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Australian Plants articles

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History of the Acacia Study Group

Bill Aitchison, ANPSA Acacia Study Group Newsletter Editor

A history of the Acacia Study Group was included in an article in *Australian Plants* Vol 22, Page 304 (September 2004). The purpose of this note is to update the history of the Group since 2004, and to correct one omission from the previous article.

The Leader of the Study Group in 2004 was Thais Eisen, of Annerley, Queensland. She remained as Leader until 2007, when Esther Brueggemeier of Westlake, Victoria took on the Leadership role, and she remains the present Leader. Under Esther's leadership, a further 13 Newsletters have been issued, so that since the Group's formation in 1961, 134 Newsletters have been published (being the first 25 unnumbered Newsletters and 109 numbered Newsletters).

All 30 Newsletters issued since May 2001 are available on the World Wide Wattle Website (www.worldwidewattle.com/socgroups/asg/).

In the 2004 article, information was provided regarding the Group's Leaders since its formation in 1961. However, the article omitted to mention one of the previous leaders, Robert Coveny, who was Leader from 1968 to 1969. The following Table lists the 9 Leaders of the Group in the 49 years since its formation:

Leader	Period of Leadership	Newsletters Produced
Dr Allan C Keane	1961–1967	25 (unnumbered)
Robert Coveny	1968–1969	No. 1–4
Inez R Armitage	1971–1976	No. 5–23
John Arnold	1976–1978	No. 24
Marion Simmons	1978–1991	No. 25–63
Bruce Clark	1991–1996	No. 64–78
Peter Reynolds	1998–1999	
Thais Eisen	2001–2007	No. 79–96
Esther Brueggemeier	2007–2010	No. 97–109

The Study Group continues to operate a Seed Bank for the benefit of Study Group members and this currently holds seed of about 550 species. The Group also holds a Photo Library. This Library currently contains well over 1000 images and the Group aims to improve the number and quality of images in the Library. We would very much welcome any contributions to the Library (please email acaciastudygroup@gmail.com if you are able to assist with any contributions).

Australian Acacias of the rainbow

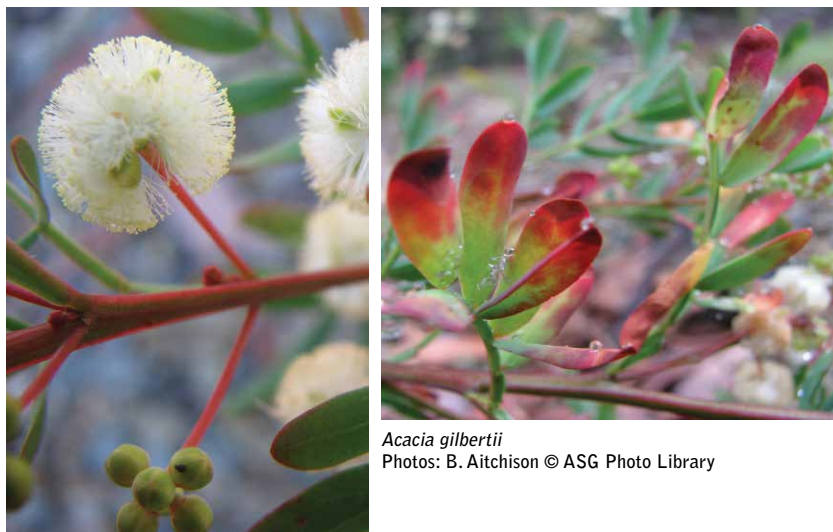
Esther Brueggemeier

ANPSA Acacia Study Group Leader and owner of 'Wild about Wattle', a boutique nursery promoting Acacia cultivars including rare and endangered species. www.wildaboutwattle.com.au

Who said all Acacias were yellow! Australia has a few of the most spectacular variations of unusual coloured Wattles in the world. The following is a brief summary of the brilliantly coloured rare 'stunners,' with a few being available on the horticultural scene.

Acacia gilbertii – 'White Wattle': This pretty little wattle, not much more than 1m high, has very white fluffy flowers and rich purple-reddish new growth. With its twisting red-brown pods, it makes for a fascinating display at all times of the year. The beautiful white wattle is also a pleasant choice for off season blossoms as it flowers from around late October to February.

Acacia gilbertii has not been used much in the horticultural world even though it is relatively drought tolerant and not too difficult to propagate. Like most Western Australian species, the white wattle likes good drainage and prefers part-sun.



Acacia gilbertii
Photos: B. Aitchison © ASG Photo Library

Acacia leprosa – 'Scarlet Blaze': A unique ornamental form also known as the Cinnamon Wattle was selected as Victoria's Centenary of Federation floral emblem. It was a chance discovery by bushwalkers

in a state forest of Melbourne back in 1995 and propagated by the Royal Botanic Gardens, Melbourne. The parent plant in the bush has long since perished but the seedlings raised by the nursery are thriving. Although commercially available, the degree of difficulty in propagation has kept numbers limited, though it is set to increase in future years. The remarkable story of its conservation and propagation is detailed in the Acacia Study Group Newsletter No. 99, December 2007 and can be viewed online at: <http://www.worldwidewattle.com/socgroups/asg/newsletters/99.pdf>

It is an excellent variety with plenty of 'wow' when used as a specimen or for low maintenance screening. Scarlet Blaze prefers full sun to



Acacia leprosa 'Scarlet Blaze' at the Royal Botanic Gardens Melbourne.
Photo: © Plants Management Australia Pty Ltd

dappled shade in a well drained, moist soil. Once established it is quite hardy and will tolerate frost and short periods of dryness. The occasional deep watering is recommended through extended periods of drought. No pruning is generally required though a light trim each year after flowering will encourage bushier growth and more flowers.

***Acacia paradoxa* – ‘Marmalade Hedge’:** After the 2006 bushfires burnt out the property of Neil and Wendy Marriott of Stawell, Victoria, an amazing bright orange wattle arose amidst the charcoal ashes. This stunning plant was in fact a normal *Acacia paradoxa* with yellow flowers, but the main branch was a sport with brilliant orange flowers. Several smaller branches near the base of the plant retained the yellow flowers. While *Acacia paradoxa* is commonly known as the ‘Hedge Wattle’, this orange wonder was lovingly named ‘Marmalade Hedge’ by Wendy Marriott.

At present, these particular cuttings are proving difficult to propagate but, if successful, we can expect release in the next few years.

<http://www.worldwidewattle.com/socgroups/asg/newsletters/103.pdf>

***Acacia purpureapetala* – ‘Purple Wattle’:** A small shrub of only 50cm with spreading prostrate branches, it is unique among the Australian Acacias in having consistently mauve-purple flowers. A rare species confined to the Herberton region, in north-eastern Qld, growing on steep rocky slopes in Eucalyptus woodland while often colonising disused mine sites. The purple wattle flowers sporadically throughout most of the year with the main flush being June-July. Incredibly, plants have been seen carrying buds, flowers, immature and open pods, all at the same time.

This purple flowered wattle is quite odd in more ways than just its flower colour. Although seeds germinate readily, it has defied all attempts to introduce it into the horticultural world in a cultivated garden setting.

***Acacia suaveolens* – ‘Sweet Wattle’:** *Acacia suaveolens* is found naturally in a large area of Qld, NSW, Vic, SA and Tas. A wonderfully long flowering shrub of 1–3m high, this delicate-looking but hardy wattle fits neatly into any garden nook.

With very pale cream to yellow flowers from late Autumn and easily through to early Spring, the Sweet Wattle, as the name suggests, produces an intoxicating scent amidst the cold and grey of winter. After flowering, it is decorated with attractive bluish flattened seed pods. *Acacia suaveolens* prefers well drained soil and will tolerate frosts to -7°C while even being resistant to salt spray.



Acacia paradoxa ‘Marmalade Hedge’ Photo: © N. Marriott



Acacia purpureapetala ‘Purple Wattle’
Photo: R. Hotchkiss © Australian National Botanic Gardens



Acacia suaveolens Photo: E. Brueggemeier © Wild about Wattle

***Acacia terminalis* – ‘Pink Sunshine’:** A rare form of *Acacia terminalis* with stunning pink flowers was found in the wild about 20 years ago on the east coast of Tasmania. Seeds were collected and various attempts were made to bring this pink variant into cultivation. Unfortunately, the plants proved rather difficult to propagate from cuttings and tissue culture.

Will Fletcher, from Plants of Tasmania, spent five years building up a well-established stock of seed grown plants in which the gene pool of pink wattles has grown very strong: 70% of seed grown plants retain a beautiful pink colour.

Like the yellow form, plants generally flower from their third year on in mid-late Autumn. The beautiful ‘Pink Sunshine’ produces a relatively dense habit, spectacular bronze-coloured new growth and abundant full flowering.

Both Will Fletcher and John Gibson (current owner of Plants of Tasmania Nursery) are keen to get the plants out into gardens to ensure its survival and it should be released within the next few years.

<http://www.worldwidewattle.com/socgroups/asg/newsletters/108.pdf>

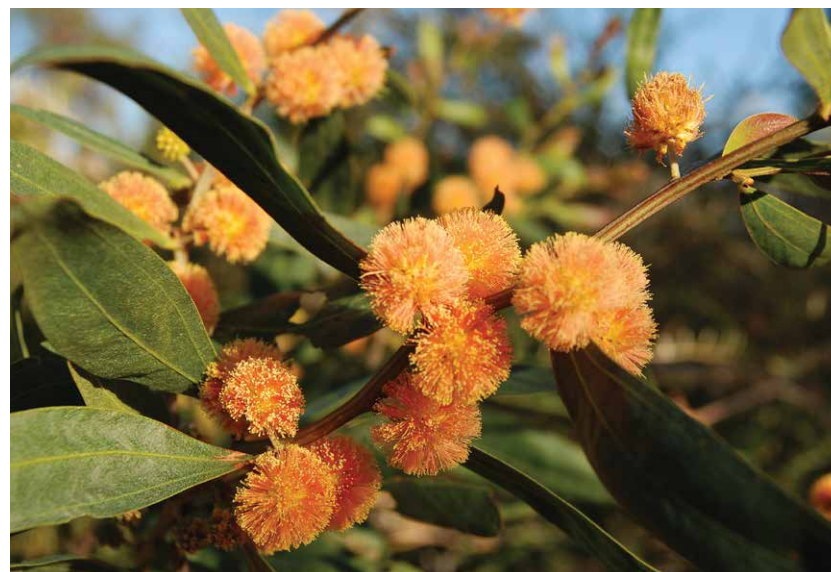
For more excellent photos see:

http://www.flickr.com/photos/nuytsia_pix/2416165018/in/photostream/



Left: *Acacia terminalis* ‘Pink Sunshine’
Photo: © Nuytsia@tas

Below: *Acacia verniciflua* ‘Orange Blaze’
Photo: © Neil Marriott



***Acacia verniciflua* – ‘Orange Blaze’:** The newest sensation this year is an attractive apricot-orange flowering plant that arose from a batch of seedlings of *Acacia verniciflua*, (robust mountain form from Strathbogie Ranges) crossed with *Acacia leprosa* ‘Scarlet Blaze’. It appears to be very hardy and quick growing. At present ‘Orange Blaze’ is being trialed for suitability before being released to the nursery trade in a year or two.

Of course where would we be without our many varieties of bold and beautiful, bright yellow wattles? There are too many for detailed descriptions so enjoy the following 'Blaze of Glory'.



Acacia baileyana



Acacia cardiophylla
Both photos this page: E. Brueggemeier © Wild about Wattle



Acacia denticulosa Photo: W. Roland © ASG Photo Library



Acacia pulchella
Photo: G. Lay © ASG Photo Library



Acacia longifolia Photo: E. Brueggemeier © Wild about Wattle



Acacia pycnantha Photo: K. Russell © ASG Photo Library

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Acacia Study Group newsletter No. 99,103,108 & Acacia Study Group Photo Library
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 Plant Management Australia Pty Ltd (PMA) <http://pma.com.au/default.asp>
 White Gums Environmental Consultancy - Neil Marriott.
 Wild about Wattle <http://www.wildaboutwattle.com.au>
 World Wide Wattle website <http://www.worldwidewattle.com>

Wattle become of Acacia? An update

Bruce Maslin Senior Principal Research Scientist. W.A. Herbarium, Department of Environment and Conservation.

As many readers will undoubtedly know there has been considerable debate in past years, in both the scientific and popular press, concerning the application to the name *Acacia*. A significant milestone in this debate was reached in July 2005 when the 17th International Botanical Congress (IBC) in Vienna endorsed a proposal by Orchard & Maslin (2003) to change the type of *Acacia* from an African species (*A. nilotica*) to an Australian one (*A. penninervis*). A significant (and for some people, contentious) consequence of this decision was that the majority of the Australian Wattle species retained the botanical name *Acacia* (instead of having to change to *Racosperma*) and some non-Australian species needed to be included in the genus *Vachellia*. I do not intend recounting here the issues that led to this decision but anyone interested in reading this history can do so on the WorldWideWattle website at <http://www.worldwidewattle.com/infogallery/nameissue/>.

Without doubt the *Acacia* name issue has been an extremely difficult matter for the botanical community to deal with. This is because in 2005 *Acacia* was one of the largest genera of vascular plants in the world, containing about 1400 species which were globally distributed and which formed a significant component of the vegetation of Australia, Asia, Africa and the Americas. However, scientific evidence, especially that derived from genetics, showed that this broadly defined group needed to be split into a number of smaller genera. From the moment that the process of fragmentation began, differences of opinion emerged as to which genus should retain the name *Acacia* and it was this issue that was so vigorously debated in the lead up to the Vienna meeting. Therefore, no matter what decision was made in Vienna, there would inevitably be some people who would be unhappy with the outcome. It is for this reason that the Secretary of the Spermatophyta Committee which was involved in the decision-making process published the 14 main reasons why that Committee voted in support of the Orchard & Maslin proposal (see Brummitt 2004).

Many people thought that the Vienna decision would put an end to the years of uncertainty and nomenclatural instability concerning the application of the name *Acacia*. Regrettably, however, this has not been the case, at least in some quarters. Subsequent to 2005 papers have been published that voiced objection to the IBC outcome concerning *Acacia* and there have been moves aimed at trying to have the decision

reversed at the next IBC which will be held in Melbourne in July 2011 (see Rijckevorsel 2006, Smith *et al.* 2006, Moore 2007 & 2008). These objections did not question the validity or veracity of arguments that had led to acceptance of the Orchard & Maslin (2003) proposal, but rather to procedural matters concerning the way the Nomenclature Section Meeting at the IBC was conducted. These are complex, technical matters the details of which need not concern us here except that if the objections were valid they would render the *Acacia* decision as invalid. These objections were addressed by McNeill and Turland (2010) who explained that the procedure proposed by the Bureau of Nomenclature and accepted by the Nomenclature Section Meeting was in order, that this Meeting had accepted the General Committee Report that *Acacia* be conserved with *A. penninervis* as the type, and that this decision was ratified at the final session of the IBC. In other words, everything was done in a proper way in Vienna and the end result was that *Acacia* had a new type, *A. penninervis*, which is now listed in the International Code of Botanical Nomenclature.

Despite non-acceptance of the Vienna decision by some botanists (most notably those from South Africa), the post-Vienna nomenclature for *Acacia* has been adopted in many places around the world, and used in significant publications, as demonstrated by the following examples.

1. Names in *Vachellia* have now been made available for all relevant former *Acacia* species in the Americas and Australia, and also for a few (14 species) in the African/Asian region (see Banfi & Galasso 2008, Clarke *et al.* 2009, Glass & Seigler 2006, Hurter & Mabberley in Mabberley 2008, Kodala & Wilson 2006, Seigler & Ebinger 2005 and 2010).
2. The name *Vachellia* has been used in many publications since 2005, including Flora treatments, scientific research papers and books. Very notably this name has been accepted in *Mabberley's plant-book* (2008) which is a primary reference source for the correct names of vascular plant genera and families of the world. Also, *Vachellia* has also been used (instead of *Acacia*) in some recent reviews, catalogues and Floras from South America (e.g. Forero & Romero 2009, Hotche *et al.* 2008, Ojeda-Manjarrés & Carbonó-Delahoz 2009 and de Queiroz 2009).
3. Forty three new taxa of *Acacia* (37 species and 6 subspecies) have been described from Australia since 2005, and there are more than this number that are yet to be described. This serves to emphasize the incredible richness of *Acacia* in this region (currently there are about 1000 species recorded for Australia). Putting these numbers into perspective it should be noted that there are only about 60 African species that remain to be transferred to *Vachellia*.

4. Since 2005 the name *Acacia* has become more firmly embedded in the world of commerce and this involves issues relating to marketing, product branding, commercial contracts, training manuals, and so forth. In international trade the names 'Acacia Wood' or simply 'Acacia' are used to brand furniture and other wood products made primarily from plantation-grown Australian *Acacia* species such as *Acacia mangium* and some close relatives (for further information see <http://www.kew.org/plants-fungi/Acacia-mangium.htm>). There are an estimated 2.4 million hectares of plantations of these tropical *Acacias* globally, producing about 36 million cubic metres of wood fibre annually. This wood is worth over US\$900 million to the growers or over US\$7 billion as finished products (S. Midgley, pers. Comm.).
5. As far as I am aware there has been virtually no uptake of the name *Racosperma* in the scientific literature and perhaps more importantly, by the horticultural industry. For example, a quick web search using the comprehensive *Plant Finder* databases provided by the Royal Horticultural Society of the United Kingdom (<http://apps.rhs.org.uk/rhsplantfinder/>), Gardening Australia (<http://www.abc.net.au/gardening/plantfinder/>) and the National Gardening Association of the USA (<http://www.garden.org/home>) returned not a single entry where *Racosperma* was used as an accepted name for the plant. The web dictionary Wikipedia entry for *Racosperma* is essentially correct in characterizing this name in the following way: "The name [*Racosperma*] did not gain wide acceptance and has fallen into disuse following the decision to vote on a new Type species for *Acacia* which has resulted in the vast majority, including all Australian species, as *Acacia*. The decision was not an uncontroversial one."

So what happens now? Well, McNeill and Turland (2010) suggest that the only viable option for those who feel dissatisfied with the 2005 Vienna outcome is to submit another proposal to yet again change the type of *Acacia*. Whether or not this happens, or whether a different action is taken before or at the Melbourne IBC, remains to be seen. Of course there is nothing to stop someone from making a new proposal to change the conserved type of *Acacia*, but the question must be asked as to whether or not this is a productive use of time. Not surprisingly my answer to this question is, no. I can fully appreciate the disappointment felt by those who would have preferred a different outcome at Vienna. However, continuance of this matter will inevitably lead to more years of uncertainty concerning the name *Acacia* and this is definitely not in the interests of nomenclatural stability. Besides, in the lead up to the Vienna IBC the opposing sides had ample opportunity to argue their respective cases. These arguments were then assessed and judged in a correct and proper manner. So it is now time to move on and devote our time and energy to more productive and urgent matters.

Footnote

Acacia remains a very large genus but following the Vienna decision the name became restricted to the group that predominated in Australia. Fewer than 20 of these species occur naturally outside Australia where they are found on a few islands in the Pacific and Indian Oceans and in South East Asia. However, many of these Australian species are cultivated or have become weedy around the world and are of significant economic importance.

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The Acacia cultivar revolution

Compiled by Esther Brueggemeier

ANPSA Acacia Study Group Leader and owner of 'Wild about Wattle', the boutique nursery promoting Acacia cultivars including rare and endangered species.

In *Australian Plants*, September 2004, Maria Hitchcock coined the phrase 'Acacia Cultivar Revolution'. She was referring to a new trend in the nursery trade centred around a few species of highly ornamental *Acacias*.

Many new varieties have been released since then on the horticultural market becoming a type of status symbol for the new generation of modern, contemporary-style landscapers. Small spaces, maximised with thick, lush plants, be it in the garden or courtyard have gradually overturned our image of the modern Aussie garden. Plants must be tough, drought and frost tolerant and simply look stunning. A tall order for many plants indeed, but not so with these little beauties.

The pages to follow will include some of the new exciting cultivars, and a few old favourite varieties that hold their own. One area slowly developing is the wonderful world of *Acacia* 'Standards'. With plant grafters at Humphris Nursery leading the way, a few have reached the market, with promising results. Surely every Australian garden can indulge in at least one amazing *Acacia*.

***Acacia acinacea* 'Pot o' Gold':** This versatile little bush has soft rounded leaves and graceful branches covered with golden flower balls in spring. An excellent container plant for courtyard or patio.

***Acacia baileyana* 'Goldilocks':** A popular species now being grafted to 1.5m x 1.5m, with greyish leaves and deep yellow flowers appearing in late winter. Ideal as a feature plant and suited to growing in large tubs on sunny decks or in courtyards. Prefers a sunny position in well-drained soil.



A. acinacea 'Pot o' Gold'

Photos: S. Forrester © Austraflo

Acacia cognata cultivars

Acacia cognata, commonly known as the Bower wattle or sometimes River wattle, is generally a small to medium sized erect or pendulous tree that grows from 3–10 m high. The Bower Wattle can tolerate rather heavy frost and drought once established although it does prefer a little summer water. Unlike its second common name, River Wattle, it does not like to stand in soggy soil for too long and should not be planted in a bog garden. The versatility of *Acacia cognata* can be seen in the many cultivars (below) that have arrived on the market within only a few years. Most of them are ideal when mass planted for low maintenance areas and versatile in any landscaped gardens.

***Acacia cognata* 'Bower Beauty'**: A beautiful dwarf form growing 50cm–1.2m with pendulous foliage and bronze new growth. A very hardy low maintenance dry and frost tolerant plant, useful in any garden style, from formal landscapes to native bushland or rockery embankments. Excellent as a container or tub specimen. Prefers moist, free draining soil in full sun to part-shade and is even tolerant of lime. Pruning is not usually required but beneficial if you wish to keep it at a particular size.

***Acacia cognata* 'Curvaceous'**: A new compact and bushy form with fine, lime-mid green, weeping foliage of 70cm–1m. In warmer climates it can be mass planted to create a stunning effect. The foliage is tight in habit with the soft foliage holding deep into the centre of the plant, which forms a full rounded pot specimen. Superb when grown in a pot on the deck or patio. Prefers full sun in moist, free draining soil and is dry and frost hardy with no pruning necessary.

***Acacia cognata* 'Emerald Curl'**: A small tree growing from 3–5m high with lush, fine curling foliage creating a very soft, cool environment. An excellent tree for large landscapes and small gardens as a screen or specimen tree in tight areas. Pale yellow wattle flowers appear in spring. Tip prune after flowering to encourage a denser habit. Emerald Curl is adaptable to most well drained soils and tolerates short periods of dry and frost. Once planted in full sun or dappled shade it requires very little maintenance.

***Acacia cognata* 'Fettuccine'**: An outstanding new form displaying a unique and extremely decorative rippled, lime-green foliage throughout the year. The new growth bursts into coppery tones before fading to a fresh lime-green colour. This variety of 75cm–1.2m provides a modern edge to any landscape. A truly distinguished pot specimen, effective in mass plantings and low compact hedging for small gardens, patios and courtyards. Best grown in fertile, well drained soils in full sun to part shade with pruning generally not required. Tolerates light frost.



A. cognata 'Fettuccine'



A. cognata 'Limelight'



A. cognata 'Green Mist'

All photos on this page: © PMA

***Acacia cognata* 'Green Mist':** An ornamental form of 1m x 2m with attractive weeping foliage for year-round interest. Fast growing with no pruning requirements, this easy-to-maintain shrub is valuable in establishing a structural base to any garden design. During spring a light display of soft lemon coloured flowers decorates the bush, though it will be short-lived and not as dramatic as the foliage itself.

Performs well in both full sun and part shade. Textural interest is added when used to create an informal hedge for lining paths or paved areas. Looks great in Japanese style gardens or incorporated into ferneries provided the soil is well-drained.

***Acacia cognata* 'Limelight':** One of the most popular varieties on the market today. Attractive lime-green foliage and tight, mounded weeping habit of 50cm x 1m makes Limelight a great addition to any rockery, container, garden or broad scale landscape. Ideal for contemporary modern container designs as well as more traditional, rustic terracotta or wooden tubs. Limelight is tolerant of most well drained soils including lime and prefers an open, full sun or part shaded position. Will tolerate light frosts. In frost prone areas plant in a position that offers some protection such as beside buildings or other trees. In humid climates provide extra airflow by planting in raised garden beds or containers. Best watered at the base and not overhead due to its dense habit. Container and garden plants can be pruned when required in the warmer months by removing a third to half of the foliage. Pruned plants look superb with their fresh light green, pendulous foliage.

***Acacia cognata* 'Lime Magik':** Lime Magik is pendulous in habit with striking foliage in strong shades of glowing, lime-green. This cheerfully bright large shrub to small tree of 3m - 5m tall makes a stunning display amongst other deeper green foliage plants. It produces an abundance of soft yellow flowers during late winter and spring. Lime Magik prefers dappled shade but will tolerate full sun in moist, light to heavy soils and is frost tolerant. An excellent screen when used as a hedge, or a magnificent feature specimen.

***Acacia cognata* 'Mini Cog':** A low growing, hardy compact form with fresh, green new growth maturing to lush weeping foliage that stays dense all year round. With a height of 75cm x 1.8m it makes a great garden border, rockery feature or bank cover and an excellent tub plant. Mini Cog prefers full sun to dappled shade in most well-drained soils. Minimal maintenance and water requirements once established and responds well to an annual prune. A gorgeous specimen, also being grafted as a standard.

***Acacia cognata* 'Mop Top':** A low mounding, dense shrub growing up to 90cm x 1.2m with aromatic foliage, plum-coloured new growth and bright yellow perfumed flowers in Spring. Grows well in moist, well draining, light to heavy soils and tolerates medium frost. Looks stunning as a soft low hedge along pathways, mass planted on banks or wide garden beds where impact is required. An accent container plant for courtyard or patio. Looks fantastic with mixed plantings of 'Bower Beauty'. Minimal maintenance but regular tip pruning will promote density.

***Acacia cognata* 'Waterfall':** Lush green cascading foliage with a 3m drop hanging over rock walls, beside waterfalls or very tall containers to create a sensational feature. In spring it is decorated with soft lemon perfumed flowers. Waterfall prefers full sun to part shade in a moist, well drained clay soil. Foliage ends may be trimmed if too long, otherwise no pruning is required. This stunning plant is now being grafted as a standard in varying heights of small, medium and large.

***Acacia cultriformis* 'Cascade':** This dense ground cover, 30cm x 2-4m, has silver grey foliage and forms a thick carpet with golden flowers in spring. Also being grafted as an amazing standard.

***Acacia dealbata* 'Silver Falls':** An attractive weeping standard, 1.5m x 1.5m, with pale to bright yellow balls of flowers in spring that are offset by the attractive greyish green, fern-like foliage. Very well suited to growing in large tubs and containers or as a feature plant in the garden. Tolerates a wide range of climates and soils provided they are well drained. A sunny position is best and a light trim after flowering will maintain a beautiful shape.



From left to right:
'Waterfall' Standard;
'Cascade' Standard;
'Silver Falls' Standard
Photos © Wild about
Wattle



A. cognata 'Lime Magik'



A. cognata 'Emerald Curl'



A. cognata 'Mini Cog'

All Photos on this page: © Bushland Flora



Clockwise from the top:

A. cognata 'Waterfall'

A. cognata 'Mop Top'

A. cultriformis 'Cascade'

A. floribunda 'Abundance'

All photos on this page: S. Forrester
© Austraflo





A. lasiocarpa 'Glow Wattle'
Both photos: © Bushland Flora



A. fimbriata dwarf

***Acacia fimbriata* dwarf:** A dense, 1.5m x 2m rounded evergreen shrub covered in a profusion of fragrant, yellow fluffy flowers in late winter and spring. Grows in full sun to medium shade and tolerates drought and light to medium frosts.

***Acacia floribunda* 'Abundance':** Masses of creamy yellow rod flowers decorate this gorgeous shrub of 2m x 1.5m in autumn and winter. Withstands heavy periods of wet conditions and frost. Prefers full sun to medium shade.

***Acacia howittii* 'Green Wave':** A select dwarf form naturally found in the Southern Gippsland hills with a beautiful dense, pendulous habit. Pale yellow flowers attract nectar feeding fauna in spring. Grows best in full sun to part shade in clay soils and tolerates short periods of dry. Requires only low maintenance as it naturally forms a good shape requiring little or no pruning. Green Wave is an excellent low growing shrub, no more than 50cm x 1.2m, suitable for areas where good visibility is necessary. This plant is very adaptive to clay cuts where plantings will help retain soil on the slope.

***Acacia lasiocarpa prostrate* 'Glow Wattle':** A very decorative, low spreading groundcover of 20cm x 1m with fresh lime-green foliage and masses of golden, fluffy flowers in winter and spring. A versatile plant that withstands frost, coastal and drought conditions. Great for hot dry spots in heavy to light soil. The Glow Wattle forms a thick mat that is useful as rockery plant or for retaining walls. It also makes a great tub specimen.

***Acacia leprosa* 'Weeping Cinnamon Wattle':** A dwarf weeping form of *Acacia leprosa* with a spectacular display of golden ball flowers occurring in spring. Prefers full sun to dappled shade and well drained soils. An easy 1.5m x 2m makes it a versatile plant for small gardens and even large tubs. Weeping Cinnamon Wattle will benefit from an annual prune to help maintain shape.

***Acacia verniciflua* 'Curtain Call':** A suspected cross with *Acacia cognata* because of growth habit and form. A medium sized, softly weeping and fast growing small tree of 4.5m x 4.5m. Can be trained as a single leader with a weeping habit or as a multi-stemmed small tree. A mass of pale yellow flowers appear in early spring on fine, light green foliage. Prefers a sunny position and is quite frost and drought tolerant. Requires minimal care once established and will benefit from an annual prune to maintain shape. Curtain Call will be available on the market in 2011 after being released at the Melbourne International Flower and Garden Show.



A. verniciflua 'Curtain Call'
Photo: © Peter Berthelsen



A. leprosa 'Weeping Cinnamon Wattle'
Photo: © Bushland Flora

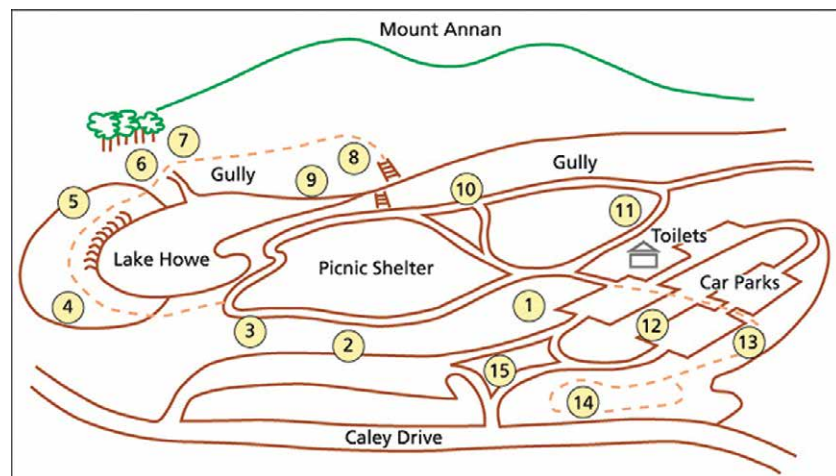
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The Wattle Garden – Mount Annan Botanic Gardens, NSW

This article is reproduced with kind permission from Mount Annan Botanic Gardens and Tracy Armstrong, Gardens Information Officer. The following material is an excerpt from their website.

At Mount Annan the Wattle Garden and Acacia Arboretum are at their best from mid-July to mid-August. Take a gentle stroll on the 'Short Walk' or take on the 'Long Walk' and envelop yourself in the perfumed wonder that is Wattle.



Wattle Garden tour map

Long walk: After no 3, turn left before Lake Howe (the dam at the bottom of the garden) onto the soft path and proceed to no. 4.

After no 11, the long walk continues left through the carpark and up the steps at the dry stone wall.

Short walk: After no 3, stay on the sealed path and proceed to no 10. On your left you will see the soft, pendulous foliage of the Weeping Boree (*Acacia vestita*) and further along on your right is the silver foliated *Acacia covenyi*.

After no 11, the short walk finishes at the picnic shelter.

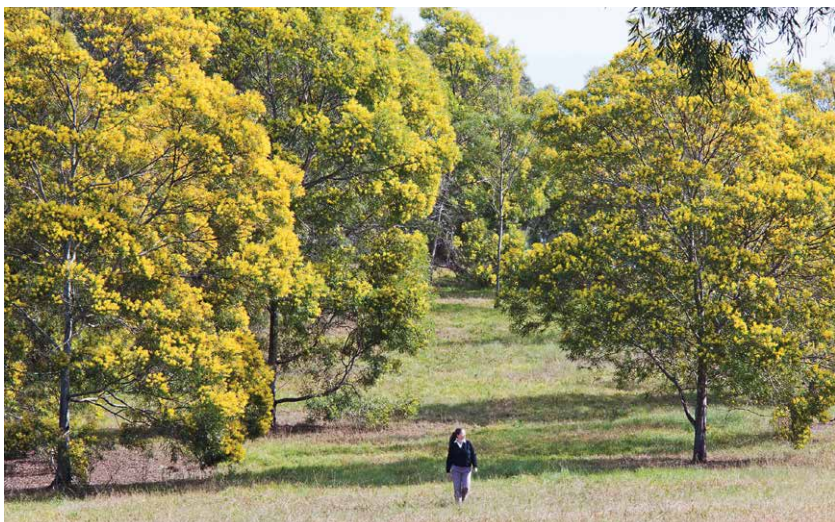
1. **Timber:** Blackwoods (*Acacia melanoxylon*) are large and long-lived wattles, with good timber that has been used for making shields and furniture.

2. **Our floral emblem:** Golden Wattle (*Acacia pycnantha*) is Australia's floral emblem. Other wattles here have been used for medicine, food, weapons, fodder and shelter.



3. **Spears and boomerangs:** Brigalow (*Acacia harpophylla*) wood was used for spears, boomerangs, clubs, fishing rods and fencing, and the leaves for making dye.
4. **Grey foliage:** You will go past the soft, grey leaves of Cootamundra Wattle (*Acacia baileyana*) on either side. This species is commonly grown for its foliage but is becoming a problem weed in some areas. Other species with interesting foliage are the Knife-Leaf Wattle (*Acacia cultriformis*) and Clay Wattle (*Acacia glaucoptera*).
5. **Poisons and soil stabilisation:** Aborigines used the bark of Cooba or Willow-leaved Wattle (*Acacia salicina*) to poison fish. A useful plant for stabilising soil as the plants are bushy to ground level and spread by suckers, it is also said to tolerate saline conditions and some coastal exposure.
6. **Mulga:** There is a pure stand of Mulga (*Acacia aneura*) on the left as you walk around the top of the small gully to the West of Lake Howe. Mulga was used for spears, shields, fodder and souvenirs and is one of the most widespread wattles in Australia, dominating arid habitats.

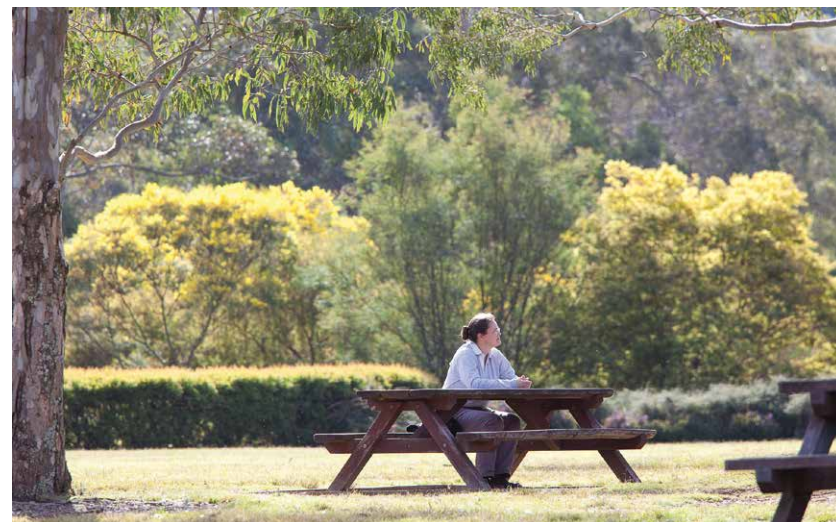
7. **African olives:** To the West of the Wattle Garden you will see African Olives covering the slopes of Mt Annan. This species is a problem weed which excludes the regrowth of native species and it is the subject of an ongoing removal program.
8. **Perfumed flowers:** Continuing up the western side of the gully, the soft path on your right passes the Hakea Wattle (*Acacia hakeoides*) with pleasantly perfumed flowers. The name refers to its hakea-like foliage, one of the numerous different foliage types displayed by Wattles.
9. **Mount Annan natives:** If you follow the pathway with steps into the gully, note that many of the plants in the creek-line are native to this site – Prickly-leaved Tea Tree (*Melaleuca styphelioides*), Grey Box (*Eucalyptus moluccana*) and Forest Red Gum (*Eucalyptus tereticornis*).
10. **Moist and shady:** The Wattles here prefer a moister, more shaded habitat. At the top of the steps, keep left and continue along the path past the 'Frogs & Lizards' sign. You will go through a grove of the Fringed Wattle (*Acacia fimbriata*), which is common in moist sites and also in open eucalypt communities.
11. **Downy plants:** Below is the hairy Clerodendron or Downy Chance Tree (*Clerodendrum tomentosum*), native to Mount Annan, with its downy leaves. Turn right towards the toilets. At the bend in the path is the Downy Wattle (*Acacia pubescens*) a rare species from Western Sydney, with downy branchlets.



12. **Fine and feathery:** At the top of the steps at the dry-stone wall constructed of local shale, you will see a Wattle with bluish feathery foliage. This is the Mudgee Wattle (*Acacia spectabilis*), a showy species which is very popular in cultivation. You will also see some small shrubby peas which are *Swainsona galegifolia*. These have colourful flowers in pinks, purples and oranges.
13. **Conserving water:** Continue across the carpark to the soft path. Many of the dry country Wattles have narrow or hardened foliage to reduce water loss from the plant. The Streaked Wattle (*Acacia lineata*) has sticky phyllodes and the River Cooba (*Acacia stenophylla*) has long, drooping phyllodes.
14. **Fascinating foliage:** The path loops around past a wide range of interesting Wattle foliage types, with different shapes, colours and textures. Look out for the beautiful ferny silver foliage of the Chinchilla Wattle (*Acacia chinchillensis*). Weeping Myall (*Acacia pendula*) has a delicate, willow-like habit.
15. **Queensland Sandstone Wattles:** The walk finishes at the carpark. As you drive out of the carpark, on your left in the raised bed you will see an interesting range of rare species of Wattles from Central Queensland, including *Acacia burbigae* and *Acacia resinicostata*.

Reference

www.rbgsyd.nsw.gov.au/mount_annan_botanic_garden/tours_and_education_programs/Self-guided_tours/wattle_garden



All photos: S. Cottrell © Botanic Gardens Trust

Acacias at the Australian Arid Lands Botanic Garden, Port Augusta SA

Chris Nayda

Chris is a Volunteer Guide at the Garden and a member of the Acacia Study Group. She has also been involved in designing a wattle walk at the Garden.

The Australian Arid Lands Botanic Garden story began with a vision that horticulturist John Zwar had for Port Augusta following a Churchill Fellowship study tour in 1979. This dream finally became a reality with the financial support and commitment of the Port Augusta City Council, WMC Resources, the State Government of SA and the volunteers of the Garden's Friends Group.

The Garden occupies a stunning location overlooking Spencer Gulf and the Flinders Ranges. It covers an area of approximately 250 hectares with about two-thirds natural Chenopod country, sand hills and clay lowlands with mangroves at the edge of the Gulf.

The Garden is perhaps best known for its wonderful Eremophila collection (about 155 varieties). However, it also has a very significant collection of Acacia species (around 70) that have been collected from within the arid areas of Australia i.e. under 250mm rainfall. These Acacias display an enormous variety of form, colour and phyllode shape.

There are 4 species that occur naturally on site:

- *Acacia papyrocarpa*, Western Myall
- *Acacia ligulata*, Sandhill Wattle
- *Acacia oswaldii*, Umbrella Wattle
- *Acacia victoriae* ssp. *victoriae*, Elegant Wattle

Our Garden emblem is the *Acacia papyrocarpa*, Western Myall. This is a small multi-limbed tree forming neat round canopies to 3-7m high, with wonderful new silvery foliage in the summer. It is a long lived tree and some in the Garden are said to be around 600 years old. It is found growing across into Western Australian and north western areas of SA to Lake Eyre, Gairdner-Torrens, Eyre Peninsula and Flinders Ranges.

Some of the interesting Acacias under cultivation in the Garden include:

***Acacia aneura* (Mulga):** The mulga is a most important stately tree 4-5m high and seen when you travel north. It lines both sides of the dusty red roads and never seems to end. The timber is extremely hard



Acacia barattensis – Baratta Wattle Photo: © Chris Nayda



Acacia peuce – Waddywood
Both Photos: B Aitchison © ASG Photo Library



Acacia araneosa – Spidery Wattle

and was used by early settlers for fence posts (they probably still do) as it is resistant to white ants. Aborigines have used it for centuries for making boomerangs and water carrying utensils. The branches were used for covering 'wurleys' for shelter. There is a variety of Acacias commonly called Mulgas with one species looking like a Christmas tree from the Great Victoria Desert.

***Acacia araneosa* (Spidery Wattle):** A species from the Northern Flinders Ranges near Arkaroola. A small, erect, wispy Acacia with graceful long phyllodes 18-35cm long or sometimes to 69cm long, 1-1.8mm diameter, pendulous (Whibley). This species is now considered rare. I believe that this species has potential as a good plant for a courtyard.

***Acacia barattensis* (Baratta Wattle):** This species is endemic to South Australia and is restricted to the eastern Flinders Ranges. It was thought extinct until found a few years ago. This species is represented by only one specimen in the Rare Area of the Garden. This particular plant is now about 8 years old and last year flowered for the first time.

***Acacia merrallii* (Merrall's Wattle):** This is a low growing shrub 0.75m-1.5m high by 2m wide. It has unusual phyllodes obliquely ovate or obovate 8-20mm long, 5-15mm broad, flat, rigid, 1-veined, ending in a hard curved pungent mucro (Whibley). It is a plant that makes a very nice low growing garden shrub. I have seen it growing through central Eyre Peninsula and north of Port Augusta towards Kimba.

***Acacia peuce* (Waddywood):** This species is known in only 3 locations in far south-west Queensland north of Birdsville. It is a long-lived, very slow growing stately pine like tree. Young trees have spiny phyllodes. A rare species considered in danger of extinction. Timber is very hard, heavy and durable, with unusual purplish heartwood (Whibley). In the Garden we have about a dozen of these trees, with the tallest now being about 4m high. This tree was planted in 1996 and flowered for the first time three years ago.

***Acacia pycnantha* (Golden Wattle):** Many visitors to the Garden are surprised to observe the stunning white powdery covering on the trunks of Golden Wattles growing in the Garden. In fact visitors frequently challenge that these trees with pruinose trunks are not the same as the Golden Wattle with which they are familiar – they are familiar with a tree with a dark brown trunk. These pruinose trunks are only observed in *Acacia pycnantha* in its "northern occurrence" in the hot northern areas of its regions. The same plant observed at Melrose about one hour drive north-east of Port Augusta in the Flinders Ranges has the

usual dark brown trunk. It is an interesting drive through the Flinders Ranges via the Pichi Richi Pass from Port Augusta to Quorn observing the "northern version" of *Acacia pycnantha*. They present a stunning display with their white trunks and masses of golden yellow flowers.

***Acacia rivalis*:** A tall shrub or small tree to about 3m from the Northern Flinders Ranges near Leigh Creek and Arkaroola. It has lovely red trunks and has crossed with *A. araneosa* to form a quite attractive new tree. Unfortunately both parents are now quite endangered.



Acacia sclerosperma Photo: © C. Nayda



Acacia toondulya
Photo: © B. Aitchison



Acacia papyrocarpa Photo: © C. Nayda

***Acacia sclerosperma*:** The peak flowering time for wattles in the Garden is during winter and spring. However, there are always some plants in flower, and one of the conspicuous autumn flowering species is *Acacia sclerosperma*. This species tends to come into flower even earlier than another autumn flowering species, *Acacia iteaphylla* (Flinders Range Wattle).

***Acacia toondulya*:** An amazing Acacia looking like a couple of rabbits' ears blowing in the breeze. From the Gawler Ranges and considered rare.

Some of the other noteworthy Acacias in the Garden include:

- *Acacia ayersiana*.
- *Acacia carneorum* (Needle Wattle): This is not common in cultivation but its needle like foliage provides good shelter for birds. Its inner 'purple wood' is prized by woodturners.
- *Acacia coriacea* (Wirewood).
- *Acacia cyperophylla*: One of the Acacias that has very decorative Minni Ritchi bark.
- *Acacia eremophila*.
- *Acacia grasbyi*: Another species with ornamental bark, similar to *Acacia cyperophylla*.
- *Acacia hakeoides*.
- *Acacia murrayana* (Murray's Wattle).
- *Acacia quornensis*: A species with a limited distribution around Quorn in SA.
- *Acacia ramulosa*: This has very straight, green pods.
- *Acacia spinescens*.
- *Acacia spooneri*.
- *Acacia tarculensis*: A very ornamental species that is endemic to South Australia and in the Garden is readily identified as a very distinctive flat topped shrub.
- *Acacia xiphophylla* (Snake-wood).

Note: The Garden is open daily except Christmas Day. For more information visit www.aalbg.sa.gov.au and www.australian-aridlands-botanic-garden.org.

Reference

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Tasmanian Acacias

Marion Simmons OAM Photography: John Simmons OAM

Marion and John are members of the Acacia Study Group. Marion is author of a number of books on Acacias including the recently published 'Wattles of Tasmania'.

Although Acacias are the most common and widespread woody species in Australia with about 1000 species, in Tasmania there are only 21 species and, with varieties and subspecies, 25. They range from prostrate shrubs to trees and are found in most regions with the exception of the alpine areas. There are four endemic species.

The most renowned tree species is Blackwood (*A. melanoxylon*) usually 10-30m tall, but when grown in ideal conditions as in the swampy soils of the north-west may reach 40-45m tall. It is common and widespread as an understorey species of wet eucalypt forests. It is a densely foliated tree with large cream to pale yellow ball flowers from August-November. It is often used in street or park plantings as well as in windbreaks on farms where its habit of branching from near ground level is a great asset. The timber is beautifully grained and is used extensively in the furniture trade, for veneer and panelling and is much favoured for craftwork.



Acacia melanoxylon – Blackwood

The most commonly occurring tree species must be silver wattle (*A. dealbata*) with blue green feathery foliage which, when it flowers in spring, provides a drift of pale to bright lemon yellow along the roads and hillsides. It grows to about 30m tall in the best sites, much less in harder drier conditions. Trees provide good quality pulpwood and its timber is used in a minor way in the craft and furniture industry. It is well known as a coloniser of disturbed land after fire or ploughing, often suckering or regenerating enthusiastically when conditions suit it.

Black wattle (*A. mearnsii*) occurs in the drier eastern half of the State as a fast growing small tree to 20m, with dark green feathery foliage. Cream to pale yellow perfumed flowers occur in October-December. Its timber is used in the production of woodchips and for paper and cardboard.

The island's other wattles are small trees, large or small shrubs that are not considered of commercial value. These include a number of species that also occur on the mainland.

Acacia verniciflua, known as varnish wattle, was previously listed for Tasmania but a recent revision has determined that it no longer occurs in the State and that the species present is in fact *A. leprosa* var. *graveolens*, a plant common to Vic and NSW as well. It is a bright green foliated shrub or slender tree 5-6 (8)m tall, occasionally taller, often occurring in groves and common at an altitude of up to 500-600m. Large pale yellow ball or oval flowers occur from August-October. The bark is often distinctive and beautifully mottled white and grey.

Caterpillar wattle (*A. mucronata*) is a tall shrub or small tree that occurs widely and is particularly common on the west coast. Perfumed pale to mid yellow rod flowers occur in August-November. There are three subspecies, the first two mentioned endemic: erect caterpillar wattle (subsp. *mucronata*) has leathery phyllodes with a hard point; blunt caterpillar wattle (subsp. *dependens*) has wider, blunt tipped phyllodes; long leaf caterpillar wattle (subsp. *longifolia*) that occurs in the central north and east as well as in Vic & NSW has narrow linear phyllodes to 150mm long.

Prickly Moses (*A. verticillata*) varies from prostrate shrub to a small tree to 8m tall with very prickly foliage in whorls around the stem and with mid to bright yellow rod flowers from July-November. It is widespread and common often in damp situations where it may form thickets. There are three sub-species, subsp. *verticillata* with phyllodes less than 3mm wide, broadleaf prickly moses (subsp. *ruscifolia*) with phyllodes to 7mm wide or wider, confined mainly to west coastal areas and finally prostrate



Above: *Acacia myrtifolia*, Red Stem Wattle
Left: *Acacia mucronata*, Caterpillar Wattle

prickly moses (subsp. *ovoidea*) 0 to 1m tall with very fine phyllodes that are alternate or clustered, its flowers pale yellow balls. It is found occasionally in coastal heaths.

Other prickly leaved shrubs include spreading wattle (*A. genistifolia*) widespread and abundant and dagger wattle (*A. siculiformis*) confined to open forests of east, north-east and highlands to altitude of 1000-1500m. Both shrubs vary from prostrate to about 2m tall and have mid to bright yellow ball flowers. They differ in phyllode shape, pod and flower detail. Juniper wattle (*A. ulicifolia*) with fine prickly scattered or crowded phyllodes is a shrub to 1m tall found only occasionally, mostly in the north and east; pale yellow ball flowers occur between July-September.

Ploughshare wattle (*A. gunnii*) 0.2-1m tall with rigid $\pm$ triangular phyllodes is widespread although not common with cream to pale yellow ball flowers from July-September.

Another common and widespread species is sunshine wattle (*A. terminalis*), at best a beauty with dark green fern-like foliage with oblong leaflets and large, perfumed, either pale or bright yellow, occasionally pink ball flowers mainly between February-June.

Sweet wattle (*A. suaveolens*) is a slender, open, grey-green foliated shrub, prostrate to 1-2m tall of coastal and near coastal sandy heathlands. Perfumed, cream or pale yellow ball flowers that occur

from April-September are at first encased in deciduous scaly bracts. Pods are broad, bluish purple at first, ripening brown, with large seeds horizontal in the pod.

Hop wattle (*A. stricta*) is a common shrub 1-3 (5)m tall with dull or yellowish green foliage, often observed suckering along roadsides. Its pale to mid-yellow ball flowers occur from July-November. A distinctive form, an attractive small tree with grey-green foliage that does not appear to sucker, occurs in the north-west.

Redstem wattle (*A. myrtifolia*) is a widespread shrub to 2m tall, sometimes prostrate, of dry rocky places and sandy soils with green or yellowish green oval to broadly elliptic phyllodes and large loose cream to pale yellow ball flowers from July-October.

Coast wattle (*A. longifolia* subsp. *sophorae*) is sometimes referred to in Tasmania as 'boobyalla'. It is a common shrub or small tree, occasionally prostrate, of the near coastal and exposed coastal areas where it runs through the sand stabilizing the dunes. *A. longifolia* subsp. *longifolia* with longer, narrower and more flexible phyllodes is an introduced species often grown in gardens that is regarded as a weed in many areas.

Coast Wirilda (*A. uncifolia*) is a shrub or small tree (2) 5-8m tall confined in Tasmania to the dunes and sandy soils over limestone on Flinders and King Islands where it suckers forming dense groves. Perfumed mid to bright yellow ball flowers on racemes occur between December-April.



Acacia genistifolia – Spreading Wattle



Acacia stricta – Hop Wattle

Finally there are four endemic species, the first three with narrow, sharply pointed phyllodes i.e. arching wattle (*A. riceana*), derwent wattle (*A. derwentiana*), midlands wattle (*A. axillaris*) and wally's wattle (*A. pataczekii*) with grey-green elliptic foliage.

Arching wattle is mainly confined to the south of the State from near sea-level to about 900m. It occurs as a prostrate shrub to small, erect or pendulous tree to about 10m tall at best, with sharply pointed phyllodes usually clustered or whorled around the stem and with pale yellow interrupted rod flowers from July-October.

Derwent wattle was first described in 2005. It is restricted to the banks and tributaries of Derwent River as well as several rivers in the south-east. It grows to about 5m tall, tips of the branches often pendulous, with sharply pointed phyllodes that are mostly alternate and less crowded towards the tips. Pale yellow flowers in loose interrupted rods occur mostly from October-December.

Midlands wattle is restricted to the central north-east and midlands along valleys and banks of St Pauls and Elizabeth Rivers and their tributaries, as well as in Mt Barrow Reserve. It is an erect shrub 2-4 (8) m tall with alternate prickly green foliage and near stalkless, pale yellow ball flowers that occur from September-November.



Acacia riceana – Arching Wattle



Acacia axillaris – Midlands Wattle

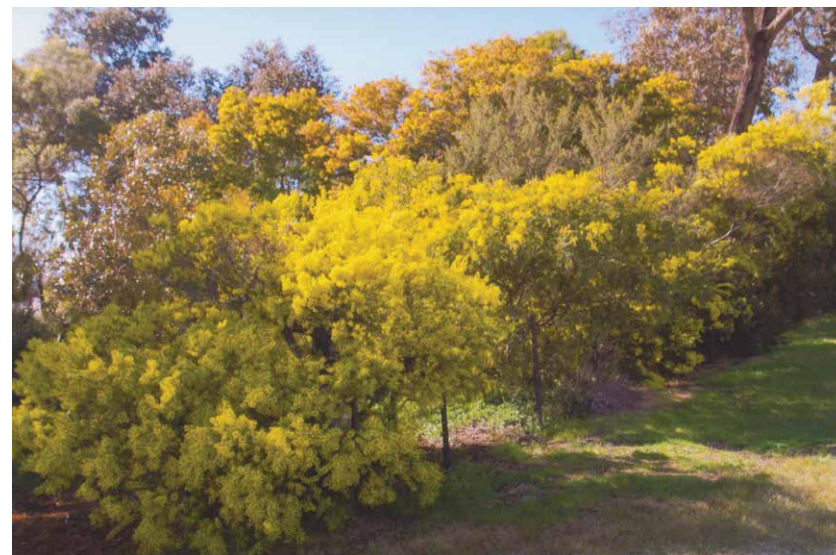
Wallys wattle is listed as rare and is found mainly in the northern part of north-east highlands between altitudes of 525-1060m. It is a shrub or small tree to 6m tall with blue-green, obliquely elliptic foliage; flowers are pale to mid yellow balls on racemes from mid September-mid November. Seed set is often minimal and suckering common. We do not recommend wallys wattle for the home garden as it has a very strong tendency to sucker with shoots occurring up to 10m from the main plant.

Many of these smaller species are suitable for growing in home gardens; the tree species are more appropriate for larger gardens, parks, windbreaks or commercial plantations.

In our half hectare northern Tasmanian garden we have fourteen of the indigenous species growing. The shrubby species are proving a valuable addition to the garden as several of them (i.e. *A. terminalis* and *A. suaveolens*) flower from February or March into winter when little else is flowering, the others mainly in spring into summer. There are multiple plantings of a few species like *A. myrtifolia* and *A. genistifolia* that have joined about 40 or 50 other Acacia species, giving a total of about 100 Acacia bushes in the garden. What a blaze of colour in spring!

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The Legana Garden

Acacia Study Group

Anyone interested in learning more about this fascinating genus should consider joining the Acacia Study Group.

The Group always welcomes new members.

Membership is \$ 7 – Newsletter provided by email,
 \$10 – Newsletter posted as hard copy
 \$20 – Overseas postage.

For membership enquiries, contact the Membership Officer:

Bill Aitchison, 13 Conos Court, Donvale, Vic 3111

Email: acaciastudygroup@gmail.com

Wattles and allergies

Dr John Nevin MB BS FRACP

Adjunct Associate Professor, School of Rural Medicine, University of New England, Armidale NSW.

Who has not been at a plant sale, or handling out Wattle sprigs on September 1, only to have a member of the public vent their spleen about 'that detestable group of plants that plays havoc with my sinuses and lungs'? Of course, we are somewhat taken back by this negative take on the National Floral Emblem and a group of plants that most of us hold dear in our hearts.

This is not a new debate – it has been going on for almost as long as European settlement. Lord Thomas Denham¹ (appointed Governor-General in 1911) attributed his poor health while in Australia to Acacias upsetting his asthma and hay fever.

In the Acacia Study Group, Foundation Leader was Dr Allan Keane². In 1964 he bemoaned this perception of Acacias with the added observation from the experience of his medical practice. Over many years, despite looking, he had never found anyone sensitive to Acacia pollen. Over the years, the debate has continued spasmodically with such notables as Thistle Harris³ (1965), Queensland Minister for Health⁴ (2003), ABC's Gardening Australia⁵ (2006) and the Asthma Foundation of Qld⁶ and WA⁷, arguing the case for or against.

What then, are the conditions worrying so many Australians? They are **pollen allergy** leading to **allergic rhinitis** and often to **asthma**. Pollen is the male product of a plant that fertilises the female flower thereby reproducing the plant. Those interested in plants and flowers are interested in the sex life and sex organs of plants. (Whoever said botany was boring?)

Some plants produce pollen that relies on being carried to the female plant by a vector, such as an insect, bird or bat. This type of pollen is not designed for wind dispersal, and wattles⁸ are in this category of plant. Other plants rely on the wind to disperse their pollen. This type of pollen tends to be light, produced in vast quantities and carried for long distance. Examples of this latter group include grasses, Casuarinas, Callitris and *Echium plantagineum* (Patterson's curse).

With allergic rhinitis^{9,10,11,12,13}, individuals become sensitised (or allergic) to certain allergens. These include pollen, dust mite, moulds and animal danders (cats, dogs, horses etc). As a result of this allergy, they produce

a type of antibody to the allergen called immunoglobulin E. This IgE binds to cells in the tissues called mast cells. When an individual comes in contact with the allergen, it binds to the IgE antibody on the mast cell and triggers the release of numerous chemicals that cause a reaction in the surrounding tissues. The chemicals released include histamine, kinins, neutral proteases, cytokines and interleukins. Leukotrienes and prostaglandins are also triggered to be produced. All of this causes the characteristic symptoms and signs of allergic rhinitis – a watery runny nose, sneezing, itching. This affects the nose, throat and eyes where the allergen contact has been made, usually by inhalation.

Just how prevalent allergic rhinitis is shows why people are so touchy about it. The national prevalence¹⁰ is about 20% with a greater concentration in young adults. It has a significant effect on quality of life, productivity, absenteeism and is a significant cost to the individual and the health system. It is frequently associated with bronchial asthma. Small particles can pass through the airways to the lung and the same reaction is triggered in the walls of the airways by the allergen triggering degranulation of the mast cells, as is produced in the upper airway.

This produces swelling of the lining, thereby narrowing the airways. There is spasm of the muscle in the airways further narrowing them. Mucous is produced in large amounts by the airway lining causing additional blocks to the passage of air. The net result is an asthma attack – acute shortness of breath, difficulty moving air through the bronchial tubes, wheezing and production of viscous phlegm. If the process is chronic, the lungs can be chronically damaged. In general, pollen has difficulty accessing the lower airways and most problems are confined to the eyes and nose. An exception can occur after thunderstorms¹⁴. It has been found that when the pollen granules come into contact with water, they can fragment releasing smaller packets of allergen that can then enter the lower airway, causing asthma. Most A & E departments in larger hospitals recognise the rush of asthmatics that appear after a thunderstorm.

The diagnosis of allergic rhinitis involves taking a history from the patient – when do the symptoms appear, what grows or flowers near their environment, are symptoms improved when they move away (as on a holiday)? Further tests can be done to try and identify the causative allergens. These tests are skin prick tests or blood (RAST) tests.

Skin tests¹⁵ are easy to perform and involve a small amount of allergen (such as rye grass pollen) introduced to the skin of the forearm with a lancet or small needle (26 gauge). In a positive test, the allergen binds

to the IgE on cutaneous mast cells, inducing degranulation of the mast cells and the allergic response of swelling (like a hive) and redness due to dilation of surrounding blood vessels. The bigger the wheal (or hive), then the more positive is the test.

The routine allergens used are usually as follows:

- a) Epithelial extracts – cat fur, cattle hair, dog hair, feather mix and horse hair.
- b) Food extracts – egg whole, cow milk, peanut, shellfish, wheat flour.
- c) Pollens – canary grass, chenopodium, couch, dock eucalyptus, Johnson grass, paspalum, pine, plantain, prairie grass, ragweed, rye grass, timothy grass, wattle and wild oat.
- d) Moulds – alternaria, aspergillus fumigatus, aspergillus niger, botrytis, cladosporium hormodendrum and penicillium mould.
- e) Miscellaneous – house dust, house dust mite and cockroach

In most people with allergic rhinitis, there is general sensitivity to many allergens, although occasionally one stands out and this may give a target for avoidance. The specific component of each group of allergens can be tested to further define a specific allergen thereby identifying a culprit and providing a target for cure by eliminating the cause.

RAST tests^{15,16} (radioallergosorbent tests) are performed on a blood sample. This may be preferred to skin testing in situations where the skin is unsuitable (elderly, atrophic skin or diseased skin), the patient is on medications that may alter the result (eg. Antihistamines) or where a child may prefer one needle rather than many.

With the RAST test, the suspected allergen is bound to an insoluble material and the patient's serum added. Antibodies to the allergen will attach to the allergen and this is detected by adding an antibody to the IgE antibody. This will bind to the IgE and can be measured and give a precise idea of the presence of IgE antibodies in the patient to a specific allergen. Skin testing is the preferred method because it is more sensitive and specific, cheaper and simpler.

What treatments^{9,10} are available for the identified allergy sufferer? If a specific causative agent can be identified, then allergen avoidance is important (eg. remove the privet, get rid of the cat). Other measures include avoiding going out on windy days or after thunderstorms, do not mow the grass or wear a mask if doing so, use air recycling with your car air conditioner and holiday where the pollen mix is low eg. northern hemisphere or beach.

Drugs¹⁰ that can be used are readily available, many over-the-counter. Antihistamines that block the effect of histamine can help. Some of the older ones are sedating, so most would use the more modern non-sedating agents. Intranasal corticosteroids (cortisone) are very effective and safe with a very satisfactory side effect profile. Often the drugs can be started to correspond with the allergic rhinitis season and ceased when this is over.

If all this is tried, but significant disability persists, or medication is not helping, or the patient wishes to avoid medication, then consideration of desensitisation^{17,18,19,20} (allergen specific immunotherapy) by repeated exposure to low doses of the allergen by injection or sublingual drops is worth consideration. This would usually require the assistance of a medical specialist such as an Allergist or Clinical Immunologist.

Exactly how this technique works is still not understood²¹. It was thought that by regular exposure, IgG antibodies were produced by the body's immune system to the allergen and that this intercepted the allergen before it could access the IgE and mast cells. The story is more complicated than that and more work needs to be done to understand the process. However, it does work and there is now a large body of evidence to support the effectiveness of this treatment.^{17,18,19,20}

The immunotherapy by injections requires an injection in the Allergist's rooms every week for about six months. This, of course, is inconvenient, time consuming and therefore relatively costly.

Because of this, the sublingual drops have some advantages. There are no injections, fewer doctor visits and fewer side effects. Because a greater amount of the allergen is required compared with the injections, there is added cost for the sublingual mixture.

This is all fine, but what can we say about the role of Acacias in allergic rhinitis? A defence of Acacias regularly used, is that they are almost exclusively pollinated by insects, birds or bats. The pollen is not designed for wind dispersal and the pollen grains tend to be sticky (to adhere to vectors), and in clumps of several pollen grains (polyads as opposed to monads). These consist of 8, 10, 12 or 16 monads stuck together. As a result, they are heavy and usually fall within a short distance of the plant. This is further supported by pollen surveys carried out by air sampling in many Australian centres^{22,23,24,25,26} surveying wind-borne pollen. These show that Acacia pollen makes up only a small percentage of the total pollen count (0.1-2.5%) indicating that there is not a heavy exposure to Acacia pollen by wind dispersal.

What then, do the surveys show? In Sydney^{25,26}, where the sampling site is at Campbelltown, the main pollen loads are Poaceae, Plantaginaceae and Casuarinaceae with greatest pollen loads in spring and summer but Casuarinaceae spread throughout the year.

In Melbourne²², the atmosphere during spring and summer contains most of the annual pollen. Tree pollen predominates during late winter and spring (Oleaceae, Alnus, Acacia, Cupressus, Ginko, Oak, Aceraceae, Populus, Betula, Allocasuarina, Myrtaceae and Liquidambar). Grass pollens predominate in November and December. Knox et al comment that "July-September is the main flowering of Acacia trees but the pollen count gave only low values since the trees are insect-pollinated and the large compound grains do not travel long distances". They found the most significant contribution to the pollen calendar is that of grasses, Ulmus and Cupressus. This perhaps reflects the large grasslands surrounding Melbourne to the north and the popularity of elms and cupressus in street plantings and gardens.

The experience in Brisbane²³ shows stability in the pollen pattern over forty years, with greatest concentrations in the summer-autumn periods corresponding with the grass pollen season. Pollen in late autumn to early summer is mainly from Cupressaceae, Pinaceae, Casuarinaceae and Myrtaceae, largely from native species. This contrasts with Sydney and Melbourne where there are denser pollen loads mainly derived from arboreal exotics. Grass pollen densities are less in Brisbane and Rye grass is infrequent as opposed to Sydney and Melbourne where Rye grass is a major contributor to the allergenic pollen load. Acacia pollen is rarely if ever seen.

In Darwin²⁴, there is a different pattern in keeping with the wet-dry tropics. The peak pollen emission period is during the dry season from April to November, especially from April to May. Seven pollen types dominate: Poaceae (grasses), Cyperaceae (sedges), Areaceae (palms), Myrtaceae (Eucalyptus, Melaleuca etc.), Callitris (cypress pine), Casuarina (she-oak) and Acacia (wattles). A recent survey²⁷ that sought to look for associations between pollen catch and Pharmacy sales of allergic rhinitis medications shows a clear association with Poaceae. The authors go further to suggest the rising incidence of allergic rhinitis may be due to the changing fire regimes that are producing particulate air pollution that potentiates the clinical response to allergen exposure. They also raise the possibility that tropical grasses may be more allergenic than temperate grasses and that grasslands are expanding with the loss of tropical forests.

What other evidence do we have about Acacias and allergy? There is the finding of most clinical allergists that correspond with the views of Dr Allan Keane – although regularly looked for, Acacia allergy on formal testing is quite uncommon. There is a report from 1982 of cross reactivity²⁸ between Acacia and rye grass pollen allergens. Perhaps they share a common component. However, rye grass pollen loads are vastly heavier than Acacia pollen loads. Further, being designed for wind dispersal, they are more able to reach the target of the upper airway than the Acacia pollen.

This is not to say that Acacia pollen cannot cause allergy. A European study looked at pollen allergy to Mimosa (*Acacia floribunda*) in the Mediterranean area²⁹. Amongst allergy sufferers (atopics) the incidence of allergy was 1.2%. However, with those from the floral trade with more intimate association with the plant, the incidence rose to 31%.

So, in the general population, Acacia pollen exposure is much less than that of grasses and exotic trees that usually cause allergenic rhinitis. If someone suspects Acacia, then it can be properly investigated to see if the patient's suspicion is correct. Desensitisation is now an effective treatment. For the casual gardener, problems can be expected to be few. Those with heavier, occupational exposure to Acacia pollen may experience problems. The continuing study of pollen loads and their clinical associations will be a useful guide into the future for treatment of allergic rhinitis sufferers and enable blame to be allocated where it is due.

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Acacia longifolia seed pods

Photo: E. Brueggemeier
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Saving biodiversity through introducing arid, semi-arid and dry tropical Acacias to gardens

Dr Nita C. Lester Botanist, Griffith University and ANPSA Acacia Study Group member.

There are many Acacias available in horticulture and success abounds. These include *Acacia glaucoptera*, *A. hemiteles*, *A. pycnantha*, *A. baileyana*.

I would like to detail species that have the potential to be highly successful horticultural plants. Focus will be restricted to the Western Downs region of Queensland. Here brigalow (*Acacia harpophylla*) is common but amongst the deep rich brigalow soils are remnant red lateritic ridges. On these ridges you find the focus species: *Acacia semilunata*, *A. chinchillensis*, *A. wardellii*, *A. jucunda*, *A. decora*.

These species have been selected because they are reliable, decorative in any garden and have proved to be reasonably easy to propagate. These species are growing successfully and are on display at Myall Park Botanic Garden. The Garden is located on a lateritic ridge north of Glen Morgan, Western Downs, Queensland. A biodiversity programme, Save-a-Species, developed for schools, has included all these species and children, with the guidance of their teachers, have propagated these species successfully.

A. semilunata is frost-hardy, erect to 5m tall x 3m with grey, broad, sickle-shaped phyllodes and bright yellow ball flowerheads in Spring. The form and foliage makes this species useful as a feature plant for any garden.

A. wardellii is upright 4-6m tall x 2.5m with deep green, strong phyllodes and cream ball flowerheads in winter. The trunk varies from white to grey depending upon age. This is an outstanding feature specimen for any garden.

A. chinchillensis is such a contrast with its soft, fine, small green-blue leaflets, only 1-2m tall, deep yellow flowerheads in spring – a feature plant for the front of any garden bed.

A. jucunda is a long lived grey foliated small tree up to 4m tall and 4m spread. The yellow flowerheads make a show against the grey-green foliage. If you are looking for a reliable feature or background specimen, this species is the one for you.

A. decora, as the name indicates, is a beautiful shrub. It is small, multi-stemmed and spreading. The tiny grey-green foliage present a delightful backdrop for the bright yellow flowerheads in Spring.

You must be aware that all of the above, like many other Acacias, flower opportunistically so after good rains, you have another surprise in your garden attracting the local birds and insects. What more could you desire?

Take the opportunity and visit Myall Park Botanic Garden to see these and over 50 other Acacia species. This Garden is being carefully developed by a Board of Directors who understand the place of this Botanic Garden within the Australian network of Botanic Gardens as a research and education venue featuring arid, semi-arid and dry tropical Australian species. Telephone 07 4665 6705 for all details.

Enjoy both the colour and design of a flower. To save our biodiversity, our treasures, help bring more and more species into the horticultural world. *Acacia chinchillensis* and *A. wardellii* are threatened – assist in the Save-a-Species concept and spread the seeds of the future.



Clockwise from above

Acacia semilunata Photo: © P. Reilly

Acacia wardellii Photo: © N. C. Lester

Acacia wardellii Photo: © P. Reilly

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