> <p>Use: Landscaping. Useful under power lines. Rich in essential oils, especially Terpinen-4-ol.</p>



Fork left


Section 12 is on left and Section 11 is on the right

Location	Name	Common name	Comment
R On edge of path	Callistemon "Apricot Pink"		<p>Tall Very attractive flowers in spring</p> <p>The entire genus is endemic to Australia but widely cultivated in many other regions and naturalised in scattered locations overseas.</p>
R	<p>Calothamnus torulosis</p> 	-	<p>It is sometimes an erect, sometimes prostrate shrub which has pine-like leaves</p> <p>Usually has red, 4-part flowers, from September to October.</p> <p>Has large fruiting capsules</p> <p>Grows on sand and rocky well-drained soils derived from granite. Endemic to the south-west of Western Australia; Perth to Eneabba in the</p>

			Geraldton Sandplains, Jarrah Forest and Swan Coastal Plain biogeographic regions.
L Set back from path	<p><i>Callistemon viminalis</i> "Captain Cook"</p> 	<i>Callistemon</i> Captain Cook	<p>It forms an erect but compact shrub, growing to around a metre and a half high and wide. Smaller than <i>C viminalis</i>.</p> <p>Red flowers, spring and early summer. Bird attracting.</p> <p>Grows in most soils, best in well drained.</p> <p>Originated as a seedling from <i>C. viminalis</i>, originally sold as <i>C. compacta</i>, name was changed to 'Captain Cook' in 1970 to mark the bicentenary of James Cook's voyage to Australia.</p> <p>The small, narrow leaves make this a great hedge plant also, and it responds well to pruning. It can be cut back hard if it gets untidy, which is best done after flowering. Frost and drought tolerant.</p>

Junction, then Turn left onto Main Path

Location	Name	Common name	Comment
R	<p><i>Callistemon citrinus</i></p> 	Crimson Bottlebrush	<p>A shrub however, it may reach small-tree proportions if conditions are favourable. Leaves are flat and stiff and growth is also stiff and dense.</p> <p>Crimson flowers. Mainly from early November, but its autumn flowers from the end of March</p> <p>Grows: swampy areas of Victoria, New South Wales and Queensland.</p> <p>Name <i>Callistemon</i> - from two Greek words meaning beautiful stamens <i>citrinus</i> because of lemon-scented leaves.</p>
R	<p><i>Leptospermum</i> "Aphrodite"</p> 		<p><i>Leptospermum</i> 'Aphrodite' is a medium to tall shrub at least two metres and develops into a dense shrub. Foliage is lush green. Bright pink flowers in spring. A wide range of native insects are attracted to the flowers.</p> <p>Use: an ideal addition to a hedge or screen. Light pruning after flowering is appreciated Propagation should be from cuttings to preserve the desirable characteristics of this colourful cultivar.</p>

			<p><i>Leptospermum</i> 'Aphrodite' originated from Bywong Nursery, in southern NSW and was found in a batch of <i>Leptospermum spectabile</i> seedlings.</p> <p>Peter Ollerenshaw, of Bywong Nursery, worked at the ANBG for many years. He also bred the Correa "Canberra Bells" that was selected as the Canberra Centenary floral emblem for 2013.</p>
L	<p><i>Kunzea ambigua</i></p> 	<p>White Kunzea, Poverty Bush or Tick Bush,</p>	<p>Hedge-like. Often up to 5m high and wide. though is usually much smaller (from 1 m).</p> <p>Small white flowers from September to December or January, and sweetly fragrant.</p> <p>Grows mainly on sandstone soils in eastern Australia; New South Wales through Victoria and into Tasmania. Abundant in Flinders Island and North East Tasmania.</p> <p>It is killed by fire and regenerates from seed. Plants can also colonise unburnt sites with ample sunlight.</p> <p>Used in native gardening, it attracts native insects.</p> <p>Also used in amenities planting and sand dune stabilization.</p> <p>Australian Aboriginal communities used it to relieve irritated skin, muscle tightness and pain.</p> <p>Kunzea essential oil is now registered with the Australian Therapeutic Goods Administration (TGA) as providing temporary relief of the pain of arthritis. Kunzea ambigua has since been used as the active ingredient in topical products for relieving muscles, joints and inflammation.</p> <p>Name: The early settlers noticed that the native animals slept under the bush to rid themselves of ticks, as a result the bush was called 'Tick Bush'. Like many native Australian plants with an abundance of essential oils, the plant is not attacked by many insects, as the oil in the leaf is quite unpalatable to most insects and native animals.</p>

BOTH OPTIONS

Walk to Ellis Rowan building.

Pause at Friends Lounge door, talk about Friends.

Recap on water and fire theme.

- We have seen plants that grow **in and near** water as well as those that prefer to grow in **dry or well-drained** areas.
- We have looked at the value of ponds and wetlands / swamps where fire rarely occurs.
- Including the endangered community of Melaleuca Swamp, and the use of Melaleucas.
- Melaleuca Swamp forests in Tasmania and many other swamps are endangered community and need protection.
- We have looked at **fire**, with *Banksia spinulosa* “Birthday candles”, effect on *Xanthorrhoea*, and the **After-Fire display**. Some plants rely on fire, some cope well with fires, some are killed by fire and rely on seed bank.
- We looked at the interesting charred timber Treehouse, next to the wetland area.
- And a few **stories** about a ship named *Casuarina*, *Xanthorrhoea* being great from top to toe, and how leptospermum became known as TEA TREE because of Capt Cook and his crew on his voyages. Different from TI-TREE oil from Melaleuca.

Facilities: toilets, café, carpark, bookshop.

Close

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