

Wattles of the City Of Whittlesea

Protecting biodiversity on private land series

Over a dozen species of wattle are indigenous to the City of Whittlesea and many other wattle species are commonly grown in gardens. Most of the indigenous species are commonly found in the forested hills and the native forests in the northern parts of the municipality, with some species persisting along country roadsides, in smaller reserves and along creeks.

Wattles are truly amazing Australian plants

- There are more wattle species than any other plant genus in Australia (over 1000 species and subspecies).
- Wattles, like peas, fix nitrogen in the soil, making them excellent for developing gardens and in revegetation projects.
- Many species of insects (including some butterflies) breed only on specific species of wattles, making them a central focus of biodiversity.
- Wattle seeds and the insects attracted to wattle flowers are an important food source for most bird species including Black Cockatoos and honeyeaters.
- Wattles have multiple uses for indigenous peoples, with most species used for food, medicine and/or tools.
- Wattle seeds have very hard coats which mean they can survive in the ground for decades, waiting for a cool fire to stimulate germination.
- Australia's floral emblem is a wattle: Golden Wattle (*Acacia pycnantha*) and this is one of Whittlesea's local species
- In Victoria there is at least one wattle species in flower at all times of the year. In the Whittlesea area, there is an indigenous wattle in flower from February to early December.



Caterpillars of the Imperial Blue Butterfly are only found on wattles

Council Offices
25 Ferres Boulevard
South Morang VIC 3752
Locked Bag 1
Bundoora MDC VIC 3083

Tel 03 9217 2170
Fax 03 9217 2111
TTY 133 677 (ask for 9217 2170)
Email info@whittlesea.vic.gov.au
www.whittlesea.vic.gov.au

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Basic terminology

- **‘Wattle’ = Acacia**
Wattle is the common name and Acacia the scientific name for this well-known group of similar / related species. There are over 1000 Acacia / Wattle species in Australia (and some in other parts of the world, such as Africa). Each has a common name and a unique, internationally recognised, scientific name (eg. the species known as Blackwood has the unique scientific name *Acacia melanoxylon*).
- **Wattles are legumes**
Until recently, Acacia and a few related groups (eg. Senna / Cassia) were grouped in the family called Mimosaceae. Recent research has suggested that all leguminous plants should be returned to a single family, the Pea family (Fabaceae).
- **Leaves vs phyllodes** – ‘leaves’ on wattles that look like normal leaves or needle-like leaves are technically not leaves at all. They are phyllodes, or modified leaf stems, that look like leaves and act largely in the same way as leaves. All wattles have true leaves when seedlings but in most species these leaves are eventually replaced by phyllodes. Seedling (true) leaves are pinnate or bipinnate. Just to confuse matters, a few wattle species do not develop phyllodes and instead retain true leaves throughout their life (eg. *Acacia dealbata*, *Acacia mearnsii*).
- **Indigenous** – means it occurred in the Whittlesea area prior to European settlement.



This young Blackwood plant (*Acacia melanoxylon*) has bipinnate seedling leaves (true leaves which all wattle seedlings have) and leaf-like phyllodes. When mature, most wattles have only phyllodes, but there are also a few species that only have bipinnate leaves.

Wattles and soil

After fire or other soil disturbance, wattles are often seen to colonise those areas en masse. Wattles, like peas, fix nitrogen in the soil providing an essential nutrient that helps other species grow strong and healthy.

Fire and wattles

In their natural environment, and in gardens, most wattles that grow to small tree size or less are relatively short-lived (5-10 years). Wattles seeds have a hard case and can remain viable in soil for decades, and they often need a fire to stimulate germination. Wattles are known as ‘pioneer plants’ and regrowth after a fire is often very dense. Over time, plants naturally ‘thinout’ to lower densities.

Fire is an important management tool for most vegetation communities and the timing of management fires is critical for sustainable land management, biodiversity conservation and in reducing the ferocity of wildfires. Dry-moist forest would have evolved through burns every 10-20 years and lowland-grassland areas every 4-5 years. The timing of fires is critical for the ecology. Most of the insects that naturally break down fallen plant material live via a one year life-cycle and have evolved to survive through fire but they haven't evolved to survive fire at the wrong time of year in today's patchy environment. Spring burns will result in annual flowering plants not having time to set seed, nests and their contents will be destroyed, caterpillars and pupating butterflies and moths in their one year cycle will be killed and all those other insects that are critical both in their role in the environment and as a food source within the food chain will be lost.

Aboriginal use of wattles

Wattles are arguably the most used of all plants by Aboriginal people, being used for food, medicine, poison and tools. Among the most useful types of wattles indigenous to the Whittlesea area are *Acacia dealbata* (Silver Wattle), *Acacia mearnsii* (Black Wattle), *Acacia melanoxylon* (Blackwood) and *Acacia pycnantha* (Golden Wattle).

Wattles were also used as seasonal indicators for other important events. Silver Wattles (*Acacia dealbata*) dropping their flowers was used as an indicator of the time to fish for eels.

Wattles and allergies

Wattles are often associated with hay fever, however research has shown that only about 5% of people who think they are allergic to wattles actually are. Hay fever is caused mostly by Rye Grass (*Lolium* species) which, coincidentally, flowers in spring at the same time as most wattles.

Wattles are insect-pollinated and have larger and heavier pollen grains which are not easily blown about in the wind compared to the smaller, lighter grains from Rye Grass. For this reason, only a very small proportion of all the pollen in the air is from wattles, with the vast majority of it falling to the ground below the tree.



This photo shows a complex multi-species interaction. On this specimen of *Acacia genistifolia* are the (1) caterpillar of the Imperial Blue butterfly (*Jalmenus evagoras*) and the (2) Acacia Horned Treehopper (*Sextius virescens*). Both insects secrete a sugary sap that is harvested by (3) meat ants (*Iridomyrmex* species) which, in turn, look after the caterpillar and treehopper.

Wattles as weeds

Wattles from other areas of Australia, when planted outside of their natural range, can become serious weeds. Birds spread the seeds of wattles and some wattle species can establish in self-sustaining (weed) populations in bushland areas. All weedy wattles originate from gardens and other plantings.

Weeds, by their nature, tend to outcompete other plants for space, light, water and nutrients and can cause other problems in bushland areas including:

- weeds when established occur in relatively large numbers, and wattle weeds as shrubs / small trees, tend to increase the average density of the understorey
- displacing local fauna through loss of habitat, and
- hybridising with indigenous species.

Two of the most serious weedy wattles that have escaped into the forested areas of Whittlesea are *Acacia baileyana* (Cootamundra Wattle) and *Acacia longifolia* (Sallow Wattle). Other wattles known to escape and have been recorded in the area include *Acacia decurrens* (Early Black Wattle), *Acacia elata* (Cedar Wattle), *Acacia howittii* (Sticky Wattle), *Acacia provincialis* (Inland Wirilda), and *Acacia rupicola* (Rock Wattle).

Many of the above weedy wattles are readily available at plant nurseries because they are showy and relatively easy to grow. However, the best thing to do is to avoid these species for your garden, or get rid of them if you already have them ... be brave!

Identification key for the wattles of Whittlesea

This key includes all the indigenous and weedy wattles known to occur in the City of Whittlesea. To make it easy to use, the key has grouped species together based on some similar features into Groups A, B, C, D, E and F.

To identify your wattle, first work in a systematic progression from Group A, to Group B, ..., to Group F using the general key on page 9. When you reach a letter that fits your wattle (e.g. B) move to the more specific key (e.g. B starts on page 12), and the key then works in a systematic progression from 1, to 2, ..., etc.

When working through the key the text in bold is enough to distinguish each plant. Non-bold text will help confirm the species. The species name is in italics and common name in brackets.



Acacia mearnsii (Black wattle - above) and *Acacia dealbata* (Silver Wattle) were used similarly. Seeds were ground to make flour for damper or roasted / steamed and eaten. Gum from cuts in the trunk was eaten, or made into a drink and left to ferment. Gum was also mixed with ashes to make cement. Bark was used to make a decoction to treat indigestion, to slow bodily functions and as a treatment for diarrhoea, haemorrhage, heavy menstrual flow and many other things. Weapons and handles were made from the wood.

Glossary

Axillary: Emanating from leaf axils (the leaf axil is the point where the leaf attaches to the stem).

Bipinnate: A twice pinnate or twice divided leaf - leaf is divided into smaller leaflets (pinnae - 1) which are in turn divided into still smaller leaflets (pinnules - 2)

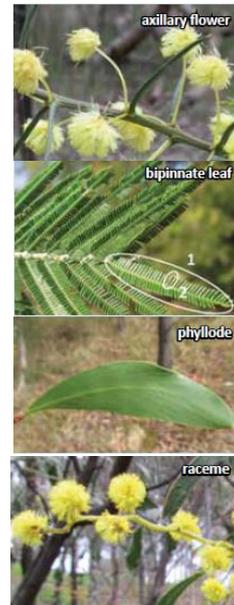
Phyllode: This is what is commonly referred to as the leaf on all wattles that don't have bipinnate leaves

Pinna: The largest segment of a bipinnate leaf (1 - plural pinnae)
Pinnule: Smallest part (leaflet) of a bipinnate leaf (2)

Raceme: A flowering arrangement with a main axis and a series of flowers on lateral stalks

subsp.: Subspecies

- **A** These species have bipinnate leaves
- **B** These species are prickly, with either spines on branches (spines emanating from leaf axils) or needle-like phyllodes; phyllodes not broadly triangular
- **C** These species are not prickly (or if slightly prickly then phyllodes are broadly triangular), all have short phyllodes, 2.5 cm long or less. Flowers spherical and axillary
- **D** These species are not prickly, have phyllodes longer than 2.5 cm, and have cylindrical flowers
- **E** These species are not prickly, have phyllodes longer than 2.5 cm, phyllodes with 3 main veins, and spherical flowers
- **F** These species are not prickly, have phyllodes longer than 2.5 cm, phyllodes with 1 main vein, and spherical flowers



A These species have bipinnate leaves

1. Very large bipinnate leaves; large pinnules (size of a small leaf) more than 1cm long and more than 2.5mm wide. Flowers in summer (mostly late Dec to Apr). Medium-large tree.
2. *Acacia elata* (Cedar Wattle) WEED 2 Large bipinnate leaves are dark green; small pinnules with little gap between them. Flowers in late spring (mostly Oct to early Dec). Medium-large tree. *Acacia mearnsii* (Black Wattle).
3. Large bipinnate leaves are dark green, pinnules widely spaced (ie. a considerable gap between pinnules). Flowers mostly Jul-Sep. Medium-large tree. *Acacia decurrens* (Early Black Wattle) WEED
4. Large bipinnate leaves are bluegreen to greyish (not dark green); central leaf axis 4-10 cm long; pinnules uniform in length; slight gap between pinnules. Flowers mostly Jun-Sep. Shrub or small tree; tends to sucker. *Acacia dealbata* subsp. *Dealbata* (Silver Wattle).
5. Small bipinnate leaves are greyblue (not dark green); central leaf axis 1-4 cm long; pinnules are not uniform length. Flowers mostly Jun-Sep. Small tree; doesn't sucker. *Acacia baileyana* (Cootamundra Wattle) WEED



This species can hybridise with *Acacia dealbata* and all forms are serious environmental weeds.

B These species are prickly with either spines on branches (i.e. spines emanating from leaf axils) or needle-like phyllodes; phyllodes not broadly triangular.

1. Sharp spines along branches emanating from leaf axils (i.e. the spines are prickly, not the leaves). 2-3m shrub. Small phyllodes held close to branches. Large golden spherical flowers occur in spring. *Acacia paradoxa* (Hedge Wattle).
2. Sharp, needle-like phyllodes (leaves like spines) arranged in whorls of about 6 around the stem. Yellow flowers are cylindrical and occur mostly in spring. 1.5-3m shrub with long flexible branches. *Acacia verticillata* subsp. *verticillata* (Prickly Moses).
3. Sharp, needle-like phyllodes (leaves like spines) arranged irregularly along stem. Flowers spherical; yellow flowers occur in spring. Prostrate shrub, rarely reaching 50cm tall, spreading to 1m+. *Acacia aculeatissima* (Snake Wattle).



4. Sharp, needle-like phyllodes (leaves like spines) arranged alternately along stem. Flowers spherical; can vary from cream to bright yellow; flowers for a long period, mostly from Feb-Oct; usually 2-4 flowers per leaf axil (occasionally one). Stiff Shrub usually 1-2 m tall, spreading with age to 3 m. Branchlets and phyllodes not sticky. NOTE: Check against species below before confirming this species. *Acacia genistifolia* (Spreading Wattle).



5. Similar to the above species with the following exceptions. Branchlets and phyllodes are sticky (to test for stickiness, squeeze branchlet / phyllodes between fingers for 10s). Flowers Nov-Mar; one flower per axil. Phyllodes narrowly triangular. *Acacia rupicola* (Rock Wattle). WEED



NOTE: see also plant C1, *Acacia gunnii*, which has mildly prickly phyllodes.

C These species are not prickly (or if slightly prickly then phyllodes are broadly triangular), all have short phyllodes, 2.5 cm long or less. Flowers spherical and axillary.

1. Phyllodes triangular or nearly so; sharp-pointed tip is at least a little prickly. Low shrub, usually less than 60cm tall but can reach 1m tall or can be almost prostrate. Cream to pale yellow flowers occur in winter or early spring; flowers sometimes have a reddish tinge when finishing. *Acacia gunnii* (Ploughshare Wattle).
2. Phyllodes not triangular and not prickly. Low-medium shrub, 0.5- 2.5m high. Leaves with one main vein. Flowers golden-yellow in mid-winter to spring, 1-4 flowers per axil. *Acacia acinacea* (Gold-dust Wattle).
3. Phyllodes not triangular and not prickly. Tall shrub or small tree, 3-9m tall. Leaves with several inconspicuous veins. Flowers pale lemon-yellow in mid-spring. 1-2 flowers per axil. *Acacia howittii* (Sticky Wattle). WEED



D These species are not prickly, have phyllodes longer than 2.5 cm, and have cylindrical flowers.

1. Long, narrow phyllodes; at least some, usually most / all phyllodes less than 10 mm wide (usually less than 6 mm wide), 9-20 cm long. Cylindrical flowers mostly Aug-Dec. Shrub or small tree. *Acacia mucronata* subsp. *longifolia* (Narrow-leaf Wattle).



2. At least some, usually most / all phyllodes more than 10 mm wide, 5-20 cm long. Cylindrical flowers mostly Jul-Oct. Tall shrub or small/medium tree. *Acacia longifolia* (Sallow Wattle). WEED



NOTE: see also plant B2 *Acacia verticillata* subsp. *verticillata* (listed under Group B), also has cylindrical flowers.”

E These species are not prickly, have phyllodes longer than 2.5 cm, phyllodes with 3 main veins, and spherical flowers.

1. Phyllodes with 3 or more main veins (with some veins occasionally raised). Spherical, golden-yellow flowers are axillary (emanating from leaf axils) and mostly occur in winter to spring (May-Oct). Shrub 1-2m high. *Acacia lanigera* var. *whanii* (Woolly Wattle).
2. Phyllodes with 3-5 main veins. Spherical, creamy-yellow flowers arranged in racemes and occur in spring (Aug-Oct). Small-tall tree 5-30m high. Often has bunches of reddy-brown shrivelled seed pods. *Acacia melanoxylon* (Blackwood).
3. Phyllodes often sickle-shaped; usually with 3 main veins. Spherical, cream flowers arranged in racemes and occur Dec-Mar. Small-medium tree. Often has bunches of reddy-brown shrivelled seed pods. *Acacia implexa* (Lightwood).



F These species are not prickly, have phyllodes longer than 2.5 cm, phyllodes with 1 main vein, and spherical flowers.

1. Yellow flowers are axillary; Aug-Oct; mostly 3-6 flowers per leaf axil; flower stalks (peduncles) hairy. Phyllodes with lateral veins obscured (or sparse) and diverging widely from midrib/main vein. 2-4m shrub. *Acacia leprosa* var. *uninervia* (Large-leaf Cinnamon Wattle). This species is listed as rare in Victoria. Previously known as *Acacia leprosa* (Large Phyllode Form).
2. Yellow flowers are axillary; Jun- Oct; almost always uniformly 2 flowers per leaf axil; flower stalks (peduncles) have no hairs. Phyllodes with numerous closely spaced lateral veins making a small angle with midrib/main vein. 1-5m shrub or small tree. *Acacia stricta* (Hop Wattle).
3. Golden flowers arranged in racemes occur in Aug-Oct. Phyllodes are green and leathery (sometimes shiny), long, broad (mostly 15-50mm wide) and sometimes slightly sickle-shaped; main vein is almost central on the phyllode. Tall shrub or small tree 3-10m tall, growth often tall and slender in forests (appearing almost single-stemmed/unbranched). *Acacia pycnantha* (Golden Wattle). Australia’s floral emblem.



4. Golden or lemon-yellow flowers arranged in racemes occur in spring. Phyllodes are grey-green, long, broad (mostly 15-50mm wide - similar in size to *A. pycnantha*) and sometimes sickle-shaped; main vein is often obviously non-central on the phyllode. Shrub or tree, 3-15m tall. *Acacia obliquinervia* (Mountain Hickory Wattle). A locally rare species so please report sightings to the City of Whittlesea.



5. Light golden flowers arranged in racemes can occur throughout the year but always flowering well around Christmas/New Year. Phyllodes are light green (sometimes slightly greyish); long, slender (mostly 20mm wide or less; on some plants all phyllodes are less than 15mm wide); main vein is almost central on the phyllode; phyllode tip is often hooked to one side. Tall shrub or small tree 4-8m tall. *Acacia provincialis* (Inland Wirilda). Previously known as *Acacia retinodes*.
WEED



If you have reached this point and not found your wattle, it could be for a number of reasons:

- a) You have misapplied the key (have another go)
- b) You have found an indigenous wattle species not previously recorded in the area *
- c) You have found a weedy wattle not listed in this key (never get rid of the plant until you know what it is) *

* Email photographs to sustainability@whittlesea.vic.gov.au and we'll identify it for you

Acknowledgements

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Further Reading

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