

## Eucalypt Discovery Walk

This self-guided walk through the Botanic Gardens features 21 eucalypts, each of which has an interpretive sign. Additional information is provided here.

A round trip, starting with #1 *Eucalyptus cunninghamii* in the North Car Park and returning past #21 *Eucalyptus viminalis* to the Visitor Information Centre, will take about an hour and covers a range of terrain (e.g. stairs, lawn, uneven surfaces).

There are about 850 eucalypt species, almost all occurring naturally only in Australia. Indeed, eucalypts are a defining feature of the Australian landscape. They are an important component of Australian vegetation and provide a habitat for many native animals.

Some species have a wide geographic distribution, others are extremely restricted in their natural habitat and may need conservation. There is great diversity of size, form, leaf and bark type among eucalypts.

Eucalypts have many commercial uses. An important source of wood products in Australia, they are also the world's most widely-planted hardwoods. Large areas are being grown in Brazil, South Africa, India, China and elsewhere mainly for pulp and paper production.

Species featured in this walk have been selected to illustrate the diversity and many uses of eucalypts.

### Acknowledgements

This walk has been supported by the Bjarne K. Dahl Trust ([www.dahltrust.org.au](http://www.dahltrust.org.au)) a philanthropic fund. Dahl was a Norwegian forester who developed a great affinity with the Australian Bush and left his entire estate to establish a fund which focuses solely on eucalypts.

Funds have also been provided by the Public Fund of the Friends of the Australian National Botanic Gardens ([www.friendsanbg.org.au](http://www.friendsanbg.org.au)). This fund aims to attract tax-deductible donations to support worthwhile projects within the Gardens that could not be financed from the Gardens' regular budget

### Eucalypts on the Eucalypt Discovery Walk

#### 1 *Eucalyptus cunninghamii* (Cliff Mallee Ash, Cliff-top Mallee Ash)

This species is named for Allan Cunningham (1791-1839), explorer and His Majesty's Botanical Collector in Australia and Colonial Botanist of New South Wales.

Cliff Mallee Ash occurs mainly on cliff tops and steep slopes around the Grose Valley in the Blue Mountains, New South Wales. Though locally abundant, it is found nowhere else and is considered rare.

This species has a mallee form with many stems and a large lignotuber (visible here). The lignotuber is a stump-like concentration of starch, buds and nutrients which fosters re-growth after fire or other damage. In its natural habitat this mallee is usually 1.5m or less in height.

#### 2 *Eucalyptus globulus* (Tasmanian Blue Gum)

The specific name comes from the Latin meaning 'globule' or 'little button', a reference to the shape of the fruit (gum nut) or the flower bud cap.

## Eucalypt Discovery Walk – Notes

It occurs naturally in Tasmania and southern Victoria. Its flower is the floral emblem of Tasmania. It is one of the tallest eucalypts reaching 90m. In Australia its timber was used extensively for ship-building and wharf piles in the nineteenth century.

Tasmanian Blue Gum grows rapidly in a wide range of conditions and is one of the most widely cultivated Australian trees. It is now planted extensively in Australia, southern Europe and parts of South America, also at high altitudes in the tropics of Africa, India and China. These plantations are mainly for pulpwood but also yield most of the world's eucalyptus oil. In places like Ethiopia it is an important source of fuelwood.

### **3 *Eucalyptus regnans* (Mountain Ash)**

The specific name *regnans* comes from the Latin meaning 'ruling' and alludes to the height and dominance of the tree.

The Mountain Ash is the tallest flowering plant and hardwood tree in the world. It grows very rapidly and has reached just over 100m in height and lives on average for 400 years.

It occurs in cool areas of high rainfall and deep fertile soils in Victoria and Tasmania. This eucalypt does not survive severe bushfires but subsequently regenerates from seed (only from mature trees of some 25 years) to form pure stands. The native forests provide a habitat for valued birds and mammals, notably the Wedge-tailed Eagle, the Lyrebird, the Powerful Owl and the endangered Leadbetter's possum, which is the faunal emblem of the state of Victoria.

It is an important timber tree in Australia but it requires rather specific growing conditions and has generally not grown well in other countries.

### **4 *Eucalyptus melliodora* (Yellow Box)**

The specific name *melliodora* means 'honey-smelling'.

Yellow Box is an attractive spreading tree 10-20m in height but can reach up to 30m. The bark is variable. It is persistent on the lower part of the trunk, rather thin, somewhat fibrous and usually yellow-brown. It becomes thicker and darker with age. It is not a typical box bark.

Yellow Box occurs widely from western Victoria through eastern New South Wales and the ACT to south-central Queensland, favouring gentle slopes, low hills, and flats near watercourses. It tolerates frost and drought.

This tree is one of the best in Australia for honey production. The honey has a golden or light amber colour, a light fluid texture and a fine buttery taste. The flowers, from which the honey odour comes, usually appear from September to February and are white to cream or (rarely) pink in colour.

In the ACT, Yellow Box Red Gum Grassy Woodland is considered an endangered ecological community.

### **5 *Corymbia Dwarf Orange***

*Corymbia Dwarf Orange* is a cultivated variety (or cultivar). It is a selection of the West Australian Red-flowering Gum, *Corymbia ficifolia*, and is propagated by grafting. It is one of the most spectacular eucalypts when in full flower. It stays as a very small tree, usually less than 3 metres tall, and is suitable for small gardens in southern Australia. It is best suited to coastal and inland temperate regions with winter rainfall but no heavy frosts.

## Eucalypt Discovery Walk – Notes

*Corymbia* is named from the Latin *corymbium*, literally 'a cluster of flowers', which refers to the flat-topped arrangement of the flowers in the floral head that is apparently terminal, much branched and conspicuous on the outside of the crown.

International Rules (<http://www.ishs.org/sci/icraname.htm>) exist for the naming of cultivars. The full name of a cultivar will always begin with the name of the genus to which the cultivar belongs eg *Corymbia*. This is followed by a cultivar descriptor (e.g. Dwarf Orange ).

### **6 *Eucalyptus mannifera* (Brittle Gum)**

This includes the former *E. mannifera* subsp. *maculosa*. The specific name, *mannifera*, means 'bearing manna' . Manna is a sugary secretion from injured leaves or branches. Brittle Gum has very brittle wood and branches may suddenly drop.

This species occurs naturally in New South Wales and Victoria. It is a feature of the natural landscape of this botanic garden. It usually produces a straight trunk but part of this botanic garden was originally a dairy farm and browsing by cattle may have damaged some young trees resulting in multiple trunks. The Pryor Tree in these gardens may be an example of this damage.

Its smooth white, powdery bark, often mottled with patches of grey changing to a pink colour in late spring and summer. and relatively small stature make it an attractive tree well-suited for urban planting in parks and streets. Natural stands are valued by honey producers for wintering hives. Its flowers are especially attractive to birds.

### **7 *Eucalyptus lacrimans* (Weeping Snow Gum, Adaminaby Snow Gum)**

The name *lacrimans* means 'weeping' and refers to the pendulous branchlets.

Weeping Snow Gum was formerly considered a variant of Snow Gum, *E. pauciflora*, but differs mainly in its branching habit. It is a small tree to 15 metres high with a smooth, powdery, white or grey bark, shedding in ribbons. It is very long-lived and slow growing.

It has a very restricted and sporadic distribution in the Adaminaby district of southern New South Wales and is considered rare. It occurs on broad flat areas in grassy subalpine woodland or more or less treeless grassy plains. In these areas the soil is deep, but poorly drained, and winter conditions are cold, with frost, snow, frozen ground and heavy mists.

Its graceful and unusual form with slender weeping branches and pendulous leaves make it an excellent ornamental or specimen tree. Its delicate white flowers are quite attractive to people as well as birds.

### **8 *Eucalyptus scoparia* (Wallangarra White Gum)**

The specific name is from the Latin *scoparia* meaning 'sweeper' referring to the tree's broom-like shape in its natural habitat. It was named by Joseph H. Maiden (1859-1925) Director, Royal Botanic Gardens, Sydney.

Wallangarra White Gum is usually a small to medium sized tree with smooth, white with light grey patched bark with a powdery coating. This abnormally large specimen may have developed due to a good underground water supply leaking from the nearby pond. Its natural distribution is restricted to the Wallangarra region of southern Queensland and New South Wales and its conservation status is vulnerable. It grows in clefts in granite outcrops on mountain tops across the Queensland-New South Wales border.

## Eucalypt Discovery Walk – Notes

*Eucalyptus scoparia* is widely planted as a street tree and garden ornamental in southeastern Australia for its attractive white bark and fine glossy green foliage.

### 9 *Eucalyptus benthamii* (Camden White Gum)

The specific name honours Dr George Bentham (1800-1884), principal author of the monumental 7-volume *Flora Australiensis*.

Bentham was born in England, where he qualified as a lawyer but devoted most of his time to botanical work. From 1855 he worked in an honorary capacity at the Royal Botanic Gardens in Kew, England. He never visited Australia. Bentham was assisted in preparing the Australian Flora by Ferdinand von Mueller, Government Botanist and Director of Melbourne Botanic Gardens. Bentham's classifications of *Eucalyptus* and *Acacia* are still valuable references.

*Eucalyptus benthamii* is an endangered species in its natural habitat around Camden, much of which has been cleared for farming or submerged by the Warragamba dam. As part of *ex situ* conservation, it was the first of 100 hundred forests planted in Canberra's National Arboretum. It will grow on diverse sites and its potential for commercial pulpwood production is being explored in several countries.

### 10 *Eucalyptus polybractea* (Blue Mallee)

The specific name is derived from *poly* meaning 'much' or 'many', and *bractea* referring to the bracts around young buds.

*Eucalyptus polybractea* is a mallee with a restricted natural distribution in western New South Wales and northern Victoria.

It is the preferred species for eucalyptus oil production in Australia, having up to 90% cineole in its oil, the highest of any species, and no undesirable components. It is particularly suitable for pharmaceutical purposes. Both natural stands and plantations in its areas of natural occurrence and in Western Australia are used for commercial oil production. Trees in commercial plantations are cut to the ground every two years and the new growth of leaves sprouting from a lignotuber is harvested by machine. Oil is extracted from them by distillation. Blue mallee has not grown well as an exotic overseas and other species, such as Tasmanian Blue Gum (*Eucalyptus globulus*), are used for eucalyptus oil production in other countries.

### 11 *Eucalyptus robusta* (Swamp Mahogany)

The common name, Swamp Mahogany, reflects its preferred habitat and the likeness of its red timber to West Indian mahogany.

*Eucalyptus robusta* was first collected by John White, the First Fleet Surgeon and Naturalist and described in 1793 by Sir James Edward Smith, English Botanist and founder of the Linnaean Society and illustrated by James Sowerby who was from a family of distinguished illustrators of natural history.

Occurring along the coast in New South Wales and Queensland, it was accessible to early settlers. It was the first street tree in Australia, planted in a row in 1816, along Mrs. Macquarie's Road, adjacent to the present Sydney Botanic Gardens. It was widely planted in the tropics from early seed collections and is still grown commercially in Madagascar where, for over 100 years, individual trees have been coppiced for charcoal and fuelwood.

Koalas feed on its leaves.

## 12 *Eucalyptus rossii* (Scribbly Gum)

*Eucalyptus rossii* is named after science teacher William John Ross (1850-1914), a member of the Clunies Ross family, one of whose sons was a distinguished scientist and administrator at CSIRO of which he became Chairman in 1949 (Ian Clunies Ross).

The common name refers to brown scribble markings made on its light trunk by moth larvae as they burrow under the outer bark. They leave visible trails through the bark which are prominent when the bark peels away. About 20 eucalypts have scribble markings; five of which are called scribbly gums. May Gibb's children's story *Snugglepoot and Cuddlepie* refers to the scribbles as 'fairy writing'. Another identifying feature is the wrinkles under the armpits, namely the wrinkles that appear just below the base of branches off the main trunk.

*Eucalyptus rossii* occurs on the Western Slopes and Tablelands of New South Wales from the border with Queensland almost to Victoria, usually on shallow, well-drained soils of low fertility where it rarely exceeds 15m in height. It is found locally, and occurs naturally in this botanic garden. The timber has little commercial value.

## 13 *Eucalyptus pulverulenta* (Silver-leaved Mountain Gum)

The name *pulverulenta* comes from Latin *pulverulentus* meaning 'powdery'.

*Eucalyptus pulverulenta* was named by John Sims (1749-1831) in 1819 from a specimen growing in the Royal Botanic Gardens at Kew, England. It is believed the seed was collected during a journey from Sydney to Bathurst in 1815 by Governor Macquarie.

This species is rare. It occurs in small stands in a few mountainous areas of New South Wales. The silvery appearance is due to a powdery coating on its leaves and buds. The mature tree retains its juvenile leaves and the adult foliage characteristic of most eucalypts is rarely seen. The flowers sit close to the stem and the leaves. These attractive features make it special in the floristry trade.

It is often grown in gardens where it can be trimmed and used as a feature plant.

## 14 *Corymbia calophylla* (Marri)

The specific name *calophylla* is from the Greek *calo* meaning 'beautiful' and *phyllon* 'a leaf'.

Marri is usually a large tree (about 40 metres tall, with an attractive, dense canopy) but in poor soils it takes on a mallee form. It is widespread across south-western Western Australia on the coastal side of the wheat belt and is an important component of the Jarrah and Karri forests. It is resistant to the fungal disease *Phytophthora cinnamomi*.

In summer, its showy, cream (sometimes pink) flowers are found on the outside of the canopy. Its brown to grey-brown bark is rough and tessellated. The large urn-shaped nuts are characteristic of *Corymbia* species; it is thought that in the past they were used in hockey games hence the name 'honkey nuts'.

The honey-coloured timber has poor strength and so is not used in construction but, increasingly, in fine furniture manufacture. Its light colour makes it suitable for pulp production and large amounts are used in wood chip production.

## 15 *Eucalyptus saligna* (Sydney Blue Gum)

The specific name is from the Latin *salignus* meaning 'willow-like', but what it alludes to is obscure. The common name refers to the bark which sometimes has a bluish appearance.

## Eucalypt Discovery Walk – Notes

It is a tall, fast-growing tree occurring in coastal areas of New South Wales and southern Queensland. It was planted in other countries for commercial wood production but has now been largely replaced by the closely related *Eucalyptus grandis*. In Australia the pink-red timber has been used for general construction, flooring, and high quality furniture.

Many stands of this species in the Sydney area have been cleared for urban development and the remnant communities of Blue Gum high forest are threatened by further urban development, fragmentation and weed invasion. A form of dieback on *E. saligna* is particularly prevalent in north-eastern New South Wales; this is possibly caused by aggressive bell miner birds upsetting the local ecological balance of insects which is favouring harmful pests.

### **16 *Corymbia citriodora* (Lemon-scented Gum)**

The specific name is from the Latin *citriodorus* meaning 'lemon scented', referring to the aromatic foliage.

*Corymbia citriodora* was named by William Jackson Hooker (1785-1865), a distinguished English botanist and first director of the Royal Botanic Gardens at Kew, who accompanied Thomas. L. Mitchell on an expedition to the Gulf of Carpentaria in 1846. Hooker commented on its deliciously fragrant lemon-like odour.

This tall tree has a powdery, smooth, white or pink bark. It occurs naturally in central and northern Queensland. Its flowers produce nectar and pollen valuable for apiculture and attractive to birds. The leaves are a source of citronellal oil of importance in perfumery.

In Australia, it is grown as an ornamental tree. Plantations in South America, India and particularly China provide citronellal oil from leaves, while the dense and durable timber is used for flooring, heavy construction, fuelwood and industrial charcoal.

### **17 *Eucalyptus siderophloia* (Northern Grey Ironbark)**

The specific name is from the Greek *sideros* 'iron' and *phloios* 'bark', and refers to the very hard bark. It was named by English botanist George Bentham (1800-1884) in 1867.

It is a medium to large tree up to 45m tall, with dark, furrowed, hard bark. The ironbark is impregnated with kino, a dark red gum exuded by the tree. Kino (from many eucalypts) was used by Indigenous Australians for medicinal purposes.

It occurs in New South Wales and Queensland on soils of reasonable fertility. Its flowers are white or cream and its leaves are browsed by koalas.

The wood is very heavy, hard and compact, making working with the timber difficult. It is hard to nail and planes with difficulty but it has a beautiful appearance similar to some rainforest species. The wood resists termites. Uses include flooring and decking, shipbuilding, poles, construction, railway sleepers and heavy engineering.

### **18 *Eucalyptus cloeziana* (Gympie Messmate)**

Gympie Messmate occurs in small populations from southeast Queensland to Cooktown in the north. It is the largest eucalypt growing in Queensland. The Doggrell Tree near Gympie is over 60m tall and has a girth of almost 7m.

*Eucalyptus cloeziana* was named by Ferdinand von Mueller (1825-1896) in honour of Francois Stanislas Cloez (1817-1883), a French chemist, who identified eucalyptol in eucalypt leaves and prescribed this eucalypt oil for bronchitis, coughs, colds and flu.

## Eucalypt Discovery Walk – Notes

In the 19<sup>th</sup> century, substantial quantities of the heavy, strong and very durable Gympie Messmate wood were used in Gympie's gold mines and in the developing regional railway network. Today it is planted commercially in Australia and overseas for poles and mining timbers. South Africans regard it as excellent for telegraph poles. The wood can also be used for fibreboard and industrial charcoal.

### 19 *Angophora costata* (Smooth-barked Apple)

*Angophora* is derived from the Greek, *angos* a goblet or vessel and *phorus* meaning carrier or bearing, referring to the shape of the fruit; *costata* a rib, refers to the ribbed gumnut. It was first collected by Joseph Banks and Daniel Solander in Botany Bay in 1770 and the common name Apple was applied to a number of eucalypt species in the early days of colonisation.

It is a eucalypt occurring in open forests in coastal New South Wales and in south-eastern Queensland. It has an attractive appearance and is a well-known tree of the Sydney basin. It is the only smooth-barked *Angophora* species, often beautifully coloured with shades of grey, pink and orange and frequently stained with kino (reddish gum). Its timber is rarely used except for firewood. Many creatures use older trees for breeding and roosting, the nectar is a major source of food for insects and flying-foxes, and birds eat the seeds.

### 20 *Eucalyptus viminalis* (Ribbon Gum, Manna Gum)

The specific name is from the Latin *viminalis* meaning 'bearing long flexible twigs like a willow', probably alluding to the resemblance of the adult leaves to those of a willow. This seems very tortuous!

Ribbon Gum is the most widespread eucalypt in south-eastern Australia. It shows great variability in size and form but can reach 55m in height in favourable conditions. Long ribbons of bark often hang from the tree canopy and can be a serious fire hazard.

It is a food tree for koalas and sugar gliders and it is a source of a sweet honey. It also produces manna, a sugary secretion from injured leaves or branches, which was relished by Aboriginal people.

It grows well in a cool temperate climate and tolerates some frosts. It has been planted in Argentina, southern Brazil and Italy for paper and fibreboard production. The timber has been used in Australia for flooring, panelling and joinery.

### 21 *Eucalyptus grandis* (Flooded Gum)

The specific name *grandis* reflects the large size of the tree, which can reach 75 m in height. Flooded refers to its occurrence on very moist (but well drained) sites.

Flooded Gum is a handsome, fast growing tree with striking white bark above a basal stocking of dark, rough bark. It is a dominant tree of coastal eucalypt forests and rain forest margins from New South Wales to northern Queensland.

It is an important timber tree in Australia where the pinkish timber is used in general construction, joinery, plywood and flooring.

There are extensive plantations for pulpwood especially in subtropical areas of South Africa and Brazil. It was the first eucalypt to have its genome mapped and it has been successfully hybridized with other species to extend its use into more tropical areas.

It was one of the species planted to protect new rain forest plants during the development of the Rainforest Gully in these botanic gardens.