

WATTLE WALKS 2023

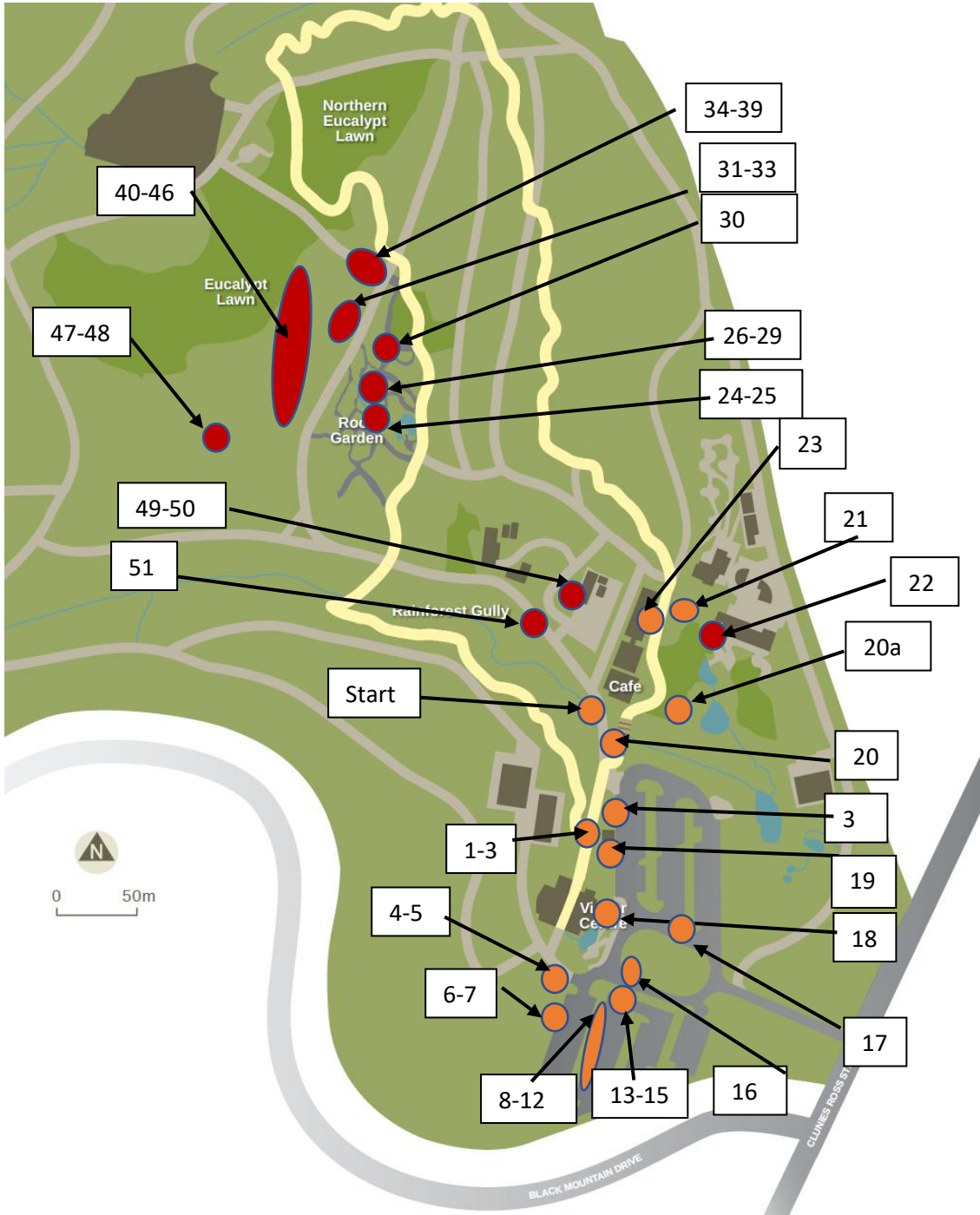


Golden Wattle (*Acacia pycnantha*)

GUIDES' NOTES

Prepared by Mary Bush and Linda Beveridge

WATTLE WALK 2023 - MAP



Note: The Northern walk is more comprehensive and shows more of the Gardens but the Southern walk would be invaluable if you need a NO STEPS walk or if the Gardens are partially closed because of bad weather.

MAP LEGEND

No.	Name
	SOUTHERN WALK
	Story - foliage
1	<i>A. boormanii</i>
2	<i>A. pubescens</i>
3	<i>A. aphylla</i>
	Story – culture & symbol
4	<i>A. pycnantha</i>
5	<i>A. covenyi</i>
	Story – naming - examples
6	<i>A. cardiophylla</i> “Gold Lace”
7	<i>A. triptera</i>
	Story - uses - horticultural
8	<i>A. stenophylla</i>
9	<i>A. pendula</i>
10	<i>A. baileyana</i> prostrate
	Story – naming - examples
11	<i>A. aneura</i>
	Significance of <i>A. aneura</i>
12	<i>A. bulgaensis</i>
13	<i>A. grandifolia</i>
14	<i>A. loderi</i>
15	<i>A. genistifolia</i>
	Story – taxonomy
16	<i>A. penninervis</i>
	Story – naming - examples
17	<i>A. filicifolia</i>
18	<i>A. ingramii</i>
19	<i>A. pycnantha</i>
	Story – uses of <i>A. melanoxyton</i>
20	<i>A. melanoxyton</i>
	Story – nitrogen fixation
21	<i>A. buxifolia</i> and Quandong
23	<i>A. leprosa</i> “Scarlet Blaze”
	Page 13 - NORTHERN WALK
	Story – foliage
1	<i>A. boormanii</i>
2	<i>A. pubescens</i>
3	<i>A. aphylla</i>
	Story – culture and symbol
19	<i>A. pycnantha</i>
	Story – uses of <i>A. melanoxyton</i>
20	<i>A. melanoxyton</i>

20a	<i>A. melanoxyton</i>
	Story - taxonomy
22	<i>A. alata</i>
	Story – nitrogen fixation
21	<i>A. buxifolia</i> and Quandong
	Note: flowers and inflorescences
23	<i>A. leprosa</i> “Scarlet Blaze”
24	<i>A. pterocaulon</i>
25	<i>A. araneosa</i>
	Story - uses - horticultural
26	<i>A. pravissima</i> “Kuranga Cascade”
27	<i>A. cognata</i>
28	<i>A. cognata</i> “Green Mist”
29	<i>A. trigonophylla</i>
	Significance of <i>A. aneura</i>
30	<i>A. aneura</i>
31	<i>A. pteraneura</i>
32	<i>A. acuminata</i>
33	<i>Vachellia caven</i>
34	<i>A. havilandiorum</i>
35	<i>A. amoena</i>
36	<i>A. dealbata</i> “Kambah Karpet”
37	<i>A. parvipinnula</i>
38	<i>A. ulicifolia</i>
39	<i>A. pycnostachya</i>
	Note: Leaves and phyllodes
40	<i>A. elata</i>
	Story - Naming – examples
41	<i>A. oshanessii</i>
42	<i>A. maidenii</i>
43	<i>A. silvestris</i>
44	<i>A. pubescens</i>
45	<i>A. longifolia</i> var. <i>sophorae</i> hybrid.
46	<i>A. cognata</i>
47	<i>A. boormanii</i>
48	<i>A. pravissima</i>
49	<i>A. covenyi</i>
50	<i>A. cognata</i> again
	Story – Wattle?
51	<i>Callicoma serratifolia</i>

SOUTHERN WALK

Theme:

Generally this walk is about Australian iconic wattles.

At the end of this walk we hope that you, the visitor, have learnt some more about its importance in the following ways.

- What are 3 foliage characteristics?
- Is it important culturally and symbolically?
- How are Acacia named?
- Is Acacia related to places near and far?
- How useful are Acacia species here and overseas?

Introduction

- *Acacia* is Australia's biggest genus – about 1100spp – and there are acacias in all states and mainland territories, from tropical northern Australia to cool temperate Tasmania.
- Acacias are more or less dominant in many arid areas, with plant communities named for them, such as the Mulga (*A. aneura*) and the Brigalow (*A. harpophylla*). Species occur in plant communities ranging from desert to rainforest.
- Acacias are of considerable cultural and symbolic importance.

WALK: START AT THE CLOCK

WALK ALONG THE BANKS WALK TOWARDS THE VISITOR CENTRE

Pause at *A. boormanii*, *A. pubescens*, and *A. aphylla* near Visitor Centre steps

Story 1: Why such a difference in foliage?

- **Leaf:** an organ for a vascular plant specialising in photosynthesis, typically consisting of a leaf blade and a petiole, the slender stalk by which the leaf blade is joined to the stem.
- **Phyllode:** a modified petiole resembling and having the function of a leaf blade
- **Cladode:** a modified, usually flattened, stem which performs the function of a leaf blade.




In *Acacia*, the true leaves are always bipinnate. This means twice divided: Not a simple leaf blade, not just divided into several leaflets like a rose leaf or a clover with its three leaflets, but with each primary leaflet (pinna) further divided into a number of secondary leaflets, called pinnules.

Acacia seedlings start off after germination with bipinnate leaves, but most species change over sooner or later to phyllodes: modified, usually flattened, petioles (leaf stalks). Observing a young plant one can see the gradual development of the phyllode from the petiole and reduction of the (bipinnate) leaf blade.

Even *A. aphylla* has leaves to start off with! (See <https://www.gardentags.com/plant-encyclopedia/acacia-aphylla/30581>)

Leaves vary greatly in size: *A. elata*, in *Acacia* section 1 in from upper eucalypt lawn, has bipinnate leaves up to ca 30cm long, while in *A. pubescens* they are tiny.

Phyllodes vary enormously both in size and shape – e.g. small in *A. boormanii*, Banks walk, cf elephant ear wattle, *A. dunnii*, whose phyllodes measure up to 45x16cm; small and needle like in *A. ulicifolia* in Sect. 18, interestingly shaped in *A. cultriformis*, etc

		
Leaves	Phyllodes	Cladodes

Site, Map no.	Plant	Comments
S210 R (1)	<i>A. boormanii</i> Snowy River Wattle	<ul style="list-style-type: none"> • Has small slender phyllodes, grey green colour. • Rounded shrub to 5 m high and 2-3 m diameter often suckers; long lived (>30 years). • An outstanding wattle in flower. • It grows in Eucalyptus woodlands and open forest at higher altitudes. NSW near Cooma; Thredbo to Buchan. Also, north eastern Vic. • Named after John Luke Boorman (1864?-1938), who worked for the Botanic Gardens in Sydney and collected extensively in NSW. He collected the specimen in 1913 on Macanally Mtn, North of Numeralla

On other side of walkway:

Site, Map no.	Plant	Comments
S172 L At top of stairs (2)	<i>A. pubescens</i> Downy wattle	<ul style="list-style-type: none"> • Here we see small bipinnate leaves and bright yellow inflorescences in axillary or terminal racemes • The downiness of the leaves of this species influenced its name. • This species is endemic to the Sydney region. • It is found in dry sclerophyll forest and woodland. • Currently it is listed as Vulnerable because its population has reduced so much as a result of changes in land-use. • This plant was included in a research project about acacia pollination about 10 years ago.

Just past the steps, in a large pot we see:

Site, Map no.	Plant	Comments
L In pot next to VIC (3)	<i>A. aphylla</i> Leafless Rock Wattle, Twisted Desert Wattle, Live Wire	<p>Spiny, leafless erect and widely branching shrub 0.9m to 3m in height, 2m across. The thickened wiry stems photosynthesise like leaves, greatly reducing the total surface for water loss by transpiration.</p> <p>Balls of 20-30 light golden yellow flowers occur, one per axil, between August and October in native range.</p> <p>Endemic to an area east of Perth in Western Australia. Exact location withheld for conservation reasons. Vulnerable</p>

Story 2. Is Acacia important culturally and symbolically in Australia?

PAUSE ON THE TAR PAST THE CASCADE STEPS TO SEE AN UNLABELLED *Acaciapycnantha* ACROSS THE ROAD

Invite people to mention some ways Acacia is used culturally and symbolically in Australia.

If no response, mention 3 or 4 points of symbolic and cultural importance of Acacias, including the *A. pycnantha*

Towards end of 19th century there was a strong social interest in Australian flora and a floral emblem for Australia. *A. pycnantha* and other Acacias (commonly known as “wattles”) have symbolic and cultural importance to Australia and Australians.

- *Acacia pycnantha*, Golden Wattle, was made the official floral emblem for Australia in 1988. Occurs naturally in NSW, Vic. and SA
- Coat of arms feature acacia blossom
- Order of Australia medals depict an acacia blossom
- Wattle Day was first celebrated on 1 September 1910 and became the official national day in 1992. For much of the twentieth century NSW celebrated Wattle Day on 1 August and other states also had different days.
- The national colours of Australia are green and gold. They were established by the Governor-General of Australia, Sir Ninian Stephen, on 19 April 1984 in the Commonwealth of Australia Gazette, on advice from Prime Minister Bob Hawke. The gold colour represents the Golden Wattle, which is Australia's national flower
- Green and gold sporting colours
- Popular garden plants.
- Poetry: Adam Lindsay Gordon, Dorothea Mackellar, Henry Kendall, Henry Lawson and many others.
- Ornamental uses in needlework, china etc.

Site, Map no.	Plant	Comments
S221 R (4)	A. pycnantha Golden Wattle	<ul style="list-style-type: none"> • Prominent extra-floral nectary on phyllode produces nectar attractive to birds which brush against pollen and so aid cross pollination. • Grows as small understorey tree in Eucalypt forests, woodland, open scrub, heath. • Distribution: From inland southern NSW and ACT through Victoria to Yorke Peninsula and southern Eyre Peninsula, SA. Short lived (7-10 years) in cultivation. • Originally collected by Mitchell 1836 near Loddon River, Vic • An <i>A. pycnantha</i> was planted in the ANBG in 1988 by Hazel Hawke, wife of Prime Minister, but it has died of old age and there is no longer one in that original place. • Bark a rich source of tannins; gum chewed by settlers to treat diarrhoea • Weed species in parts of South Africa • The name pycnantha comes from the Greek 'pyknos', meaning 'dense', and 'anthos', meaning 'a flower', referring to the dense clusters of flowers in each 'ball'.

See also *A. covenyi*, promoted for use in domestic gardens now that Cootamundra wattle is unavailable.

Site, Map no.	Plant	Comments

S128 R (5)	A. covenyi Blue Bush	Multi-branched shrub to tall single-stemmed tree 6 to 7.5m tall. "Flowers are lemon coloured, produced in mass in early autumn, with black seeds maturing late autumn to early winter." (ANBG Growing native plants) Actually yellow, in spring! Grows in thickets mainly on limestone. Endemic to NSW; Deua R to near Kybean - Bendethera Caves. Rare Named after R. Coveny, a collector at RBG Sydney. Collected by Constable, 1966 Con Ck, Bendethera.
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WALK ALONG THE TOP LEVEL OF THE SOUTHERN CARPARK

Site, Map no.	Plant	Comments
L (6)	A. cardiophylla "Gold Lace" West Wyalong Wattle	<ul style="list-style-type: none"> • Common names for the wild forms, shrubs or small trees, are West Wyalong Wattle, Wyalong Wattle. (Good specimens in Section 18) • Look left, prostrate form, <i>A. cardiophylla</i> 'Gold Lace' along top carpark. See it later cascading down rock retaining wall. • Grows in eucalypt woodland and mallee communities, in level red sandy earths and shallow stony ridge soils • Eye-catching addition to hedges and screens. Also, three plants grown close together create an interesting "stand alone" specimen thicket in a lawn • Species name means heart-shaped and refers to the shape of the leaflets Wild distribution is NSW: Gilgandra, south and west to Wagga Wagga and Lake Cargelligo area
L (7)	A. triptera Spurwing wattle, Spur-wing wattle	<ul style="list-style-type: none"> • Found in NSW on the Northern tablelands and the northern and central western slopes and plains, also Queensland, rare in Victoria. • Grows in mallee, woodland and heath communities, on sandhills or rocky outcrops. • Erect or spreading shrub to 2m high • Named for the three-wing like arrangement of the phyllodes (tri ptera). Bright yellow flowers in cylindrical inflorescences (rods) in axils of phyllodes.

Story 3. Are Acacia named for people, place, uses and characteristics?

Acacia species are admired in their natural habitat, have been given local and scientific names that relate to place, people, uses and/or botanic characteristics. They have been used extensively in public and private gardens in Australia, either as native species or cultivars. They are very popular as "Mimosa" in Europe too.

PAUSE NEAR END OF TOP ROW THEN CURVE ROUND TO NEXT LANE IN CAR PARK.

Site, Map no.	Plant	Comments
L (8)	A. stenophylla Many common names! (See right)	<ul style="list-style-type: none"> • Very widespread in Murray Darling Basin leading to many common names in different languages: Balkura, Belalie, Black Wattle, Dalby Myall, Dalby Wattle, Dunthy, Eumong, Gooralee, Gurley, Ironwood, Munumula, Native Willow, River Cooba and River Myall • Found from the Murray River in South Australia and Victoria to western New South Wales, Northern Territory, Queensland, with a small population also occurring in Western Australia.

		<ul style="list-style-type: none"> • Seeds and pods of <i>A. stenophylla</i> were roasted and used by Indigenous Australians as a food source • Widely planted as a drought tolerant and decumbent ornamental tree. It is cultivated by plant nurseries and used in modernist gardens and in public landscapes in the Southwestern United States and California. • Pendulous foliage quite popular • <i>A. stenophylla</i> is rarely utilised by cattle, but it is palatable to sheep. • The plant is said to contain medicinal alkaloids
R (9)	<i>A. pendula</i> Weeping Myall	<ul style="list-style-type: none"> • Pendulous tree to 13m, usually upright, occasionally spreading. • Note rich stringy bark patterns • Balls of yellow flowers occur mainly in summer and autumn Widespread in inland areas of NSW, Vic. and Qld, on major river floodplains.
R (10)	<i>A. baileyana</i> Cootamundra Wattle	<ul style="list-style-type: none"> • Prostrate form. • Usually a small tree or large shrub to 10m high by 6m across. • Popular in 1970s and 1980s for horticulture industry because of its vigour, hardiness and adaptability to many areas. • Widely planted in public and private gardens and beside streets. • Originally from near Cootamundra, NSW, Naturalized in other areas. • It has become a weed of open woodlands, heathlands, grasslands, forest plantations, roadsides, disturbed sites, waste areas and watercourses (i.e. riparian vegetation) in the temperate and sub-tropical regions of Australia. • In some areas it has been declared an environmental weed because it outcompetes other species, e.g. SE NSW, Victoria. • It is also considered to be a relatively important or emerging environmental weed in south-eastern South Australia, south-western Western Australia, south-eastern Queensland, Tasmania, and many parts of New South Wales that are beyond its natural range (particularly in coastal districts and in the Blue Mountains region). • Most commonly cultivated wattle. The cultivars are regarded as less risk. One has leaves purplish when young and is known as <i>A. baileyana</i> var <i>purpurea</i>, another has yellowish tips (<i>Acacia baileyana</i> 'Aurea'), a cultivar with reddish coloured young foliage (sometimes called <i>Acacia baileyana</i> 'Rubra' or <i>Acacia baileyana</i> 'Rubrum'); and a low-growing cultivar that grows as a dense carpet (sometimes called <i>Acacia baileyana</i> 'Prostrata').
R (11)	<i>A. bulgaensis</i> Bulga Wattle	<ul style="list-style-type: none"> • Named after Bulga, the main settlement in the area where it occurs, SW of Singleton, NSW • Shrub or small tree to 6 m high or sometimes taller • Rods of bright yellow flowers in axils, September to March. • Rare, grows in sclerophyll woodland and forest. • Attractive bark
R (12)	<i>A. aneura</i> Mulga	<ul style="list-style-type: none"> • "Mulga" is Aboriginal name for a narrow shield. Have you heard of the place "Oodnadatta"? That word means 'mulga flower' • Shrub or tree to 18 m high, often multi-stemmed. Phyllodes are variable, narrow to broad linear, greyish. Flowers are in short spikes (rods), are yellow and occur in spring and other times, depending on rain. • Upright branches and phyllodes channel any rain down trunk and deeper into soil. Note also grey phyllodes, thick cuticles, upright orientation all restricting water loss.

		<ul style="list-style-type: none"> • Widespread in arid areas in QLD, NSW, SA, WA, NT. <i>A. aneura</i> is the commonest wattle in Australia - usually south of 20°S latitude from Indian Ocean almost to Great Divide in central Qld and in NSW • Often in pure stands forming shrublands (the mulga) or understory of open eucalypt woodlands • Provided aborigines with food (seeds and a sweet exudate), medicinal preparations, resin for gluing and repairing wooden items and wood for tools, e.g. digging sticks, shields and weapons, e.g. boomerangs and spears. • Tourist items of wood. • Foliage is a valuable source of fodder and shelter for animals • Adaptations to drought • Longevity: 200 - 300 years or more
L (13)	<i>A. grandifolia</i> Burnett Wattle	<ul style="list-style-type: none"> • Tree to 8 m tall. Large phyllodes and long rods or spikes of golden yellow flowers which grow in pairs from the axils of the upper phyllodes. Grows in hilly terrain. • Endemic to small area in Burnett district of SE Qld, near Leichardt. • Vulnerable. It does not occur in a protected habitat and is considered vulnerable.
L corner bed (14)	<i>A. loderi</i> Nelia or Nealie	<ul style="list-style-type: none"> • Large shrub or small tree 3–8 m, erect or spreading habit • Named after its collector, assistant forester at Broken Hill A.C. Loder who collected it at Yancowinnia near Broken Hill in November 1907 • The <i>A. loderi</i> shrublands on the western plains of NSW are an endangered ecological community. Also found in SA and Vic. • Common name derived from the Ngyiyambaa word for the species
R (15)	<i>A. genistifolia</i> Early Wattle	<ul style="list-style-type: none"> • Scientific name because foliage similar to the genus <i>Genista</i> (a generally Mediterranean genus). • Note pointed phyllodes, balls of creamy flowers in winter and early spring. • Very hardy species in open forest and heath. NSW, ACT, Vic and Tas

WALK ACROSS THE ROAD TO SOUTHERN TABLELANDS GARDEN, stop at *Acacia penninervis* label

Story 4. Is Acacia related to places near and far?

It is said that on any day of the year there is an acacia in flower somewhere in Australia.

Until the genus *Acacia* was split into five genera, there were about 1500 species with a Gondwanan distribution. Now, with more than 1,000 species, virtually all members of the genus *Acacia* are native to Australia and virtually all Australian 'wattle' species belong to *Acacia*. In Northern Australia there are seven species of *Vachellia* and two species of *Senegalia*, the other two major genera.



Given that the acacias of Africa were known and described first, taxonomic rules meant that they should retain the name while most of the Australian species would become *Racosperma*. However, with Australia having the majority

of all species, successful lobbying resulted in *Acacia* being retained instead for Australian species. (This decision was made at the International Botanical Congress in 2005, then, after further debate, finally ratified at the 2011 IBC.)

Vachellia nilotica, the original type species for *Acacia*, is native to Africa, the Middle East and the Indian subcontinent and has prominent **stipular spines** (paired spines at the base of a leaf) up to 60mm long, as do the African ‘thorn’ tree, *Vachellia erioloba* and other *Vachellias*. The name *Acacia* means something like sharp or pointed, referring to these spines. The strange situation now is that the plants of the genus *Acacia* generally don't live up to their name! A few species do have small stipular spines, such as *A. alata*, near the Crosbie Morrison building, whose tiny ones are quite difficult to spot. It also has little spines at the tips of the phyllodes.

Vachellia nilotica <https://treesa.org/vachellia-nilotica/pretoria-national-botanical-gardens-13/>



Site, Map no.	Plant	Comments
On corner R (16)	<i>A. penninervis</i> Mountain Hickory Wattle	<ul style="list-style-type: none"> • The new type species since splitting of genus <i>Acacia</i> into five genera. • The Latin species name refers to the veins arranged regularly on each side of the phyllode midrib like barbs from the shaft of a feather; pinnately veined • Balls of pale yellow to whitish flowers in racemes or panicles can appear throughout the year. • Coast, tablelands and western slopes of NSW, also QLD, ACT and Vic. in dry sclerophyll forest and woodland • No spines whatsoever!

PAUSE NEAR THE FLAGPOLE.

Story 5. Some more examples of naming and recap

As we move towards the end of our walk let's look at these plants and examples of how plants are named, bases for names; botanic characteristics, places, people and uses.

Stand near flag pole and look down the slope to the tall *Acacia* near the bottom row of the car park.

Site, Map no.	Plant	Comments
Point out end of 3 rd parking	<i>A. filicifolia</i> Fern-leaved wattle	<ul style="list-style-type: none"> • The name refers to the resemblance of the leaves to those of some ferns • Erect shrub to tree 3–14 m high. Flowers late July–Oct. • Spherical heads of yellow or bright yellow flowers from autumn to late spring.

lane below (17)		<ul style="list-style-type: none"> • Grows in forests, in sandy soil, often in gullies and creeks from south-eastern Queensland to Batemans Bay in southern New South Wales. • It is mostly found on the coast and nearby tablelands
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Look to the tall *Acacia* against the Visitor Centre wall.

Site, Map no.	Plant	Comments
Outside Visitor Centre (18)	<i>A. ingramii</i> Ingram's wattle	<ul style="list-style-type: none"> • The specific epithet honours Cyril Keith Ingram who first recognised it as a new species • Keith Ingram famous for one of the largest private collections of specimens of Australian native flora ever collated, which was bequeathed to the Royal Botanic Gardens Sydney; some 37,000 specimens of predominantly eucalypts, native grasses and orchids over a period of 70 years. • The shrub or small tree typically grows to a height of 2 to 6 m and has a spreading bushy habit • Grows mainly in low woodland or open forest in escarpment gorges on the NSW Northern Tablelands
L Between steps and bus shelter (19)	<i>A. pycnantha</i> Golden Wattle	<ul style="list-style-type: none"> • <i>Remind</i> people of seeing it earlier and its symbolic and cultural aspects

AT CAFÉ BRIDGE

Story 6. “Touch wood”: How might this tree be useful for good fortune in cultural, conservation and commercial purposes?

Let’s look at an example here. Select a small number of examples below to illustrate

Pause at the tall *A. melanoxyton* near the end of the café bridge.

Site, Map no.	Plant	Comments
Next to café bridge L (20)	<i>A. melanoxyton</i> Blackwood, hickory, sally wattle, lightwood, Mudgerabah, Mooyang, Tasmanian blackwood, black wattle,	<ul style="list-style-type: none"> • Fairly long lived and one of the tallest wattles, reaching 30m in deep gullies, found mainly in wet sclerophyll forest and into cooler rainforest. • Balls of cream flowers in spring, not showy. • A widespread tree, found from QLD (Atherton Tableland) to NSW, ACT, VIC, TAS, AND SA. • A very hardy shade or shelter tree and an excellent timber tree. • The heartwood varies from a light reddish brown to dark brown, and the name meaning black wood is derived from this. • Tannins in the bark made a good fish poison for Aboriginal use

How might this tree be useful?

You most probably have heard of Blackwood timber. The extent of the tree’s use as a timber species and for ornament and shade is quite surprising:

How has it been used for conservation?

- It has been used as a street tree.
- This tree can also be used as a fire barrier plant, amongst other plants, in rural situations.

How has it been used commercially in Australia and overseas?

- It is an excellent timber tree
- The larger trees have been milled since early in the nineteenth century for fine furniture, joinery and flooring as well as other things including sounding boards in musical instruments.
- It has been introduced to many countries for forestry plantings and as an ornamental tree, in the hope for good fortune.
- Locations in which *A. melanoxylon* is naturalised include New Zealand, Brazil and Africa.
- As an exotic, *A. melanoxylon* has been most extensively grown as a timber tree in India and South Africa, with plantations in New Zealand and several countries in South America (Gleason, 1986; Nicholas and Gifford, 1995). It is also common in the hill country (1400-2000 m) of Sri Lanka (Midgley and Vivekanandan, 1987) and in the high country (>1200 m) of East Africa (e.g. in Kenya and Tanzania) (Streets, 1962). It is regarded as good or promising in parts of China (Wang et al., 1994), in Guangdong surviving the cold at Hekou although killed by frost at Longdouxie (Yang et al., 1994).

Have there been problems with using it?

- It has in some places become 'weedy'.
- It is a declared noxious weed species in South Africa and is a pest in Portugal's Azores Islands. It was also recently listed by the California Invasive Plant Council (Cal-IPC) as an invasive weed that may cause limited impact (Knapp 2003).
- In some regions of Tasmania, blackwood is now considered a pest.

WALK ALONG TO THE LARGE POT OUTSIDE THE ELLIS ROWAN BUILDING

Story 7: Why is *A. buxifolia* being used here as a host for the Quandong (*Santalum acuminatum*)?

Site, Map no	Plant	Comments
(21) R	<i>A. buxifolia</i> Box-leaved wattle with a quandong	<ul style="list-style-type: none"> • Open erect shrub to 3m, spreading to 2m. Masses of small golden balls appear in spring. • Qld, NSW tablelands and western slopes, ACT and Vic. • A hardy, desirable species. • Quandong is hemi-parasitic: it photosynthesises but depends on the roots of another plant for water and soil nutrients. • Acacia is renowned for being leguminous and providing nitrogen to other plants. • Seeds of many Acacia species are sought after to be ground for flour-based food by Aboriginals and other people.

Quandong is not fussy, actually, and can even use grasses as host. However, acacias, like typical pea flowered plants, are legumes and can fix nitrogen through a symbiotic relationship with certain bacteria within root nodules on at least most species. This makes them a preferred host. For the Western Australian Sandalwood, *Santalum spicatum*, which has been grown commercially since the mid C19, *Acacia acuminata* (Raspberry Jam Wattle) is the preferred host. A curious pairing: this wattle, the freshly cut bark of which smells of the jam, grown alongside the scented sandalwood!

Other benefits of nitrogen fixation

The ability of probably all acacias to fix atmospheric nitrogen gives them an advantage in poor soils. They can thus be used to aid in regeneration of mine sites etc, and to interplant in forestry plantations. Certain acacias are being used in tropical areas to provide food, fuel and soil fertility.

For example, the acacia being used in Niger, a country of desert and savannah in West Africa, north of Nigeria:

- Famine was a regular occurrence in Niger. An Australian acacia, *A. coleii*, from arid land in the Northern Territory was selected, which had high seed production from the second year, seed easily harvested and processed and suitable for long storage periods.
- It can also provide fuelwood, small construction wood and improve soil fertility. It tolerates drought and infertile soils and its foliage is not eaten by stock.
- More than 50,000 acacias were planted on 480 farms in 33 villages.
- More trees are being planted each year as consumers claim many benefits.

See also, on the left, 'Scarlet Blaze'

Site, Map no.	Plant	Comments
L (23)	<i>A. leprosa</i> 'Scarlet Blaze'	<ul style="list-style-type: none"> • A small tree or large shrub, growing to 5 m high and 3 m wide. • 'Scarlet Blaze' is a cultivar of <i>A. leprosa</i>, Cinnamon Wattle, which has pale or bright yellow flowers. • Original plant sighted in Black Range State Forest, NE of Melbourne. Propagated from cuttings by Royal Botanic Gardens Melbourne (RBGM). All current plants derived from these. Plant breeder's rights to Bill Molyneux on behalf of RBGM. • Was Victoria's Floral Emblem for Centenary of Federation. • As in the wild Cinnamon Wattle, the cultivar releases a cinnamon-like scent from its foliage, particularly in hot weather: the phyllodes contain oil glands • 'Scarlet Blaze' prefers moist, well drained soils but has been found to be drought tolerant • Flowering and growth are promoted by a position in full sun, but some shade is tolerated. • 'Scarlet Blaze' must be propagated by cuttings to produce true-to-type plants. • Red flowers on Acacia are rare. A few red flowered species overseas are now all classified as <i>Senegalia</i> species. One species of Acacia from NE Qld, <i>A. purpureapetala</i>, has mauve flowers.

Note that another *A. leprosa* 'Scarlet Blaze' has been planted in the Banks Walk garden bed near the *Eucalyptus macrorhyncha* (Red Stringybark), almost opposite the clock.

At Closure, SUMMARISE

During our stories have we seen different shapes, colours, and heights and flowers of Acacia, and have we heard stories about:

- Foliage features: characteristics of leaves, phyllodes, cladodes (leaflike, usually flattened stems)?
- Flowers: form a globe ("ball") of flowers, or a cylinder ("rod") of flowers. Depending on species a ball could have 3 or 4 or up to 70 or more individual flowers?
- Symbolic and cultural importance of Acacia, including floral emblem?
- Names based on botanic characteristics, people, places, and its uses?
- Acacia here and abroad, especially the new taxonomic type, economic and ornamental use e.g. *Acacia melanoxylon*, and Acacia's food value?
- The genus Acacia now basically Australian?

Any questions?

Mention facilities (car park, bookshop, toilets, café, Friends Lounge for those who are already Friends ANBG or if they could be interested in joining Friends).

NORTHERN WALK

START AT THE CLOCK

Theme:

Generally, this walk is about Australian iconic wattles.

At the end of this walk we hope that you, the visitor, have learnt some more about its importance in the following ways.

- What are 3 foliage features?
- Is it important culturally and symbolically?
- How are Acacia named?
- Is Acacia related to places near and far?
- How useful are Acacia species here and overseas?

Introduction

- Acacia is Australia's biggest genus – about 1100spp – and there are acacias in all states and mainland territories, from tropical northern Australia to cool temperate Tasmania.
- Acacias are more or less dominant in many arid areas, with plant communities named for them, such as the Mulga (*A. aneura*) and the Brigalow (*A. harpophylla*). Species occur in plant communities ranging from desert to rainforest.
- Acacias are of considerable cultural and symbolic importance.

WALK ALONG THE BANKS WALK TOWARDS THE VISITOR CENTRE

Pause to look at two or three of the phyllode bearing examples on the right, including *A. boormanii*, then, on the left, *A. pubescens* with bipinnate leaves, followed by *A. aphylla* with cladodes past the Visitor Centre steps.

Story 1: Why such a difference in foliage?

- **Leaf:** an organ for a vascular plant specialising in photosynthesis, typically consisting of a leaf blade and a petiole, the slender stalk by which the leaf blade is joined to the stem.
- **Phyllode:** a modified petiole resembling and having the function of a leaf blade.
- **Cladode:** a modified, usually flattened, stem which performs the function of a leaf blade.

In *Acacia*, the true leaves are always bipinnate. This means twice divided: Not a simple leaf blade, not just divided into several leaflets like a rose leaf or clover with its three leaflets, but with each primary leaflet (pinna) further divided into a number of secondary leaflets, called pinnules.

Acacia seedlings start off after germination with bipinnate leaves, but most species change over sooner or later to phyllodes: modified, usually flattened, petioles (leaf stalks). Observing a young plant one can see the gradual development of the phyllode from the petiole and reduction of the (bipinnate) leaf blade.

Even *A. aphylla* has leaves to start off with! (See <https://www.gardentags.com/plant-encyclopedia/acacia-aphylla/30581>)

Leaves vary greatly in size: *A. elata*, in *Acacia* section 1 in from upper eucalypt lawn, has bipinnate leaves up to ca 30cm long, while in *A. pubescens* they are tiny.

Phyllodes vary enormously both in size and shape – e.g. small in *A. boormanii*, Banks walk; small and needle like in *A. ulicifolia* in Sect. 18, interestingly shaped in *A. cultriformis*, etc



Site, Map no.	Plant	Comments
S210 R (1)	A. boormanii Snowy River Wattle	Rounded shrub to 5 m high and 2-3 m diameter often suckers; long lived (>30 years). An outstanding wattle in flower. <i>Eucalyptus</i> woodlands and open forest at higher altitudes. NSW near Cooma; Thredbo to Buchan. Also north-eastern Vic. Named after John Luke Boorman (1864?-1938), who worked for the Botanic Gardens in Sydney and collected extensively in NSW. He collected the specimen in 1913 on Macanally Mtn, North of Numeralla.
S172 L At top of stairs (2)	A. pubescens Downy wattle	Small bipinnate leaves, bright yellow inflorescences in axillary or terminal racemes Endemic to Sydney region. Vulnerable due to reduced habitat with growth of Sydney. Found in dry sclerophyll forest and woodland. This plant was included in a research project about Acacia pollination about 10 years ago
L In pot next to VIC (3)	A. aphylla Leafless Rock Wattle, Twisted Desert Wattle, Live Wire	Spiny, leafless erect and widely branching shrub 0.9m to 3m in height, 2m across. The thickened wiry stems photosynthesise like leaves, greatly reducing the total surface for water loss by transpiration. Balls of 20-30 light golden yellow flowers occur, one per axil, between August and October in native range. Endemic to an area east of Perth in Western Australia. Exact location withheld for conservation reasons. Vulnerable

WALK DOWN THE VISITOR CENTRE STEPS AND TURN LEFT TO SEE A YOUNG *A. pycnantha* BETWEEN STEPS AND BUS STOP.

Story 2. Symbolic and cultural significance of Acacias in Australia

Invite people to mention some ways Acacia is used culturally and symbolically in Australia.

If no response, mention 3 or 4 points of symbolic and cultural importance of Acacias, including the *A. pycnantha*

Towards end of 19th century there was a strong social interest in Australian flora and a floral emblem for Australia. *A. pycnantha* is a great example of the symbolic and cultural importance of Acacias (also known as “wattles”) to Australia and Australians.

- *Acacia pycnantha*, Golden Wattle, was made the official floral emblem for Australia in 1988. Occurs naturally in NSW, Vic. and SA
- Coat of arms feature acacia blossom
- Order of Australia medals depict an acacia blossom

- Wattle Day was first celebrated on 1 September 1910 and became the official national day in 1992. For much of the twentieth century NSW celebrated Wattle Day on 1 August and other states also had different days.
- The national colours of Australia are green and gold. They were established by the Governor-General of Australia, Sir Ninian Stephen, on 19 April 1984 in the Commonwealth of Australia Gazette, on advice from Prime Minister Bob Hawke. The gold colour represents the golden wattle, which is Australia's national flower
- Green and gold are our sporting colours.
- Popular garden plants.
- Poetry: Adam Lindsay Gordon, Dorothea Mackellar, Henry Kendall, Henry Lawson and many others.
- Ornamental uses in needlework, china etc.

Site, Map no.	Plant	Comments
S221 L (19)	A. <i>pycnantha</i> Golden Wattle	Australian floral emblem (gazetted 1988 but used for wattle day since 1910) Prominent extra-floral nectary on phyllode produces nectar attractive to birds which brush against pollen and so aid cross pollination. Grows as small understorey tree in Eucalypt forests, woodland, open scrub, heath. Distribution: From inland southern NSW and ACT through Victoria to Yorke Peninsula and southern Eyre Peninsula, SA. Short lived (7-10 years) in cultivation. Originally collected Mitchell 1836 near Loddon R, Vic) A tree that was planted in 1988 by Hazel Hawke has lived its life and is no longer there. Bark a rich source of tannins; gum chewed by settlers to treat diarrhoea. Weed species in parts of South Africa The name <i>pycnantha</i> comes from the Greek 'pyknos', meaning 'dense', and 'anthos', meaning 'a flower', referring to the dense clusters of flowers in each 'ball'.

WALK ALONG TO NEAR THE CAFÉ BRIDGE THEN STOP TO LOOK AT THE LARGE *A. melanoxylon* IN THE GULLY

Story 3. How might this tree be useful?

You most probably have heard of Blackwood timber. The extent of the tree's use as a timber species and for ornament and shade is quite surprising:

How has it been used for conservation?

- It has been used as a street tree.
- This tree can also be used as a fire barrier plant, amongst other plants, in rural situations.

How has it been used commercially in Australia and overseas?

- It is an excellent timber tree
- The larger trees have been milled since early in the nineteenth century for fine furniture, joinery and flooring as well as other things including sounding boards in musical instruments.
- It has been introduced to many countries for forestry plantings and as an ornamental tree, in the hope for good fortune.
- Locations in which *A. melanoxylon* is naturalised include New Zealand, Brazil and Africa.
- As an exotic, *A. melanoxylon* has been most extensively grown as a timber tree in India and South Africa, with plantations in New Zealand and several countries in South America (Gleason, 1986; Nicholas and Gifford, 1995). It is also common in the hill country (1400-2000 m) of Sri Lanka (Midgley and Vivekanandan, 1987) and in the high country (>1200 m) of East Africa (e.g. in Kenya and Tanzania) (Streets, 1962). It is regarded as good or promising in parts of China (Wang et al., 1994), in Guangdong surviving the cold at Hekou although killed by frost at Longdouxie (Yang et al., 1994).

Have there been problems with using it?

- It has in some places become 'weedy'.
- It is a declared noxious weed species in South Africa and is a pest in Portugal's Azores Islands. It was also recently listed by the California Invasive Plant Council (Cal-IPC) as an invasive weed that may cause limited impact (Knapp 2003).
- In some regions of Tasmania, blackwood is now considered a pest.

Pause at the tall *A. melanoxylon* near the end of the café bridge.

Site, Map no.	Plant	Comments
Next to café bridge L (20)	<i>A. melanoxylon</i> Blackwood, hickory, sally wattle, lightwood, Mudgerabah, Mooyang, Tasmanian blackwood, black wattle,	<ul style="list-style-type: none"> • Fairly long lived and one of the tallest wattles, reaching 30m in deep gullies, found mainly in wet sclerophyll forest and into cooler rainforest. • Balls of cream flowers in spring, not showy. • A widespread tree, found from QLD (Atherton Tableland) to NSW, ACT, VIC, TAS, AND SA. • A very hardy shade or shelter tree and an excellent timber tree. • The heartwood varies from a light reddish brown to dark brown, and the name meaning black wood is derived from this. • Tannins in the bark made a good fish poison for Aboriginal use

CROSS THE BRIDGE AND WALK DOWN THE FIRST FLIGHT OF STEPS TO THE RIGHT.

Mention that in some species the development of phyllodes starts to happen after the first few leaves. In *A. melanoxylon* it happens only after a month or two, depending on environmental conditions and then you find some leaves sporadically amongst the phyllodes in young saplings like these *A. melanoxylon*.

Site, Map no.	Plant	Comments
R (20a)	<i>A. melanoxylon</i>	Good example of transition of young bipinnate leaves into mature phyllodes. Sporadically through the foliage of these young trees there are remnants of bipinnate leaf blades together with developing phyllodes.

CONTINUE DOWN AND AROUND THE CASUARINA POND TO THE *Acacia alata* NEAR THE CROSBIE MORRISON BUILDING

Story 4: A tale of taxonomy.

Until the genus *Acacia* was split into five genera, there were about 1500 species with a Gondwanan distribution.



Given that the acacias of Africa were known first, taxonomic rules meant that they should retain the name while most of the Australian species would become *Racosperma*. However, with Australia having the majority of all species, successful lobbying resulted in *Acacia* being retained instead for Australian species. (This decision was made at the International Botanical Congress in 2005, then, after further debate, finally ratified at the 2011 IBC.) Now virtually all members of the genus *Acacia* are native to Australia and virtually all Australian 'wattle' species belong to *Acacia*. There are seven (or 9, depending on your source) species of *Vachellia* in Northern Australia and two species of *Senegalia*, the other two major genera.

Vachellia nilotica, the original type species for *Acacia*, is native to Africa, the Middle East and the Indian subcontinent and has prominent **stipular spines** (paired spines at the base of a leaf) up to 60mm long, as do the African thorn tree, *Vachellia erioloba* and other *Vachellias*. The name *Acacia* means something like sharp or pointed, referring to these spines. The strange situation now is that the plants of the genus *Acacia* generally don't live up to their name!

Vachellia nilotica <https://treesa.org/vachellia-nilotica/pretoria-national-botanical-gardens-13/>



Why are we saying this here? Some species like this *Acacia alata* do have tiny stipular spines which can be seen with a close look. This species also has its phyllodes ending in little spines.

Site, Map no.	Plant	Comments
R (22)	<i>A. alata</i> Winged Wattle	<ul style="list-style-type: none"> • Shrub to 2m high by 1m across. • Phyllodes are almost reduced to cladodes, giving the appearance of winged stems. Each phyllode is extended into a spine. • Two flower forms, this one cream, the other golden yellow. Just 3 or 4 flowers per ball. • Extended flowering period. • Variety of habitats - eg along creeks in forest, sand in coastal heath • Coastal WA from north of Geraldton to Albany. Collected Brown 1801 Albany • Widely cultivated in Europe in C19

WALK AROUND AND UP TO PEBBLECRETE PATH ROUNDABOUT AND TURN LEFT

Story 5: Why is *A. buxifolia* being used here as a host for the Quandong (*Santalum acuminatum*)?

Site, Map no.	Plant	Comments

In pot, L (21)	A. buxifolia Box-leaved Wattle with a Quandong	<ul style="list-style-type: none"> • Open erect shrub to 3m, spreading to 2m. Masses of small golden balls appear in spring. • Qld, NSW tablelands and western slopes, ACT and Vic. • A hardy, desirable species. • Quandong is hemi-parasitic: it photosynthesises but depends on the roots of another plant for water and soil nutrients. • Acacia is renowned for being leguminous and providing nitrogen to other plants. • Seeds of many Acacia species are sought after to be ground for flour-based food by Aboriginals and other people.
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Quandong is not fussy, actually, and can even use grasses as host. However, acacias, like typical pea flowered plants, are legumes and can fix nitrogen through a symbiotic relationship with certain bacteria within root nodules on at least most species. This makes them a preferred host. For the Western Australian Sandalwood, *Santalum spicatum*, which has been grown commercially since the mid C19, *Acacia acuminata* is the preferred host. A curious pairing: Raspberry Jam Wattle, the freshly cut bark of which smells of the jam, grown alongside the scented sandalwood!

Other benefits of nitrogen fixation

The ability of probably all acacias to fix atmospheric nitrogen gives them an advantage in poor soils. They can thus be used to aid in regeneration of mine sites etc, and to interplant in forestry plantations. Certain acacias are being used in tropical areas to provide food, fuel and soil fertility.

For example, an acacia being used in Niger, a country of desert and savannah in West Africa, north of Nigeria:

- Famine was a regular occurrence in Niger. An Australian acacia, *A. colei*, from arid land in the Northern Territory was selected, which has high seed production from the second year, seed easily harvested and processed, and suitability for long storage periods.
- It can also provide fuelwood, small construction wood and improve soil fertility. It tolerates drought and infertile soils and its foliage is not eaten by stock.
- More than 50,000 acacias were planted on 480 farms in 33 villages.
- More trees are being planted each year as consumers claim many benefits.

See also, on the right, ‘Scarlet Blaze’

Site, Map no.	Plant	Comments
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R (23)	<i>A. leprosa</i> 'Scarlet Blaze'	<ul style="list-style-type: none"> • A small tree or large shrub, growing to 5 m high and 3 m wide. • 'Scarlet Blaze' is a cultivar of <i>A. leprosa</i>, Cinnamon Wattle, which has pale or bright yellow flowers. • Original plant sighted in Black Range State Forest, NE of Melbourne. Propagated from cuttings by Royal Botanic Gardens Melbourne (RBGM). All current plants derived from these. Plant breeder's rights to Bill Molyneux on behalf of RBGM. • Was Victoria's Floral Emblem for Centenary of Federation. • As in the wild Cinnamon Wattle, the cultivar releases a cinnamon-like scent from its foliage, particularly in hot weather: the phyllodes contain oil glands • 'Scarlet Blaze' prefers moist, well drained soils but has been found to be drought tolerant • Flowering and growth are promoted by a position in full sun, but some shade is tolerated. • 'Scarlet Blaze' must be propagated by cuttings to produce true-to-type plants. • Red flowers on Acacia are rare. A few red flowered species overseas are now all classified as <i>Senegalia</i> species One species of Acacia from NE Qld, <i>A. purpureapetala</i>, has mauve flowers
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RETRACE STEPS A FEW METRES AND TURN LEFT UP THE TAR ROAD TO THE ROCK GARDEN, WALKING UP THE STEPS TO THE LEFT OF THE WATERFALL

Contrast the large balls of flowers on *A. pterocaulon* with the small *A. alata* ones. A good opportunity to talk about Acacia flowers.

Flowers – The tiny flowers in globose inflorescences or spikes (“balls” or “rods”) do have petals but it is the stamens that are obvious. These inflorescences can have as few as three or four flowers (e.g. *A. alata*) or up to 130 or so The balls can appear singly in leaf axils or in racemes or panicles (e.g. *A. pycnantha*).

- **Axil:** the angle between the upper side of the leaf and the stem.
- **Spike:** a simple inflorescence with flowers sessile on the rachis
- **Raceme:** a flower cluster with the separate flowers (or balls of flowers) attached by short equal stalks at equal distances along a central stem. The flowers at the base of the central stem develop first. -
- **Panicle:** a loose branching cluster of flowers (or, in wattles, of balls of flowers)

Site, Map no.	Plant	Comments
R (24)	<i>A. pterocaulon</i>	<p>Much-branched, intricate, erect or sprawling shrub, usually 0.5-1.3 m, but up to 2 m high. Winged phyllodes are continuous with the branchlets, splitting to form opposing wings along the branchlet with each one extending to the next underneath. Each wing is about 2 to 6 mm wide.</p> <p>Flowers in golden yellow globes, Oct to Dec or Jan. Each globular head contains 60 to 70 densely packed flowers.</p> <p>Southwest WA, inland, small area southeast of Geraldton. Rocky clay loam, sandy clay. Rocky hillslopes. It is often part of the under-storey in Eucalyptus woodland communities or in dense Casuarina scrub.</p> <p>Collected by botanist, Bruce Maslin, in 1976 near Three Springs WA. Formally described by him in 1995</p>

		Conservation code is Priority One
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CONTINUE UP TOWARDS THE “KURANGA CASCADE” AND SPY A CURIOSITY

Site, Map no.	Plant	Comments
R (25)	<i>A. araneosa</i> Spidery Wattle, Balcanoona Wattle	In centre of rock garden with Grass Tree. (Whibley & Symon, 1992) Small, erect, wispy tree, 3–8 m high Phyllodes are pendulous, sometimes up to 65cm long and only 1 to 2cm wide. Flowers form large globular heads (balls) of 50–70 flowers, which are small, yellow and arranged in groups of five. Produced irregularly through the year. Restricted to a small area of northern Flinders Ranges in SA in dry open woodland of Curly Mallee. Vulnerable because of grazing and mining.

SEE THE “KURANGA CASCADE” AND THE WILD FORM OF *A. cognata* UP NEAR THE ROAD ABOVE THEN TURN RIGHT TO SEE *A. cognata* “GREEN MIST” JUST AFTER THE LITTLE BRIDGE

Story 6: Horticultural and other uses of wattles

We’ve just seen cultivars of two species and saw the Scarlet Blaze earlier. Of course, not only are cultivars popular for domestic gardens and broader landscaping but many wild species as such. There are species for every climatic area in Australia.

Food - Seeds of certain species used for food - Aboriginal society, overseas societies, current trendy food additive. Many other uses by Aboriginal people: medicinal, adhesives, tools.

Are wattles grown horticulturally in other countries? Yes, certainly. A special example: A fabulous and fun Mimosa Festival in France heralds the arrival of spring on the French Riviera. *Acacia dealbata* was imported from Australia in 1839 and has since taken over the slopes of the Tanneron. It thrived and became important to the local economy. It is now cultivated and the cut flowers are sold throughout France and abroad.

Can wattles become weeds? Yes, ornamental plantings of some species outside of their natural range have led to:

- their becoming serious weeds. Cootamundra Wattle, *Acacia baileyana*, is a well-known example. It flourishes on Black Mountain, for instance, outcompeting local vegetation.
- In some regions of Tasmania, Blackwood, important for its timber plantations, is now considered a pest.

Site, Map no.	Plant	Comments

L (26)	<i>A. pravissima</i> “Kuranga Cascade”	Flowers (yellow), September, October, November. Cultivar of Ovens Wattle, a tall shrub to 6 m with pendulous branches. NSW, ACT and Victoria, usually near streams and in moist sheltered sites; often in open eucalypt forest. Full sun to part shade in most soil types, “Kuranga Cascade” withstands dry conditions.
L (27) <i>Tall shrubs near road</i>	<i>A. cognata</i> Narrowleaved Bower Wattle	Generally erect shrub to 2.5 m high and 2 m across with soft foliage and branches tending to ascend and weep. Lowland sclerophyll forest, Nowra to Orbost, NSW and Vic. Normal form of species, cf. cultivars Green Mist, Limelight etc. Another good example of upright form is in S18 along Main Path. Collected Mueller 1864 Twofold Bay Timber springy - tool handles, shafts
S15l Ahead (28)	<i>A. cognata</i> “Green Mist”	Dwarf cultivar of <i>A cognata</i> . Wild: Generally erect shrub to 2.5 m high and 2 m across with soft foliage and branches tending to ascend and weep. Lowland sclerophyll forest, Nowra to Orbost, NSW and Vic.

TURN RIGHT BEFORE THE “GREEN MIST” THEN SWEEP LEFT TOWARDS SUNDIAL

Another curious WA species:

Site, Map no.	Plant	Comments
S15r R, behind other plants (29)	<i>A. trigonophylla</i>	Multi-branched, pungent shrub 1m – 2.5m height, erect habit. Phyllodes are continuous with branchlets forming narrow triangular wings 1to 6 cm long, 1 to 3mm wide. Balls of yellow flowers between August and November It is found in swamps, hillsides and among granite outcrops where it grows in sandy granitic or lateritic soils. Endemic to southwest WA.

TO THE RIGHT, SEE THE *Acacia aneura* WITH THE LARGE LABEL.

Story 7: What is significant about *Acacia aneura*?

- *A. aneura* is the most widespread wattle in Oz – growing in arid areas, usually south of 20°S latitude from Indian Ocean almost to Great Divide in central Qld and in NSW
- Its phyllodes are an extreme example of characteristics reducing water loss: they are grey with thick cuticles and upright orientation.
- Upright branches and phyllodes channel any rain down trunk and deeper into the soil.
- Its tap root extends deeply into the soil enabling it to reach water.
- Ability to fix nitrogen enriches poor soils.
- It drops some leaves in drought, helping to provide mulch.
- Often in pure stands forming shrublands (the mulga) or understory of open eucalypt woodlands
- Provided aborigines with food (seeds and a sweet exudate), medicinal preparations, resin for gluing and repairing wooden items and wood for tools, e.g. digging sticks and shields and weapons, e.g. boomerangs and spears.
- Foliage is a valuable source of fodder and shelter for animals
- Adaptations to drought
- Longevity, 200 - 300 years or more
- “Mulga” is Aboriginal name for a narrow shield. Name of town “Oodnadatta” means ‘mulga flower’

Site, Map no.	Plant	Comments
To right of sundial (30)	A. aneura Mulga	Shrub or tree to 18 m high, often multi-stemmed. Phyllodes are variable, narrow to broad linear, greyish. Flowers are on short spikes (rods), are yellow and occur in spring and other times, depending on rain. Arid areas QLD, NSW, SA, WA, NT. Name: "Mulga" means "narrow shield"

TURN BACK TO GRAVEL PATH LEADING UP TO TAR ROAD ("Wattle Way"), TURN RIGHT

Notice the Snowy River Wattle again on the left and several other wattles as well as the South American *Vachellia caven*.

Site, Map no.	Plant	Comments
S15, R (31)	A. pteraneura Formerly named <i>A. aneura</i> var <i>conifera</i> Broadwinged Mulga, Conifer mulga	Shrub to 3m high or tree 6 to 8m high, sometimes with pseudo-conifer growth forms, trunks and main branches sub-straight to crooked. Phyllodes slender, at upward angle. Spikes (rods) about 10-30 mm long of yellow flowers, usually in the axil of the phyllodes. It is native to the Pilbara, Mid West and Goldfields regions of Western Australia
S15, R (32)	A. acuminata Raspberry Jam Wattle	Tall shrub or small tree 3-7 m. Phyllodes 100x10 mm end in a long tapering point. Lemon yellow flowers in rods, late winter to spring. Seed very high in protein: 45%. Strong odour of freshly cut wood – reminder of its use as host of WA sandalwood.
S3, L (33)	Vachellia caven Roman Cassie, Caven, Aromita,	<i>Remind</i> re-classification of non-Australian Acacias. South America. Left in the ANBG to illustrate diversity. Thought last year to have died and so label removed, but green leaves now. Pod very different from Oz wattles. Note stipular spines. Also known as Aroma Criollo, Churque, Espinillo, Espino
S3, L (34)	A. havilandiorum Needle Wattle, Haviland's Wattle	Erect or spreading tree or shrub 1–4 m high; Inflorescences simple, 1–3 in axil of phyllodes, bright yellow, July–October Distribution is chiefly in the Pilliga Scrub-Gilgandra-Miljee area of NSW; also in South Australia and Victoria. Usually grows in mallee and box woodland communities, in sandy or loamy red earths
S3, L (35)	A. amoena Boomerang Wattle	Shrub 0.5-3 m high Grows in dry sclerophyll forest and woodland, in NSW chiefly on the ranges, west to Wellington district. Also Vic. and Qld
S3, at corner (36)	A. dealbata "Kambah Karpet"	Discovered by RB Hadlow, of ANBG. Collected at the Kambah Health Centre. Prostrate form of local native <i>Acacia dealbata</i> , Silver Wattle, which grows to 30 m in dry sclerophyll forest and woodland in NSW, ACT, Vic. and Tas. Now registered as a cultivated form of <i>A. dealbata</i> . Older leaves grey-green, new leaves yellow-green. Well suited to a variety of soil and moisture conditions.

TURN LEFT UP ROAD TOWARDS EUCALYPT LAWN

Site, Map no.	Plant	Comments
S18, R (37)	<i>A. parvipinnula</i> Silver-stemmed wattle	Bipinnate leaves. The shrub or tree typically 2 to 10 m tall has an erect habit. It has silvery to bluish grey smooth bark and has angled to erect branchlets. Blooms between April and January producing pale yellow globular inflorescences in both axillary and terminal panicles and racemes. It has a limited distribution in coastal areas of central New South Wales from around Singleton to around the Shoalhaven River where it is found in a variety of habitats growing in many different soil types as a part of dry sclerophyll forest or woodland communities.
S18, R (38)	<i>A. ulicifolia</i> Juniper Wattle, Prickly Moses	Rounded shrub to 3 m, often less with dark green spine-like phyllodes to 2 cm. Flowers: pale cream-coloured balls in winter and spring, usually April–October Grows in dry sclerophyll forest and woodland, usually in sandy soil. Widespread on the coast and tablelands from north QLD to NSW, ACT, VIC, TAS. Hardy shrub with attractive foliage. Suitable as a hedge plant Name refers to the gorse-like (genus <i>Ulex</i>) foliage. Common name 'Prickly Moses' could be derived from related N hemisphere genus <i>Mimosa</i> .
S18, L (39)	<i>A. pycnostachya</i> Bolivia Wattle	Shrub or tree to 7 m. Sickle shaped phyllodes; the branchlets are coarse, sharply ridged and flattened. Bright yellow flowers on axillary spikes (rods). Found in dry heath and woodland on the Bolivia range near Tenterfield, Northern Tablelands of NSW. Vulnerable

TURN LEFT ONTO THE UPPER EUCALYPT LAWN THEN LEFT AGAIN ONTO SOFT PATH JUST BEFORE THE *A. elata*

NOTE the bipinnate leaves of these two species of wet sclerophyll forest and rainforest. While phylodinous species such as *A. melanoxydon* can also be found in such habitats, species that retain the bipinnate leaves are not found in arid areas. Phyllodes can be far more resistant to water loss with fewer stomates and other characteristics noted for *A. aneura*. The leaves, held horizontally, are more efficient photosynthetically in lower light conditions.

Site, Map no.	Plant	Comments
S1, L (40)	<i>A. elata</i> Forest Cedar Wattle	Forest Cedar Wattle. Relatively long-lived tree to 20 m. Very large bipinnate leaves with prominent extra floral nectary halfway along petiole. Inflorescences in panicles or racemes, summer to early autumn. Found in rainforest and wet sclerophyll forest on the escarpments from the Budawang to the Bellinger River, NSW, becoming naturalized in Vic, Qld and WA

S3, L (41)	<i>A. o'shanesii</i> Green Wattle	Diffuse tree or shrub to 15 m. Bipinnate leaves. Globose heads of pale yellow or cream flowers in racemes or panicles. Plentiful pods. Found in high rainfall coastal areas of SE Qld and NE NSW in tall open forest and rainforest. Named for John O'Shanesey who learnt collecting while employed at Brisbane Botanic Gardens 1862-64. Continued collecting during his later career as an orchardist, farmer and nursery businessman, including collecting for Ferdinand von Mueller in the Rockhampton area.
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TURN LEFT AT T JUNCTION, NEXT TURN RIGHT

Site, Map no.	Plant	Comments
R (42)	<i>A. maidenii</i> Maiden's wattle	Tree up to 20 m, lifespan more than 30 years. Phyllodes long and narrow. Flowers in spikes (rods) in phyllode axils can be bright yellow to almost white. Found on the edges of rainforest and in wet sclerophyll forest along coast and ranges in Qld, NSW and Vic. Named after Joseph Henry Maiden, a former Government Botanist and Director of the Royal Botanic Gardens, Sydney, 1886-1924. He collected widely in Western Australia, South Australia, New South Wales, Victoria and on Lord Howe, Norfolk and Pitcairn Islands, and the majority of his 13,745 specimens are in the NSW Herbarium collection. He also published extensively including the 8-volume <i>A Critical Revision of the Genus Eucalyptus</i> (1903-1933), the 8-volume <i>Forest Flora of New South Wales</i> (1903-1925), several major papers on <i>Acacia</i> , and (with E. Betche) <i>A Census of New South Wales Plants</i> (1917). He wrote a series of papers from 1908-1921 giving biographical details of early Australian botanists, and these papers have been heavily used in subsequent histories
S2, R (43)	<i>A. silvestris</i> Bodalla silver wattle, Red Wattle	The erect tree typically grows to a height of 6 to 30 metres. Leaves bipinnate, balls of yellow flowers in panicles, from July to September Grows in dry sclerophyll forest, in gravelly clay and sandstone-derived soils, good drainage in gullies and on ridges. SE NSW, coastal Vic. Originally collected in Bodalla State Forest, W of Narooma
S2, R (44)	<i>A. pubescens</i> Downy wattle	<i>Remind</i> re Banks walk specimen. Small bipinnate leaves, bright yellow inflorescences in racemes Vulnerable, Sydney region. Found in dry sclerophyll forest and woodland
S2, R (45)	<i>A. longifolia</i> var. <i>sophorae</i> hybrid.	<i>A. longifolia</i> var. <i>sophorae</i> hybrid. Numerous common names. Eastern Aust., coastal. A sand binder
S2, L (46)	<i>A. cognata</i> Bower wattle, or Silver Wattle	Several young, rapidly growing trees. Compare with older ones across the road seen from the rock garden

TURN RIGHT, UP THE STEPS AND PATH TO JUNCTION TO VIEW A LARGE *A. boormanii*, AND TURN RIGHT TO VIEW *A. pravissima*

Site, Map no.	Plant	Comments
S1, Upper left, (47)	A. boormanii Snowy River Wattle	<i>Remind</i> See notes at Plant no. 1
S2 To right (48)	A. pravissima Ovens wattle	Flowers (yellow), September, October, November. Tall shrub to 6 m with pendulous branches. NSW, ACT and Victoria, usually near streams and in moist sheltered sites; often in open eucalypt forest. Compare with cultivar "Kuranga Cascade" (32)

RETRACE STEPS TO ROAD, GO TO TRIANGULAR BED, TURN LEFT AND WALK ALONGSIDE THE RAINFOREST.

Story 8. Are Acacia named for people, place, uses and characteristics?

Acacia species are admired in their natural habitat and, like any plants, have been given local and scientific names that relate to place, people, uses and/or botanic characteristics.

Examples on this walk of

People: *A. boormanii*, *A. maidenii*, *A. oshanesii*

Use: Mulga, an Aboriginal name for a narrow shield;

Place: Snowy River Wattle, Bodalla Silver Wattle, Balcanoona Wattle, Kambah Karpet.

Characteristics: *A. pycnantha*, dense flowers, *A. pubescens*, Downy Wattle; *A. ulicifolia*, Juniper Wattle or Prickly Moses; *A. buxifolia*, Box-leaved Wattle

AT THE ENTRANCE TO THE MAINTENANCE AREA

Site, Map no.	Plant	Comments
S128 R (49)	A. covenyi Blue Bush	Multi-branched shrub to tall single-stemmed evergreen tree 6 to 7.5m tall. "Flowers are lemon coloured, produced in mass in early autumn, with black seeds maturing late autumn to early winter." (ANBG Growing native plants) Actually yellow, in spring! Grows in thickets mainly on limestone. Endemic to NSW; Deua R to near Kybean - Bendethera Caves. Rare Named after R. Coveny, a collector at RBG Sydney. Collected by Constable, 1966 Con Ck, Bendethera. Promoted for use in domestic gardens now that Cootamundra wattle is unavailable.
S128 L (50)	A. cognata Normal form	Young plants.

ON THE RIGHT A FEW STEPS FURTHER, A LOOK AT THE SO-CALLED BLACK WATTLE, *Callicoma serratifolia*.

Story 9: Not an acacia at all! Family Cunoniaceae.

“Black Wattle” was plentiful around Sydney Cove and elsewhere - Black Wattle Bay! - and was used extensively for wattle and daub houses in the early colony. Its flowers look superficially like Acacia flowers, so Acacias were called wattle too, so the story goes.

It grows naturally as a bushy shrub or small tree to 12 m high in protected moist gullies, usually close to creeks. It occurs along the coastal areas of New South Wales from the Braidwood district to south-east Queensland.



Site, Map no.	Plant	Comments
S125 L (51)	<i>Callicoma serratifolia</i> Black Wattle,	Also known as Callicoma, Butterwood, Silver Leaf, Silver-Leaf Butterwood, Wild Quince Note the leaves with serrated edges, cf <i>Acacia phyllodes</i> with smooth edges.

WALK DOWN TO CAFÉ, OR BACK TO THE CLOCK, AND CLOSE THE WALK

At the clock.

Note that another ‘Scarlet Blaze’ has been planted in the Banks Walk garden bed near the *Eucalyptus macrorhyncha* (Red Stringybark), almost opposite the clock.

SUMMARISE

- Foliage: characteristics of leaves, phyllodes, cladodes (leaflike flattened stem).
- Flowers: form a globe (“ball”) of flowers, or a cylinder (“rod”) of flowers. Depending on species a ball could have 3 or 4 or up to 70 or more individual flowers.
- Symbolic and cultural importance of Acacia, including floral emblem.
- Names based on botanic characteristics, people, places, and its uses.
- Acacia here and abroad, for economic and ornamental use. Becoming weeds in some cases.
- Acacia’s food, host and timber values.
- The genus Acacia now basically Australian.

Mention facilities (car park, bookshop, toilets, café, Friends Lounge for those who are already Friends of ANBG or if they could be interested in joining Friends).