AUSTRALASIAN PLANT SOCIETY
NEWSLETTER

PENTACHONDRA

ISSUE 44 MAY 2010



Grevillea johnsonii
Johnson's Grevillea

AUSTRALASIAN PLANT SOCIETY

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Gardening with Australasians in Sheffield

EDITORIAL

Judy Clark

It's rather late for new year wishes but at least the extensive cold weather, which in the south-east of England started in November, has at last receded. Somewhat surprisingly my Australasian plant losses so far seem to be few, probably fewer than in winter 2008-09. True, maybe the most susceptible went the previous winter and true also that the difference in lowest temperatures was only about a degree (around -6ºC compared with around -5ºC the previous winter). However the cold was a lot more prolonged than in 2008-09 and a February that was below average in temperature was accompanied by a great deal of rain, leading to saturation of already wet ground.

With these conditions it would not have been a shock to lose all my Kangaroo Paws (*Anigozanthus flavidus*) but at least one clump is already showing lots of green shoots through the browny grey of its dead leaves. It has occupied its position at the base of a low south east facing wall since 2002 but I don't expect it to flower in June this year as it has done in warmer years. Other clumps so far are less promising but I won't give up on them until they have had a good dose of warm sun.

Thomas Naylor (Leeds) and Graham Sumner (Aberaeron) both report on their winter losses in this issue. At first thought Wales might seem a more propitious location for less hardy species than Leeds but microclimate makes a lot of difference. And even when cold weather is widespread some places escape. For example, Simon Olpin reports that Sheffield missed the really cold weather that most other places had during winter 2008-09, but that winter 2007-08, relatively benign in the south, was one of the coldest in Sheffield in the last 20 years.

There is a photograph of Simon's front garden on the back cover, showing, amongst other species, *Callistemon pallidus* in flower and *Astelia* 'Silver Spears' at the front. (APS members who attended the 2002 AGM held at Sheffield Botanic Gardens may remember visiting it.) The photos in Pentachondra tend to be of plants rather than gardens, but I also like to see how others put Australasian species together, and combine them with other plants. I would welcome more pictures of members' gardens, with or without an article to go with them.

Please also keep those winter survival reports coming. I still intend to summarise the considerable amount of information that members have sent in on the temperatures that different species seem able to bear, so thanks for your patience to all those who have taken the time to send me details.

In complete contrast, at least climate wise, is Peter Eaton's account of growing Australasian species in Mediterranean climate of the Algarve. I wish I said to myself when I saw his photo of

Alygoyne huegelli (see page 10) but as you will read Peter faces other challenges. So does Tim Darrington who gardens in Vienne in France and writes of his experiences of growing acacias and grevilleas.

Cathy Powers provides more general advice about growing grevilleas. While the context is Victoria (the article came via Nicky Zanen whom longer standing members will remember as a previous APS secretary) there are many grevilleas that will grow outside in the colder climes of the northern hemisphere. In any case Victoria isn't all Mediterranean seaside and many parts of it get quite cold in winter. What does differ is the strength of the sun in summer, so for the UK it may be a tad optimistic to suggest that grevilleas might need protection from hot afternoon sun.

Still with grevilleas, it seems I may have managed to get myself into some confusion with my grevilleas in the December 2009 issue of Pentachondra (number 42). This demonstrates the perils of not thoroughly checking with Jeff Irons first. To resolve any confusion photos of *Grevillea semperflorens* and *G.* 'Desert Flame', properly *G. rosmarinifolia* ssp. *glabella* are provided on page 22 of this issue.

If you want to propagate your grevilleas (or anything else) then Jeff Irons' article about vegetative propagation won't give you a recipe but it does explain the reasoning behind various aspects of propagation from cuttings This article first appeared in issue 25 of Pentachondra (December 2000) soon after I joined the APS. I found Jeff's explanations really helpful and I hope newer members will too.

Along with the rest of what's in this issue I particularly hope you enjoy the tale of the hitchhiking orchid as much as I do. It came via Jeff Layman and as he said in the email which accompanies it, 'it's a cracking story'.



APS MEETINGS

Southern Meeting

Saturday 10th July 2010

APS member and modern day plant hunter Tom Hart-Dyke will be showing us round the World Garden of Plants at Lullingstone Castle, and his Eucalyptus National Collection, so it should be a really good day.

Lullingstone Castle is located just outside Eynsford in Kent, less than 10 minutes from Junction 3 of the M25. For those with a satnav the postcode is DA4 0JA. Please let APS secretary Jeremy Spon know if you intend to come to this meeting, and also contact Jeremy if you need a map or other information. Jeremy's contact details are inside the back cover of this newsletter) Alternatively, more information including

directions and a map can be found at www.lullingstonecastle.co.uk.

We will meet in the car park at the Lullingstone Castle Gatehouse entrance (**not** the main entrance). This entrance is in Lullingstone Lane, reached by turning off Eynsford High Street opposite the church and going across the bridge over the river. This is signposted to Lullingstone Roman Villa. Continue on past the villa to get to the Castle Gatehouse.

The tour will start at 11 am so members with plants and/or seeds to swap should arrive a bit early to allow time for this. Light refreshments are available on site but it's probably best to bring a picnic.

Northern Meeting

Saturday 26th June 2010

hosted by Pat Anderson, Arch Close, Stanwick St John, Nr Richmond, N Yorkshire

What I can offer is a stroll round a quarter acre of garden with twelve foot arches and walls built at the end of the Georgian period within which are my well-established southern hemisphere representatives. (Or in some cases *were* after that nasty late winter which decimated my callistemons and even a few of the NZs. But of course the eucalypts have made it through.)

As well as that mutual moan we can also offer a short game or two of croquet on what passes for a lawn, and for intrepid visitors a sight of the only *oppidum* in the North, Stanwick Fort, some seven kilometres of perimeter vallum and ditch built, alas, too late allegedly for Cartimandua's lover Venutius' last stand against the advancing legions as they came North up Dere Street. It was excavated by the great showman, Mortimer Wheeler, who left a splendid remake of the ditch and vallum, and we are still in high expectation of another write-up by Colin Haselgrove (but he only did his digging in the mid-eighties so perhaps it's a bit early to expect a publication just yet. Our hamlet is made up of the remaining buildings of a Northumberland estate vacated after the first war to pay death duties, and stands bang in the middle of the said oppidum.

For those whose historical tastes go for actual buildings, we have also a Churches' Conservation Trust church building (St John's) in an almost moated circular plot amid the other lumps and bumps.

All this and a glass of wine – how can you resist? Everybody welcome from about twelve midday till whenever you like.

For those without modern directional equipment, drop me an email at patma@btinternet.com and I will give you precise details for your journey.

APS NEWS

2010 Seedlist

Seeds from can be ordered using the form enclosed with this newsletter. Only £4 for up to twenty packets of seeds represents tremendous value. That the APS can offer such a benefit to members is down to the hard work of seed manager, Richard Christmas, for which thank you. If you would prefer to an electronic copy of the seedlist email Richard at morayacacia@aol.com.

Sources for seed on the APS list vary, with most purchased but some supplied by APS members who have saved seed from plants grown from APS seed in the first place. Seed from members is always welcome as long as it is clean and correctly named. And if a species you want is not on the list you can ask Richard to try and source it, though obviously he cannot guarantee to do so.

Membership

The APS would like to extend a warm welcome new members Mike Buffin, M Koleszar, Mrs Marie Maskell, Phil Rollison, Grahame Sole, R A Spennock, Mary Thomas, Maurits de Vries and Esther Wiering.

A membership form is again included with this issue. One of the best ways of boosting APS membership seems to be word of mouth. If you value your membership, maybe a friend would too?

Back issues

Newer members may be interested in purchasing back issues of Pentachondra. We have a small stock of recent back issues (40 to 43) and it may be possible to provide copies of earlier issues. Anyone interested should contact the editor direct (details inside back cover).

Finances

The financial statement for the year 2009 will be enclosed with the December 2010 issue of Pentachondra.

If you receive a polite but firm reminder with this newsletter you are one of a number who have not yet paid their 2010 subscription. If you have paid between the editor receiving the membership list and the publication of this newsletter then please ignore the reminder. And if you don't pay by standing order then please consider doing so. Contact treasurer Aubrey Wood for details.

Pentachondra contributions

The deadline for the next issue is **15th October 2010** but any time will do for contributions. Please keep them coming; they are what make Pentachondra such pleasurable reading.

All types of items are welcome. You could write about your own garden, a favourite species or genus, cultivation or propagation

tips, a garden or nursery that you have visited, a favourite book; in short, any topic that has something to do with Australasian plants. Photographs and drawings, to accompany articles or on their own, are also much appreciated.

Contributions can be any length and can be submitted electronically or as hard copy; if the latter, typed copy is preferred as there is less chance of errors creeping in. For where to send them see the editor's contact details inside the back cover.

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AUSSIES IN PORTUGAL

Peter Eaton

The southernmost province of Portugal, the Algarve, is, according to the USDA designation, classified as zone 9/10. Because we have a garden 500m up in the sky we regard ourselves as 9ish but, like all gardens, nothing is uniform so we have bits of 10 and bits of 8 as well. All of the garden has acid soil on granite/syenite rock; there is a dearth of nitrogen and phosphorus and lashings of potassium. Rainfall is seasonal, falling from October to May and about 800-1000mm per annum.

We moved here in 2001 just in time to experience the massive forest fires of 2003. About 400 trees on our property, mainly pines, but also Arbutus (Strawberry Tree) and olives, were destroyed. The olives and Arbutus regrew (very quickly; initially at 1 m/year) but there were large blank spaces so we set about large scale (2.8 ha) tree planting. The big question was, what to plant? "Indigenous" trees include Sobreiro (*Quercus suber*), Oliveira (*Oliva europea*) and Medrohoeira (*Arbutus unedo*). All make a slow start and take quite a long time to resemble proper trees. In 2003 I was 66 years old and I wasn´t prepared to wait till I was 100 to see woodland replaced.

My experience of tree planting was limited to temperate Europe, North America and the tropics. The Mediterranean climate is something quite different and my gardening philosophy wasn´t quite up to scratch. This story could go on forever but the focus here is how I came to realize that we were selecting a lot of Australasian plants without, at the time, being aware of the fact. I thought it might interest you to hear how some of our choices have performed and, equally importantly, how they appear in relation to the surrounding flora.

The most successful choice was *Grevillea robusta* (Silky Oak). Young plants about 80cm high were bought in from local nurseries. Many were placed in windy locations and had to be staked. They were watered weekly during their first two summers and soon began their amazing growth. Five years after planting they have reached 5m or more with a trunk circumference of 60cm. Most of them ignore the wind and are upright and symmetrical. Their

leaf colour and shape is different from everything else here but the underside of the leaf matches almost perfectly the silvery grey of the adjacent olives. *G. robusta* is evergreen here although our trees have not yet flowered.

The next best choice was *Melia azedarach*. I´m not sure whether this counts as truly Australian as it is also found in south west Asia, China and Japan. For us its growth is phenomenal: 4.5 m in five years. The blossom is scented and colourful and the orange berries that overwinter make a superb contrast with our deep blue skies. The tree is deciduous but as a summer shade giver it has been a boon. They are widely used as street trees and seem to belong on our property.

According the the ***RHS A-Z Encyclopaedia of Garden Plants*** *Melia azedarach* (Bead-tree, Persian Lilac, Pride of India) is native to N. India and China. On the Australian Native Plants Society website (asgap.org.au/m-aze.html) *Melia azedarach* is described as having a wide natural distribution extending from China, India and Japan to Indonesia, Australia and the Pacific Islands with the indigenous Australian species classified as *Melia azedarach* var. *australasica* (White Cedar). Which leave us us none the wiser as to whether Peter's tree is the Australian version or not!

Judy Clark

You will probably expect me to eulogise the eucalypts. It is unfortunate that many hectares of Portugal, particularly here in the south, are heavily planted with *E. globulus* (Blue Gum). The attraction of rapid growth, harvesting every 7-10 years, and multi-stemmed regrowth, has made them very popular as a cash crop.

They compete with native flora (and, as a knock-on, native fauna) to the detriment of the latter; they also burn vigorously when the arsonists get busy. You may not be aware that Portugal is the leading producer of loo paper in Europe thanks to *E. globulus*. After the big fire we pulled many hundreds of young seedlings and it became an occupation for visitors: 200 each before breakfast.

Apart from destroying as many of the *E. globulus* as possible I have tried a few *E. ficifolia* (syn. *Corymbia ficifolia*; Red-flowering Gum). 30cm seedlings grew well (and finally flowered) but they were all inherently unstable. Either the branches snapped off in the wind or, more commonly, they rotted at the soil/air interface and the main stems collapsed. The damaged areas resembled the smooth joint of a mammalian bone; I have assumed fungal infection although the local nurseryman says it was caused by rocking in the wind. (This phenomenon has also been seen in *Melaleuca* and *Callistemon* sp.)

Acacias too grow here freely. The cover photograph of the May 2009 issue of Pentochondra showed *A. dealbata* (Silver Wattle); it is regarded as an undesirable invader

which the Forestry Department attacks from time to time. Equally unwanted are *A. longifolia* and *A. saligna* (Golden Wreath Wattle), both of which we have. They grow very fast, flower freely and beautifully and snap (trunk and main branches) in even modest wind. They make good firewood. Since Acacias are widespread they almost appear as if they belong.

We have both *Brachychiton acerifolius* (Ilawarra Flame Tree) and *B. populneus* (Kurrajong). The latter flourishes and those that I started from seed have reached 2-3m in four years. *B. acerifolius*, bought in at 1.5m, have grown little and do not look happy although they are in similar soil and position to the *B. populneus*.

We have a single specimen of *Hymenosporum flavum* (Native Frangipani). It was donated as a 60cm potted sapling and, without any attention apart from some limited summer watering, has grown and grown, like a bean pole. It now stands at about 5m with little branching although it has flowered for the past two years. Patently a foreigner.

The several *Callistemon rigidus* (Stiff Bottlebrush) that we planted early on have not proved very spectacular. Following the pruning advice from Jeff Irons (Pentachondra 39, December 2007) the plants are now tidier and flowering has improved but we have not achieved photograph-worthiness yet. *Metrosideros excelsa* (Pohutekawa, a New Zealand native), by contrast, is now a large expanding bush which needed 4 years before it would flower (we live about 16 km from the sea). But it has made up for the wait by sheer volume of colour.

Following the big fire we needed wind breaks all over the place and were directed to *Myoporum laetum* (Ngaio, another New Zealand native). Although planned as hedge plants they are now turning into trees and withstand drought and wind. A few have been heavily pruned with no ill consequences. The flowers are small but pretty and the sheer mass of evergreen foliage has been of great value. The Greens don´t like Myoporum and would like to see it banned but for us it fits in well.

I could probably fill a complete Pentachondra with descriptions of the plants we have acquired. Other things we like include *Grevillea rosmarinifolia* (Rosemary Grevillea), 3 x 3m, still growing and of spectacular flower colour and form. *Leptospermum scoparium* (Manuka, native to Australia and New Zealand; see photo page 9) is easily pruned to produce a tidy mass of colour throughout the winter. *Melaleuca ericifolia* (the only species available here) makes fairly rapid growth and is useful as a wind break but becomes ungainly with age. *Dodonea viscosa* ´Purpurea` (Sticky Hop-bush, found not just in Australia but in many other temperate, tropical and subtropical countries) seems to need shelter in our windy location but has good leaf colour. *Westringia fructicosa* (Coast Rosemary) is disappointing and we are sticking with the

Mediterranean *Rosemarinus officinalis*.

Hardenbergia violacea (False Sarparilla; see photo page 9) makes vigorous growth, is easy to start from cuttings, and is a truly overwhelming sight in full flower. With *Pandorea pandorana* (the Wonga-wonga Vine: who strangles who first?) I have had to take the trimmer up on top of the pergola to reduce the incredible mass of material but it has beautiful pink flowers in the early winter. *Alyogyne hueglii* (Lilac Hibiscus) has exquisite flowers (see photo page 10) but each of my plants dies after two years. Very modest watering in the dry months hasn´t helped although the roots are well developed and extend over 1m from the stem. *Coprosma repens* (`Coppershine` and *x kirki*) is used as ground cover; it is not spectacular but useful and reliable.

We have several other Australasian origin plants among our Californian, South African and South American acquisitions. The range of sub-tropical plants that will grow here and are often well adapted to this environment is enormous. The principal limitation is source of material since we are not endowed with much by way of nurseries. Growing from seed is fun but takes time and, quite often, expertise of which I don´t seem to have enough.

If you want to come and see it all rather than play golf give us a call (00351 282 912 968) and drop in.

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COTULAS AT LARGE

Judy Clark

Being small (around 5 cm) and unassuming *Cotula alpina* (Alpine Cotula), a member of the Daisy family found at higher elevations in NSW, Victoria and Tasmania, is hardly what one would call a prepossessing plant (see photo page 10). Yet it turns out to be surprisingly well-travelled, even if by accident rather than design. As reported in the January 2010 edition of BSBI news (Robinson 2010; White, 2010) it has recently been identified growing in the wild in the UK, in Yorkshire and Wester Ross.

This is not a matter of the odd specimen here or there. Overall *C. alpina* occurs in 19 different tetrads (2 kilometre squares) in north-west, mid-west and north-east Yorkshire. On moorland near Ilton (Nidderdale) Robinson describes C. alpina as the "*dominant plant on both sides of the sandy moorland track*". Should you fancy a moorland walk in the hope of seeing *C. alpina* it has also been found on Potts Moor, Kirkby Malzead Moor and Dallow Moor as well as Egton High Moor and Rudland Rigg on the North York Moors.

C. alpina has been previously misidentified as *C. squalida* (Leptinella or Buttonweed, from New Zealand) and this prompted me to wonder whether other Australasian *Cotula* species might be lurking on our shores. *C.*



Hardenbergia comptoniana
False Sarsparilla



***Leptospermum scoparium* in Peter Eaton's Algarve garden**



Alyogyne huegelii
Lilac Hibiscus



Cotula alpina

squalida, which is described as very similar to *C. alpina* but hairy, is stated in Stace (2010) to be naturalised and spreading in lawns and grassland, especially in Scotland and County Down. *C. australis* (Annual Buttonweed, Common Cotula, Carrot Weed) is also hairy but has white flowers. It is an Australian native (also found in New Zealand) that has been naturalised in south Devon since 1946 and has been found occasionally on rough and arable ground in other parts of England. *C. coronopifolia* (Buttonweed), awetland plant with bright yellow button-like flowers, is known to have been naturalised in Cheshire since 1880 and is now found scattered across England as far north as Yorkshire, in the Channel Islands and in west Cork. It too may be increasing in the wild. It is found in New Zealand, South Africa, and all 6 Australian states but may have been introduced to Australia (Wrigley and Fagg, 2003).

Robinson (2010) suggests that *C. alpina* probably arrived in the wild in Britain on wool shoddy (waste) that was used as manure and the other species mentioned could well have arrived in a similar way. Another route for potential colonists is via the horticultural trade and both *C. coronopifolia* and *C. australis* are thought to have 'escaped' from gardens. The RHS Plant Finder lists six sources for *C. coronopifolius* (and many more for *Leptinella squalida*, synonym for *C. squalida*) but currently none for *C. australis* although of course it may have been supplied in the past.

PS. Jeff Irons has grown *C. alpina* and says that in his garden it gets infested by Pearlwort (*Sagina* sp.) and *Cardamine* sp. so he has to resort to growing it in a pot.

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A HITCH-HIKING ORCHID

Dave Poole

Many of us who grow a few too many 'exotics' in their gardens probably have the now almost obligatory tree fern (*Dicksonia antarctica*) tucked into a sheltered corner or taking pride of place. Some may also have noticed seedling hitch-hikers that appear growing out of the trunks several to many months after purchase. If the trunks have been stacked on the ground after import into the UK most will be common, familiar native 'weeds'.

The commonest Australian vagrant is usually *Acacia melanoxylon*, a species often associated with Dicksonia growing in its natural habitat. More rarely, you may discover Australian native ferns that are tolerant of our climate. In time these can develop into pleasing garden plants if carefully removed, but not all Australian native ferns have garden value and some are decidedly unremarkable so you have to risk a bit of time and effort. I've done this a few times and out of several species of fern native to South Australia, only one turned out to be worth its space. However, once in a blue moon something special can turn up.

Back in 2005 one of the major DIY sheds was selling tree ferns at ridiculously cheap prices and although at the time I had a rooted disdain for such places, I simply could not ignore the offer. I went along and chose one that had a thick 6foot trunk and a mass of fat healthy 'knuckles' tucked deep in the central crown of leaves. I paid £57.50 which worked out at under £10 per foot of trunk. The existing leaves were damaged, but I was more interested in potential rather than the immediate effect.

It was planted deeply leaving less than 5feet of trunk above ground in order to establish a good root mat, which is vital if these plants are to perform really well. With plenty of watering it thrived and over the ensuing year, numerous acacia seedlings popped out from between the old frond bases. I don't want acacias here, so they were pulled out before they became troublesome and discarded. Little 'fern-lets' also appeared on the moister, shadier side of the trunk and these were also removed.

Over the next 2 years, the Dicksonia grew away quickly and beautifully, developing a huge crown of 8foot+ long fronds, producing flushes of up to 20 at a time. In May 2008 I noticed a very unusual, small, oval, fleshy leaf lying flat against the trunk about 1foot below the crown. It was obviously a monocot with a deep central vein and reticulate (netted) secondary veining and at first I couldn't think what it might be. It gradually dawned upon me that it might be an orchid of some sort, as improbably as that seemed at the time. A slug or snail would quickly eat this tiny plantlet, so it had to be removed for growing on in a pot.

Try as I might, I could not dig deep enough into the trunk and all that came away was a section of fleshy white rhizome with the leaf, which was subtended by a few pale bracts. Cursing, I took the 2 inch long piece indoors and carefully inserted it in small pot of chopped sphagnum moss. It was enclosed in a plastic bag and stood in a shallow dish of water and placed in light shade. I was almost sure it would die, but soon another leaf started to appear and after about 3 months, rather thick, hairless roots were poking out of the base of the pot.

By winter 2008/9 it had produced a rosette of 5 leaves about an inch long and just over half an inch

across, but these started to yellow and die down. A poke about in the pot of moss revealed a couple of pea- like tubers attached to comparatively thick, fleshy white rhizomes plus a few white, hairless roots. If it was to be an orchid, it was probably one of the many species of Australian ground orchids that have a decided rest period. Watering was reduced to just enough to prevent the moss becoming bone dry and the pot remained apparently lifeless for a couple of months.

In spring, I upended the pot and carefully teased out the rhizomes, roots and tubers. They were very much alive and healthy, so were potted using a fresh compost of chopped moss, peat, sand, charcoal and leaf mould. Watering was gradually resumed and after a few weeks a shoot appeared, quickly producing several leaves. Another grew alongside and growth continued into winter with no hint of the plant dying down as before.

By now I was in little doubt that it must be one of the ground orchids and since the trunk of the tree fern originated from Victoria, I started looking up native species for that state. For a while, I thought it might be one of the 'bird orchids' (*Chiloglottis* sp.), which have fascinating flowers rather like the open, begging beaks of young birds. Realising my plant had too many leaves per growth for this, I started to look at the alternatives and settled upon the 'green-hoods' (*Pterostylis* sp). These are quaint, quite remarkable, but unglamorous orchids that are quite common throughout Australia with a very strong foothold in the south east and along the eastern seaboard. There are over 100 species from which to choose, so I could get no further until flowers appeared. I didn't have too long to wait.

By December, a pair of new shoots appeared adjacent to the existing rosettes and the largest rosette of leaves produced a fat rounded bract that looked as though it might enclose a flower spike. Over the next 6 weeks, this grew into a scape (flowering stem) not much more than 4 inches high and carrying a single flower bud. By then I knew it was a definitely a *Pterostylis*, but I couldn't work out what species it might be because most have quite tall flower scapes, often 12-18 inches high or more, and it didn't fit the description of dwarf species.

The flower bud gained some colour; the base being greenish white with green veins, while the tips deepened to deep reddish pink. Within days the flower opened and I was able to nail it as probably being a dwarf form of *Pterostylis pedunculata*, or Maroon Hood, found in Victoria and New South Wales. The species proper grows to about 12 inches tall when in full flower with leaves twice the size of those on my plant, so I'm still not 100% certain of its exact identity and I'd be very interested in any feedback about the overall size of the plant. Everything about my plant is right for *P. pedunculata*, except that the leaves are smaller and the height of the scapes is barely more than a

third of that of the species. As to colour, the true colour of the tips of the lateral sepals is dull red, while the petals within the dorsal sepal are more reddish purple and not the bright vermillion as shown in the pictures on page 19 (that's a jpeg artefact I can't correct).

By no stretch of the imagination is it a thing of beauty, with its rather closed, upturned flower barely an inch long and a pair of filamentous sepals, which when viewed from some angles remind me of earwig pincers.

However, its journey here and subsequent survival until discovery have endeared me to this small orchid and believe me, I'm by no means an admirer of little plants. A second flower has since opened with 2 more on the way so it's a plucky thing able to develop remarkably quickly, which is in stark contrast to most orchids. I'll grow it on in a pan and when there's enough, a small piece will be planted back onto the tree fern trunk where it first hitched a ride several years ago and 10,000 miles away.

A WINTER REPORT FROM LEEDS

Thomas Naylor

I am one of those occasional contributors to Pentachondra who has remained dormant for several seasons but somehow the challenging nature of winter 2009-2010 has roused me from my torpid state to compile a report. Some volcanoes and certain vampires, or nosferatu, are known to have has similar experiences, but in each of those cases the stimulus and the result were somewhat different. It is surprising how often, after such a harsh winter, when examining Australasian plants in the garden I have had occasion to exclaim: "It lives!".

A *Grevillea* 'Canberra Gem' against a south-facing wall is thriving and shows no sign of any damage though it looks as though the onset of flowering will be delayed by about a month. It has been in that position for twelve years and needs pruning back as it is so vigorous. It certainly looks healthier than a North Africa *Cytisus battandieri* also sheltered by a south facing wall.

Two *Leptospermum scoparium* facing east against the house wall are similarly undamaged. They have been in the ground here even longer than the grevillea and they too will need pruning back this year. In contrast the two *Banksia paludosa* have suffered considerable damage; more than half of the leaves have turned brown but there is enough healthy looking growth for me to be confident that both will survive.

All of my *Callistemon* species appear to have some through unscathed:these are *rigidus*, *subulatus*, *pityoides*, *linearis* and *citrinus*. The same specimen of *C. citrinus* has been damaged in milder winters than this but now that it has settled in it has

developed a very slow rate of growth which appears to increase its hardiness to wintry conditions.

Eucalyptus species - *gunnii*, *perriniana*, *dalrympleana*, *globulus*, *glaucescens*, *niphophila*, *cordata* and *paliformis* - also suffered little or no damage. *E. niphophila* remains a dwarf. *E. cordata* has been flowering for about three months but not so successfully as in milder winters, though there are many flower buds on the verge of opening. *E. paliformis* (a rare species from the southern tablelands of NSW) fell over under the weight of snow about a year ago but I left it with the trunk on the ground and I am glad that I did as in October its profusion of small flowers provided nectar for the greatest number of honeybees that I had seen here all year. So I watched various flies, wasps, honeybees and bumblebees swarm over the eucalyptus flowers but I saw none of these pay a visit to the banksia a few feet away. These always flower between mid autumn and early spring here and there has never been any sign of pollination.

The only certain casualties were three small *Acacia melanoxylon* (Blackwood) and this loss has left me entirely bereft of wattles. Also killed was the non-Australasian exotic *Echium pininana* from the Canary Islands, which had survived the 2008-2009 winter, but the Madeiran *Geranium palmatum* survived as it had done for the previous five or six years.

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ABERAERON'S MICROCLIMATE STRIKES AGAIN!

Graham Sumner

If the winter of 2008-09 scored a few hits on my Cardigan Bay garden, then that of 2009-10 was the gardening equivalent of a major blitzkrieg! There are parts of the garden which are now seeing the sun which have had at best dappled shade for years. I have always taken the view that severe winter 'pruning' would help me thin out my overcrowded garden, but this has been too much. I had also completely accepted that one year a really cold winter would occur. It's just that it had not happened for more than a decade, and, well, one can become too complacent!

I passed detailed comment on the town's quirky coastal microclimate in Pentachondra 42 (May 2009). The same has happened again, but much worse. Whereas in 2008-09 we had a few nights as low as -7.5˚C, the temperature on the night of 6/7 January 2010 fell to -8.6˚C, on the 7/8, to -10.0˚C, and on the 8/9 to.. -10.3˚C. We then made our way south for our annual pilgrimage to the Algarve until the end of February! As an indicator of how cold it became in January, the harbour became encrusted with thick ice for at least a week until our departure, and following those very cold nights, the temperature rarely reached above freezing until early afternoon, and then only for an hour or so. The relatively warm

surface of the water inshore generated 'arctic sea smoke' on several occasions, as evaporated water recondensed in the lowest metre or so of the atmosphere.

The plant damage for both winters, and subsequent action, together with regeneration last year, if any, are shown in the table.

I am happy to accept the deaths of acacias and tree ferns in such temperatures, but the probable loss of the large *Callistemon citrinus* (up to 2.5m), plus the nearby cordyline clump, has had a major impact of the balance of the garden. The callistemon has flowered profusely every June/ July for more than ten years since it was last cut back to the ground by a -9˚C in 1996. Hopefully, it will regenerate from the base. As for cordylines, it has been particularly galling to contrast the survival of most specimens in other gardens up and down the coast, but none in Aberaeron; that nasty microclimate again. Even worse, near where my daughter lives in south Oxfordshire all seem to have survived undamaged. That area is renowned for low winter temperatures, with RAF Benson recording -17.7˚C on 6/7 January 2010 (Weather Log, Weather, vol. 65, no. 3, March 2010, Royal Meteorological Society). I feel cheated, and it's not fair!

On the up side, my wife can be heard regularly commenting on 'how open the garden looks' and 'how large the garden is'! Every cloud has its silver lining, even when there are so few clouds the temperature drops like a stone. The losses have also stimulated a manic tidying up, discovering plants I had long forgotten about, together with frequent raids on local DIY chain stores and nurseries for cheap 'fillers'. Regrettably, none of these is remotely Australasian. I have congratulated myself on harvesting large numbers of seeds from the callistemons last year, and the new seedlings are now emerging in the nursery, aka 'the conservatory', and I shall be scouring the country for replacement Australasian shrubs.

Species	**Survival rating 2009**	**Survival rating 2010**	**Comments/action**
Acacia dealbata	Killed, never regenerated	Already dead	Cut back to stump, 2009
Acacia melanoxylon	Cut back, regenerated	Probably dead	Tree cut down to 30 cm stump, 2009 and 2010
Acacia pravissima	Extensive damage, ultimately died	Already dead	
Acaena inermis 'purpurea'	Killed	Already dead	

Acaena microphylla	Undamaged	Cut back, regrowing April	
Callistemon citrinus	Some damage	All foliage browned	Large shrub now cut back to stumps
Callistemon linearis	Undamaged	Most foliage browned	Pruned to remove dead foliage
Callistemon pallidus	Undamaged	All foliage browned	Tree cut down to 30 cm stump
Callistemon rigidus	Undamaged	Some damage to tips	Damaged areas pruned off, April 2010
Callistemon viridiflorus	Undamaged	Undamaged	
Cordyline australis	Undamaged	Complete collapse	Cut back to stumps, March 2010. Was large tree clump (to 4m)
Corokia cotoneaster	Some damage	Extensive damage, new growth by April	
Correa 'Marion's Marvel'	Some damage	All remaining stems browned	Damaged areas cut out, 2009. Left 'as is', 2010
Dicksonia antarctica	One killed, other extensive damage	Remaining plant reduced to stump	
Drimys lanceolata	Undamaged	Undamaged	
Eucalyptus archeri	Undamaged	Undamaged	
Eucalyptus coccifera	Epicormic growth killed, no regeneration, 2009	Already dead	
Eucalyptus leucoxylon 'rosea'	Some damage, epicormic regrowth	All 2009 growth killed	In tubs. Plants removed, March 2009 - dead
Eucryphia milliganii	Undamaged	Undamaged	
Grevillea robusta	Killed	Already dead	

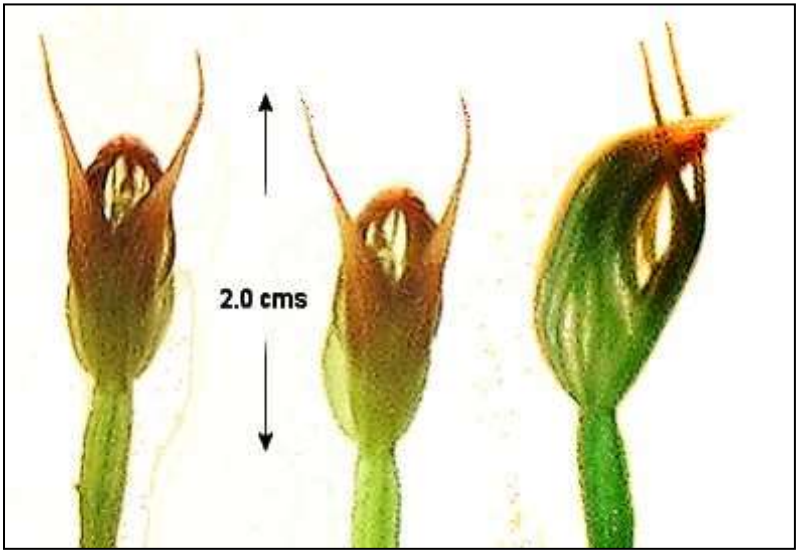
Leptospermum lanigerum	Undamaged	Undamaged	
Leptospermum scoparium	Killed	Already dead	
Libertia grandiflora	Variable: some clumps killed, never regrew	Virtually all clumps browned	Some evidence of new growth in one or two clumps, April 2010
Livingstona australis	Killed	Already dead	
Melaleuca squamea	Undamaged	All foliage browned	Left 'as is', April 2010
Olearia macrodonta	Undamaged	Some tips damaged	Left 'as is', April 2010
Pittosporum crassifolium	Undamaged	Undamaged	
Pittosporum undulatum	Killed	Already dead	
Podocarpus alpinus	Undamaged	Undamaged	
Sophora tetraptera	Extensive damage, regrew	All foliage killed	Left 'as is', April 2010
Syzigium oleosum	All foliage browned, regeneration from roots	All foliage browned	In pots. All outdoor plants removed from pots, 2010

ACACIAS AND GREVILLEAS IN THE RHONE VALLEY

Tim Darrington

I started writing this article whilst tucked away on the bitterly cold winter evening of St Valentine's day 2009 at Serre Chevalier following a first afternoon of skiing where the outside temperature at 2200m at 2:30 pm was -17°C! This is just 200 km from our home in Vienne (in the Rhône valley) where I had left my collection of Australasian plants tucked away in the greenhouse. I kept my fingers crossed that at Vienne the overnight temperature in the garden wouldn't be lower than -10°C, although most years we do get at least one winter night temperature between -15°C and -10°C. The 6 x 4 m bubble wrap insulated poly-tunnel greenhouse should keep the temperature above -5°C for its inhabitants. It is rather more humid than I would like, despite a domestic extractor fan which draws cool air into the greenhouse from the basement of the house at a rate of ≥ 60 m³ / hr.





The hitch hiking orchid



Acacia podalyriifolia
Queensland Silver Wattle

Acacia verticillata
Prickly Moses





***Grevillea* 'Firecracker'**



Grevillea petrophiloides
Pink Pokers



***Grevillea* 'Desert Flame' (*G. rosmarinifolia* ssp. *glabella*)**



Grevillea semperflorens

I grow the majority of my plants in plastic containers (mainly 2 litre or 5.5 litre rose containers) or standard terracotta pots of various sizes. I have now settled on a basic potting mix of 1 part of pouzzoulane,1 part of perlite and 2 parts of acidophile peat-substitute horticultural substrate, to which I add a little garden soil (about 5%) which I use for most plants. The pouzzoulane grade is between about 6mm and 12mm and is excellent for improving drainage.

The plants are watered by a drip system with individual spikes for each container. In winter plants in 5.5 litre containers typically receive 330 ml per week, and those in 2 litre containers 165 ml per week. In summer, when temperatures exceed 30°C, plants receive these amounts daily. For spring and autumn, amounts are intermediate and adjusted according to temperature.

Whenever possible I use rainwater collected from our roof, but when this becomes insufficient and during our summer holiday I have to use our hard tap water which I acidify by injecting nitric acid, simply to bring the pH down to about 6. Between mid-April and mid-October when the plants are outside, I am favouring more and more a policy of leaving most well established plants in positions which are not sheltered from the rain. This enables the soil to be completely rewetted periodically and helps prevent a build up of unwanted elements in the potting mix. Of course, for some plants which are susceptible to root rot this cannot be done, and I generally protect seedlings from rain.

I was originally contemplating giving a snapshot of what I had in flower at the beginning of April 2008, when I took some of my plants to display them to the public, but I soon realised that this would read too much like a list. A more critical look at what succeeded last season made me decide to write about my acacias and grevilleas in more detail.

Indeed, I have been surprised these last few years to discover just how many different acacias I now have in flower in early spring. I sowed most of my Acacias in 2003 or 2004, when there was an accident: I dropped the ice cube tray in which I was germinating on filter paper filed (nicked) or boiling water treated seeds, so for some of my acacias, I have a doubt about their identity, which is indicated by (?) after the first mention of species. Many have only recently come to maturity and produced their first flowers. However, in view of the relative lack of care given to them, they make a good show early in the year, with some pleasant odours too.

Acacias are not my primary interest in Australian plants, as there are so many different varieties which resemble each other, and some have a marked tendency to get too big to keep in a domestic greenhouse. For this reason, I have already thrown away some over-sized plants in 7 litre containers. I had nearly given up with *A. saligna* (syn. *A. cyanophylla*) (?) and *A. leiophylla*

(?) too; however, at the moment, smaller examples of both these species in 2 litre containers have produced their first buds after 6 years. Some younger (4 year old) *A. melanoxylon* are threatened with a similar fate, having not (yet) produced any buds.

As far as cultivation of acacias goes there are some good cultivation notes (in French) in the 'Guide –Catalogue illustré' des Pépinières Gérard Cavatore, who is based in Borme-les-Mimosas, between Toulon and Saint Tropez in the French Riviera. You can see similar notes on his web site (www.pepiniere-cavatore.fr /Botanique.htm). Notably he advises never cutting or breaking the roots of an acacia when repotting, even if extremely pot-bound. He also recommends the introduction of old rusty iron (nails/tins) into the mix/soil, particularly if the soil tends to be alkaline.

I will start with a word about what I consider to be the most common acacias in cultivation in Europe; that is *A. dealbata* (Silver Wattle), *A. retinoides* and *A. paradoxa* (Kangaroo Thorn). I now grow these in containers no bigger than 5.5 litres to try to reduce their size, and like most things they go in the greenhouse in winter. For several years I had an *A. dealbata* outside, but the occasional night at -12°C cut it to the ground several years in succession so it never flowered. When we first lived in Vienne there was down in the valley in the town centre (winter minimum 2°C less cold than our garden) a fine example of *A. dealbata* with multiple trunks to about 6 m growing outside. It flowered well for several years until a cold winter cut it to the ground too. I have found that these 3 species require more water in early spring, compared with all other Australian plants I keep, otherwise their flowers abort and *A. dealbata* sheds its leaves.

The common name for *A. retinoides* in French is "Mimosa des 4 saisons" and as this name suggests it can flower on and off almost all round the year. However, mine produces few flowers at any one time compared to the fantastic shows I saw in Greece (near Athens) where *A. retinoides* grows outside, seemingly self seeded, and flowers prolifically in early May.

A. podalyriifolia or Queensland Silver Wattle, so called because of its silvery phyllodes, is one of my favorites. Last winter, it flowered very early, starting in November 2008. (Some non-Australian plants were fooled that winter too: *Vibernum bodnantense* also came into flower in November rather than late January.) *A. podalyriifolia* has an erect habit, but I have discovered that if the main stem is cut off (at 30 to 80 cm), even leaving no phyllodes, it resprouts from dormant nodes, so this can be used to keep plants relatively small. The only rather annoying thing is the brown patches which appear on the leaves during winter in the greenhouse (see photo page 20). I am not quite sure what this is due to: mildew would be a prime suspect in an all too humid poly-

tunnel greenhouse, but the grey patches seem perfectly dry.

Another favourite which has a tendency to form long flexible stems is *A cardiophylla* (West Wyalong Wattle). It produces masses of tiny pom-poms, despite a marked tendency to defoliate. I have found this species very easy from cuttings which flower when only 1 year old, so I shall prune these regularly to make more bushy plants.

A. verticillata or PricklyMoses was brought from the Old Walled Garden nursery near Tonbridge. It grows all too rapidly but is easy for cuttings which flower the same year. It has spine-like phyllodes and isolated pale yellow rods (see photo page 20) in March. I planted the original plant (about 1 m tall) outside in autumn 2008 and it was frosted to –10°C which killed it, although one of the cuttings in a 1 litre container has survived outside all winter 2008-09 in the shelter of our open south west facing porch.

A. longifolia came from the Gerard Cavatore nursery at Borme-les-Mimosas, and produces a good display of rods at end March/early April. It also produces masses of seed pods. I collected some at the end of June 2005, the viable seeds germinating in just 1 week. One of the plants sown in 2005 produced its first buds in February 2009. It is a fast growing shrub which needs pruning back to half to a third of its length just after flowering and then again in the summer to keep it within manageable proportions and to increase flowering.

A. pulchella/ *A. pulchella* var. *goadbyi* (?) (confusingly, also known as Prickly Moses) flowers in early June, relatively late in season, with bright yellow pompoms. It has an erect habit, small leaves and thorns and cuttings take easily. *A. guinetii* is another plant with an erect habit and fine thorns ; it flowers in March with masses of pompoms. The pinnate leaves are unusual being like a cluster of small fingers.

A. lanigera (Woolly Wattle) has silvery olive spatula shaped phyllodes. It has isolated spherical flowers, which I find dis-appointing, especially as Cavatore says it flowers abundantly. Three or four years ago I had problems with suspected chlorosis, which I treated with sulphur. The colour now seems much better. An alternative hypothesis is that the yellowing could have been because it did not like the cold.

A. lasiocarpia (maybe var. *sedifolia*?) has long pine needle type phyllodes and numerous pompoms clustered around stems in early May.

A. elongata (Swamp Wattle) has long flat phyllodes differing from those of *A. retinoides* in that they have 4 prominent veins. It has pale yellow pompoms at end of February/early March and the mature wood is attractive being both striped and having a reddish colour .

Then there are those that have failed to flower. A reasonably sized specimen of *A. drummondii*

(Drummond's Wattle), which was doing fine, suddenly dropped dead for no apparent reason, unless it was a very small amounts of N + K fertilizer (no more than 0.1g per plant) injected directly through the watering system (this had no adverse effects on any other plant). *A. hemiteles* which now has lovely healthy looking leaves with purplish veins, had stayed small and scrawny for several years after germination. This is presumably due to the forming of symbiotic mycorrhizal association with the roots. Equally, presumably for the same reason, a seedling of *A obliquinervia* (Mountain Hickory) that Jeff Irons sent me in January 2007 has not grown at all in two seasons, simply renewing the one or two leaves that it possesses. Incidentally, Jeff says this species should take down to -15°C which would be handy for our harsh winter conditions. I have since sown APS seed of this species, which has given two seedlings which, after 1 season, are already bigger than Jeff's seedling (sorry Jeff !) *A. pycnantha* (Australian Golden Wattle, Australia's floral emblem) has not yet flowered, but I suspect that this is because it wants to grow bigger before flowering (about 6 m according to the seed packet). Another non-bloomer is *A. euthycarpa* (?) which has long pine-needle type phyllodes. One of my two plants also has a distinct 'weeping' habit.

A grafted *A. baileyana* var. *purpurea* (Cootamundra Wattle) bought in March 2007 from Gerard Cavatore has not done well at all. In its first season it was attacked by cottony scale insects (*Icerys purchasi*) which form a soft white marsh-mallowy type substance around stems. Of course, once I had seen and identified them, I took immediate steps to control them, by crushing all visible insects between finger and thumb (this produces a reddish orange liquid) and by spraying with a solution of 'savon noir' as recommended by Cavatore.

The following season this pest attacked *Boronia heterophylla* and *Hardenbergia comptoniana* but did not seem to do them much immediate harm. However the following spring (2009) one of my boronias and the previously infected hardenbergia suddenly died, so maybe the scale insects do more long term damage than is apparent. Despite watching the *A. baileyana* var. *purpurea* like a hawk, it did not do any better, and eventually died in summer 2009. However the *Icerys* remain only a tentative explanation, because I obtained an ungrafted cutting of *A.baileyana* var. *purpurea* (and indeed an ordinary *A. baileyana*) towards the end of the 2008 growing season from Diane Bowie (an APS member who lives in Ardèche) and this is doing much better than the grafted plant from Cavatore.

Now let's turn to the grevilleas which deserve fully their place because most flower readily and some are sufficiently frost resistant to be cultivated outside even with our severe winters.

Nevertheless I shall start with the more tender species, which I grow in containers. My favourite is

Grevillea johnsonii which has numerous big pink racemes from April through to June (see front cover), and then even a few flowers later in the summer. I have struck a few cuttings but they are not particularly easy and take a long time. Similarly *G.* 'Jo Mason' (syn. *G.* 'Ned Kelly'), being a cross between *G. banksii* and *G. bipinnatifida*, is very long flowering, producing its large showy blooms through all the warm months of the year.

In small containers, both *G. stenomera* and G. 'Firecracker' (this latter from Dennis Rowlinson; see photo page 21) give very good displays when quite small and I have found both easy to multiply by cuttings. Equally the silvery-grey leaved *G. thelemanniania* produces its delicate spidery flowers whilst small. However a cold draught in the greenhouse killed all my *G. stenomera* and *G. thelemanniania* plants in winter 2008-09.

In the last few years my *G. petrophiloides* (Pink Pokers), cultivated from APS seed, which has a very upright habit, has produced several of its atypical "poker" like flowers. I have found cuttings of this species more tricky than most other Grevillea, but have successfully produced one cutting (see photo page21).

I also have in a 5.5 litre container what was sold to me as *G. barklyana* by the Old Walled Garden nursery, and which flowered for the first time in autumn 2008, producing a few lovely red toothbrushes. However, it is clear that this plant would like to grow much bigger, and I have taken cuttings, which I have begun to prune regularly to produce lower, more bushy plants.
The flowers seeming identical to those in the photo on page 8 of Pentachondra 42 (May 2009), I contacted Jeff Layman (see his article on pp 8-11 of this same issue). After having established that we both obtained our plants from the same nursery, and having consulted the literature concerning the shape of the leaves and the question of sub-species (I have a copy of Lewis Matthews' ***The Protea Book*** which has an entry and two photos for *G. barklyana*), I must qualify my plant with a similarly disclaimer as Jeff's one "definitely a 'toothbrush' Grevillea but perhaps not pure *G. barklyana*". We also discussed the hardiness of this plant, and Jeff convinced me that it was worth trying outside, so having several healthy cuttings, I planted out the original specimen in the shelter of the south facing wall of the house in September 2009.

Of those which I have already been on trial outside for several years, *G. juniperina* grows in a very sheltered shallow west facing artificial bed near the entry to the garage and flowers well in spring. *G. lanigera* x *rosmarinifolia* is in a deeper west facing bed sheltered by the garden wall and in mid February 2009 was absolutely covered in buds despite a long coldish spell this winter and at least one night where the temperature dipped below -10°C. The flowers of this plant are proving more cold resistant than

those of G. 'Canberra Gem' which despite being planted in a sheltered corner of the garden has seen most of its buds burnt off by the 2008-09 winter frost. *G. juniperina* subsp. *sulphurea* has also survived winter 2007-08 and winter 2008-09 outside and is looking healthy but is shy to flower, producing just two flowers in 2009.

Grevillea 'Desert Flame' (*G. rosmarinifolia* ssp. *glabella*) survived -11°C on 20th December 2007 (the coldest night of that winter) but its foliage was 'blackened'. Nevertheless in the following spring healthy growth followed by flowering on all wood showed that no serious damage had occurred. However, the longer cold period in the winter of 2008-09 killed half the wood of this grevillea, but the remaining half has recovered well with new growth into the space left and many flowers in the late season of 2009 (see photo page22).

Then I have two *G. lanigera* Mt Tambooritha, from different origins (Nursery Railhet and Dennis Rowlinson). Up to now I have been disappointed with the rather sparse flowers. Maybe this is because I have tended to keep them under other things in a rather crowded greenhouse, but I tried putting one out in full sun all last summer and this seems to have improved the blooming. I have recently planted this variety outside in a favourable spot for a trial.

Finally since autumn 2008, I have planted outside a specimen of *G.* 'Firecracker'. Its flower buds were burnt off when -10°C was experienced in spring 2009. Although initially its leaves still looked healthy it spent the whole 2009 season trying to recover and so I consider this species to be borderline here. All I can do is try to better protect it this coming winter and hope that it gets to a reasonable size before a very cold winter comes.

Editor's note: Tim finished this article in November 2009. I hope winter 2009-10 was not as severe in Vienne as in the UK.



CAN COMPOST CONTAIN UNKNOWN FACTORS?

Bob Foulds

As we all know, successful germination of Australasian seed is dependent on so many factors: moisture, air spaces and good drainage, temperature range, and many others. The stimulus of chemicals released from burning along with the mysteries of dormancy may also play a part. (On the role of smoke in germination see Pentachondras *passim*., including 41, December 2008, and 42, May 2009, page 39).

Even when I think I have it all under control, with an approved 'compost recipe', I find that poor germination can occur for no apparent reason. Sometimes a good start sadly ends with the

phenomenon of 'cot deaths' and articles in previous Pentachondras seem to show that this is not a rare occurrence (see for example issue 40, May 2008).

My usual garden practice is to shred woody and herbaceous prunings (other than walnut and yew[1]) in the autumn, and then compost these shreddings adding a drench of high nitrogen liquid feed. In the spring following this forms a good mulch and some is reinforced with NPK and magnesium fertiliser, for the greenhouse tomato crop. This enriched compost suits the gross-feeding tomatoes very well indeed. Of course its basic physical nature is that of degenerating/ decomposing wood particles.

With this enriched compost in mind I conducted the following experiment in November 2008, subsequent to felling an unwanted holly tree. Chainsaw 'chippings' and bow-saw 'dust' from this very hard wood was combined with grit and peat. Proportions by volume were 5 holly: 2 grit: 1 peat. A very low strength general liquid fertiliser was used as a drench and the resultant compost left bagged over the winter.

By spring it had broken down to an open friable condition that looked and felt good. Its pH was just on the acid side.

I used this 'holly compost' without any further addition as a seed sowing medium for the following: *Anigozanthus* sp., *Hardenbergia* sp., *Kennedya* sp., *Chorizema* sp., *Callistemon* sp., *Clianthus puniceus*, *Eucalyptus* sp. and *Melaleuca* sp. Most of this seed was from the APS seed list and showed very high germination rates and, wonder of wonders, there were very few 'cot deaths'.

My trials give no proof that macerated holly wood contains any chemical or physical factors that aid germination and growth, or repress pathogens which can cause problems, but it does seem a possibility[1].

It may merely be a flight of fancy, but the current environmentally sensible trend towards peat-free or low-peat composts might lead to the use of wood more widely. Different tree species may have a hidden chemical and/or physical content. Holly may indeed be good, but there may be even better species, still awaiting discovery.

Notes:
1. It is often quoted that yew, and more especially walnut, produce and exude chemicals that retard growth in their vicinity. perhaps holly does the opposite and stimulates?



DO YOU HAVE ANY 'LEUCADEN-DROIDES'?

Cathy Powers

You may well have the plants but not by that genus name. *Leucadendroides* is the first name that was proposed for the genus which we now all know as

Grevillea. It doesn't roll off the tongue quite the same does it?

This diverse genus (see pictures opposite) provides every gardener with an opportunity to include at least one grevillea in their garden plant selection. These plants range from prostrate (ground-hugging) to large trees. They can be grown in pots, tubs or rockeries. They can create a screen, windbreak or hedge. They can even be grown as a standard to display some of the more hidden flowers.

Grevilleas have a well founded reputation for easy hybridisation. Unless you are a serious collector, care should be taken to choose plants with a reputation for success and those best suited to your requirements. Many cultivars have features that are the best of both parents and warrant a home in your garden.

Grevilleas provide you with foliage of various sizes, shapes and colour. The leaves can be soft, prickly, bright green, grey and just about anywhere in between. If you think foliage is diverse, try looking at the many types of inflorescence (a non-specific term for an aggregation of flowers). They range from white, green, yellow, orange, pink and red. I have yet to see a 'blue' grevillea flower but give the nursery industry time; this might happen sometime in the future. The flowers can be tiny or large, hidden or conspicuous. Some have the most delicious perfume (even smelling like vanilla) and most of those with a scent are in the white to cream colour range.

After you have made your selection, keep in mind that grevilleas like free draining soil. If you don't have this, you can improve the spot for your new grevillea by raising the garden bed or mounding the area. Most grevilleas are intolerant of alkaline soils and rarely require added fertilisers.

Watering is always necessary to get the plant established. The old wives tale about not needing to water Australian native plants is just that. All living things need some moisture to survive and if your plant is in a container, not giving it water is a sure way to create an addition to your compost heap.

Full sun is optimal for getting the best out of most grevilleas. Often, if they are shaded, the number and beauty of flowers declines. Some will, however, require protection from the hot afternoon sun.

Except for the large tree species, most grevilleas respond favourably to a regular prune. You can extend the life of your plant, as well as the aesthetic appeal, by giving it a re-shape for the first year or two. From then on, it is just a matter of choice. It is pretty much the same as with roses. Roses can get downright ugly if left to themselves. So can grevilleas.

If you want to learn more, there are many published books that will assist you – not least the three volumes of ***The Grevillea Book*** by Peter Olde and Neil Marriott, with volume 4 to be released shortly.





Grevilleas in a |Victorian garden









Which is not a grevillea?

And if you happen to be in Victoria in August 2010 the Australian Plants Society (APS) Victoria has a major event the of which is '*Grevillea* cultivars, hybrids and new species'.

Now for the test. The images on page 32 (opposite) are of four plants and their flowers. The challenge is to decide which one is not a grevillea. (HINT: It is still in the same family (Proteaceae).) Good luck!

Editor's note:
And even more challenging, what sort of plant the non grevillea is!

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VEGETATIVE PROPAGATION

Jeff Irons

Does gardening have a patron saint? If it does not, St. Augustine must be one of the more favoured contenders for the position. Known as a persecuting bishop he did have softer and more humane moments. In one of them he wrote " *is there any more wonderful sight, any moment when man's reason is nearer to some sort of contact with the nature of the world than the sowing of seeds and the planting of cuttings? It is as if you could question the vital force in each root or bud on what it can do, what it cannot and why*."

There can be very few gardeners of long standing who do not follow St. Augustine and plant their own cuttings. In this we tend to think that many years of experience result in a large quantity and quality of knowledge. Unfortunately that is not always the case and the fact was brought home to me when an amateur gardener of my acquaintance commented that she always planted her cuttings as deeply as possible. My response caused her some surprise. I said that cuttings should never be pushed more than 1cm into the compost and that some (quoting Daphne as an example) needed to be stuck so shallowly that the cutting had to be supported. Simply doing what you have been shown, without knowing why, does not result in more knowledge and can lead to perpetuation of doing the wrong thing.

The media personalities are partly to blame for this ignorance of the real facts about propagation from cuttings. Their television programmes show what to do but never say why. Here I want to say why and give a only a little of the what. Knowing why you do the various things involved with taking cuttings enables you to deal successfully with a new plant that you have not propagated before.

Any piece removed from a plant is put under stress immediately. If our cuttings are to be successful we have remember our schoolday science and minimize the strain. In other words we apply Hooke's Law to our horticulture. In practice this starts by doing everything possible to keep a cutting turgid (swollen and full of liquid). If it is not going to be struck immediately the cutting should be put into a

plastic bag, together with a few drops of water. When collecting material from the wild ready prepared bags should be packed before leaving.

When the prepared cutting is put into the chosen medium it needs to be kept at as constant a temperature as possible. This is because when the temperature rises, the cutting's leaves transpire and lose water. The lost water has to be replaced and doing that puts a strain on the cutting. Winter is a good time to take cuttings because it is easy to keep the temperature and hence humidity in the propagator fairly steady. If a cutting can be kept turgid, then the time of year that the cutting was taken does not matter, even for plants that exhibit seasonal rooting, because at some time in a 12 month cycle conditions will be right for rooting to take place. Many deaths occur because of water loss caused by too high temperatures, especially with cuttings taken in the summer months. Such cuttings are best kept in a cool place where light levels are low and the temperature does not fluctuate too much.

The literature abounds with recipes for cutting mixes. It could be that so many are needed because there are so many different needs. The reality is that the actual ingredients and materials are not very important and the number of mixes simply indicates that they have provided the right conditions for someone. Often they were formulated using just what was available locally. Sand is a particularly variable substance and people often add other materials to a mix just to compensate for the 'fines' in the sand they are using. It is preferable to keep the cutting compost open by using other materials.

One still hears people advising you to use clay pots for cuttings and to put them round the edge of the pot. The questioning gardener will ask "Why?" and probably receive the reply "Because it works."

That is not very satisfactory and a little thought will result in the observation that clay pots are porous and that water will diffuse from the body of the compost through the walls of the pot. So, close to the pot side the compost is fairly dry and well aerated and it is under those conditions that the cutting roots. Eureka, we have the answer! The kind of pot does not matter. What we need is an open medium, so that the soil atmosphere is as similar as possible to that of air. Oxygen is necessary for respiration and root initiation and the part of the stem in the compost must have an adequate supply of oxygen. Cuttings placed in a clay pot prove more successful with a medium more moisture retentive then would be used with a plastic pot.

The very wet, water retentive, composts often used lead to waterlogging of the underground portion of the cutting. Fungal infection follows and the base of the cutting rots. The more deeply the cutting has been inserted the more likely it is that inadequate

aeration will result in the cutting rotting. Using that schooday science again, all reactions proceed more quickly at higher temperatures. So the higher the temperature, the more likely it is that the cutting will rot. Soft cuttings taken in summer must have an extremely well aerated mix, otherwise they will almost certainly rot. An acid compost, around pH 4.5-5.5, is usually preferable but for a few species liming is required because the roots will not grow in the usual acid medium. An alternative technique is to include Vermiculite in the cutting mix. It is alkaline, whereas Perlite is acid. Base ions leach from the Vermiculite into the cutting compost.

In general a nutrient poor mix is desirable. Once again lateral thinking, harking back to our schoolday science, explains why. In a nutrient rich compost there will be a high osmotic pressure, and the poorly developed roots will be less able to absorb moisture, so finding it difficult to supply the young plant with enough water. Starting off with a nutrient poor compost results in a low osmotic pressure and so helps the cutting to absorb water. It is very important not to stick the cutting too deeply. If necessary it should be supported with a small stick. Deep planting and consequent lack of soil aeration is one of the commonest causes of failure.

If a cutting is going to make roots, it needs energy. That energy is obtained from light, by the leaves. So for maximum energy production we have to leave as many leaves as possible on the cutting. However the more leaves left on the cutting, the more easy it is for the cutting to lose water by transpiration. So we need to remove at least some of the leaves. However, every time a leaf is removed a wound is made, and infection can enter through the wound. So we should remove as few leaves as possible. Since the young leaves on the softwood of our cuttings contain very little food, in theory the more light they are given the better they can synthesize the substances needed to make roots grow. However with high light levels the temperature rises and the humidity falls. The cuttings wilt, their stomata close and photosynthesis ceases. So in practice a relatively low light level is best. Ideally it should be the maximum that can be given without inducing wilting. With the equipment and conditions available to most amateurs we find that late autumn to early spring give the best rooting.

The often heard advice to remove a third of the leaves is simply a practical compromise between the various factors. It is always preferable to leave as many leaves on as possible and my own practice is to remove only a couple or so leaves - those that would otherwise have been partially buried. In December and January our light has so little energy that cuttings will not root but sit doing nothing , so those two months are best avoided. October, November, February and March usually provide ideal conditions for taking cuttings.

It is tempting to use nice looking thick material for cuttings. It seems that being more vigorous it should make roots more easily. However experiments have shown that the thinnest cuttings root most readily. Often they are the thin spindly growth at the base of a plant. A little thought will indicate that such cuttings have less stem in proportion to their leaf area. Consequently less food is required for maintenance of respiration in the stem and a greater proportion is available for plant growth. Thin cuttings do rot more easily than thick ones, so they need to be inserted shallowly. They should be inserted only as far as is necessary for them to stay upright.

Usually we take cuttings just below the point where a leaf joins the stem (a node). At such spots the plant is growing vigorously and there are plenty of growth chemicals (auxins) because they are needed for production of the new shoots. By detaching from the plant at that point we ensure that the base of the cutting is at a spot highly favourable for root production. The smaller the cutting the more likely it is to make roots and the larger it is the more likely it is to survive. A good compromise between the two factors is to take the cutting just where the plant material ceases to be soft and flexible and becomes woody.

A recent development that improves the 'take' of cuttings and avoids problems when 'potting on' is the rock wool plug. Rock wool plugs ensure good aeration and even 'difficult' plants root well in them. Once rooted, cuttings can be potted on without root disturbance and by putting the top of the plug at soil level the correct depth is assured.

If all conditions are right, a cutting will root without assistance from hormone rooting compounds. Nevertheless these do help and many people find the gel formulations easiest to use, though they do need to be kept in a fridge. Powders can make a thick clump on the base of the cutting that actually hinders rooting. A recent discovery has been that is easier for rooting hormone to travel down a stem than to travel up it. Several plants have been found to root more easily and quickly when the hormone is applied to the top of the cutting, not the bottom.

The same principles apply when potting on. Use a nutrient poor well aerated mix, put the cutting in the pot at such a depth that it roots are only just covered.

If they are propagated in a mist unit, plants that take a long time to root from cuttings will suffer leaching and lose nutrients. They should be given a little soluble fertiliser. Apart from this equipment has not been mentioned in these notes. If attention is given to the points made even the simplest devices will suffice. Good results are possible with nothing more than a flower pot covered with a clear soft drink bottle that has had its base cut off. What matters is attention to the principles of why we do what we do, not the equipment. Follow the

principles and you will get good results.

Further reading:
The reference section of your Local Authority's main library may have some relevant books in its botany and horticulture sections. Although they are not specific for propagation, two good books for general background reading are:

Reaching for the Sun - how plants work, John King 1997, ISBN 0 521 55148 X (hardback), 0 521 58738 7 (paperback).
Botany for Gardeners, Brian Capon, 2000, ISBN 0 71347252 9.

Reaching for the Sun is an easier read than Brian Capon's book. A more technical book, not recommended for non-chemists is ***Chemistry in the Garden*** by JR Hanson (2009, ISBN 978-1-84755-9759 softback).



A VALUABLE RESOURCE

Jeremy Spon

During a recent visit to County Park Nursery I spent some time discussing carmichaelias with Graham Hutchins. Recent revisions by the New Zealand botanist P. B. Heenan have resulted in numerous name changes, including the merging of the genera *Chordospartium*, *Corallospartium* and *Notospartium* into *Carmichaelia*, changes which Graham strongly disagrees with. Articles detailing these changes were published in the *New Zealand Journal of Botany*, and Graham offered to lend me his copies for me to photocopy. As there were quite a few pages, I said I would first try and see if the articles were available on the internet.

When I got home, I quickly discovered that all back issues of the *New Zealand Journal of Botany*, apart from the two most recent years, are available free online in searchable PDF format. (The two most recent years are only available to current subscribers.) This means that not only Heenan's articles, but a huge range of other material relating to New Zealand plants (and not just botany but also habitat studies, cultivation notes, conservation statuses and much else besides) is available at a few clicks of a mouse. Much of this information is, of course, quite technical, but to have such essential source material so easily accessible seems to me very useful.

This discovery set me wondering what other similar material might be online. A quick search threw up the *Australian Journal Of Botany*, all of which has also been digitised, but interestingly is anything but free. Individual articles can be downloaded for a fee of between 25 and 60 Australian dollars, or individuals can take out a yearly subscription at a cost of £95 which allows unlimited downloads for the course of that year (including the current years' issues.)

The New Zealand Journal of Botany is published by the Royal New Zealand Society, who make all their other journals freely available as well. The *Australian Journal Of Botany*, and a sister publication, *Australian Systematic Botany*, are published by CSIRO (the Commonwealth Scientific and Industrial Research Organisation, described as 'Australia's national science agency') who charge for access to all their other journals online. So the two organisations have very different policies on charging, and one can only speculate on the reasons for this. Suffice to say I shall not be downloading articles from the CSIRO site in the forseeable future.

For those who want to investigate further, the relevant websites are www.royalsociety.org.nz/site/publish/abstracts.aspx and www.publish.csiro.au/home.htm**.**



BOOK REVIEW

Owen Johnson

NEW TREES: RECENT INTRODUCTIONS TO CULTIVATION
John Grimshaw and Ross Bayton
Kew Publishing and the International Dendrology Society
ISBN 978 1 84246 173 0
RRP £99
992pp; 580 colour photographs; 100 line drawings

The remit for this book hardly indicates the scale of the achievement. Work began six years ago to describe plants in British and American gardens which are absent from the last revision (the 1989 Supplement) of W J Bean's classic ***Trees and Shrubs Hardy in the British Isles*** - minus the shrubs. And minus trees that never made it into Bean but do feature in G. Krussmann's ***Manual of Cultivated Broad-leaved Trees and Shrubs*** and ***Manual of Cultivated Conifers***. And minus trees cultivated only in the mildest areas (the southern United States, the Scillies). And minus quite a few so obscure that they only feature in one or two specialist collections. And minus tree-rhododendrons. Oh, and minus palm trees (why?).

There are two reasons why the book is so big and so important. The last two decades have seen more people introducing - even discovering - more kinds of tree from more different places than any previous era. And the criteria that make a tree 'hardy in the British Isles' have begun to shift, so that trees which must have been planted by the odd optimist in Bean's day, such as *Grevillea robusta*, suddenly begin to feature in the suburban landscape. In fact, the lion's share of these 'new trees' are borderline subjects from warmer parts of the world, including Australia.

A couple of people have told me they would choose W J Bean as the book to take to their Desert Island. Bean was a fluent and stimulating writer as well as a painstaking botanist. For ***New Trees***, these roles have been farmed out, with Ross Bayton

providing the painstaking botanical descriptions and John Grimshaw free to stimulate us fluently with the story of each tree's introduction, performance so far, and garden merit.

Bean was never intended as a manual of identification; you generally have to read between the lines to work out the points of distinction, and the same caveat applies to ***New Trees***, though the 580 colour photographs are a great aid. (Hazel Wilks' line drawings, sadly, confine themselves to a few showpiece plates, instead of illustrating each tree.)

New Trees is still far from being the last word: Bean describes about 20 tree-sized eucalyptus taxa, with another half-dozen in Krussmann; ***New Trees*** adds 54, but there are a hundred in the ***RHS Plant Finder***, while my own Tree Register database suggests the total which have been planted in Britain, sometime or other, is nearer 180. The decision to focus on trees not shrubs has particular ramifications for the book's coverage of the Australian flora, many of which are borderline cases in the wild and can remain shrubby in cultivation when summers are too cool and short for them. ***New Trees*** describes five Australasian acacias, to add to the 20 in Bean and Krussman. The Tree Register can embellish this total with another 20 taxa, whilst Australasian Plant Society members could probably add several more.

BITS AND PIECES

Brachyglottis brunonis

Tony Entwistle

As a coda to Gary Dunlop's report on *Brachyglottis brunonis* in the last issue of Pentachondra (December 2009) I first saw this plant in flower in January 2000 when on a tour at the ASGAP conference in Tasmania. It was growing about a third of the way up Mt Wellington in rocky woods. Our guide described it as *Senecio*. At the time I was not impressed as the plants were very straggly.

There was however another shrubby senencio common on roadsides in the north west of Tasmania, *Senecio linearifolius* (Fireweed Groundsel). I brought home some seed which quickly germinated to become a subshrub about 1 m high, with profuse flat-topped bright yellow flowers. It survived the first winter in the UK but became woody and died the following one. I suspect it is not long lived.

Name changes

Jeff Irons

Two plants that have been, but no longer are, in the APS seed list now have botanical names. *Melaleuca* sp. nov. Megalong Valley is now *Melaleuca megalongensis*. *Callistemon* 'Malawi Giant' is now *Melaleuca viminalis* ssp. *rhododendron*. It has been speculated that this tall single stemmed tree is the ancestral plant from which the

multistemmed shrubby *M. viminalis* ssp. *viminalis* developed. Occurring only along a single creek in S.E. Queensland, it is not winter hardy in Britain.

Update on Katandra Gardens

Nicky Zanen

Kantandra gardens, an outstanding garden in Victoria currently open to the public (see Editorial, Pentachondra 42, may 2009). It is owned by Bob and Dot O'Neill who started working their 8 acre property at Wandin in the Dandenongs about 30 years ago, and subsequently retired to it. It holds the OPCA Correa Collection and during the last couple of years Bob started collecting eremophilas, as well. It also has an impressive range of food plants including a macadamia nut tree and avocados. Bob seems to be able to grow everything exceptionally well on this property. It is the garden I would head to before coming back to Europe to recharge my batteries.

What's growing under your bottlebrushes?

Judy Clark

Recently Jeff Irons sent me some information from the journal Chemistry and Industry about extracts from Australasian plants that have herbicidal properties. Probing further , it turns out that the weed suppressing activity of one of these was discovered when a Californian biologist working for a chemical company noticed that very few plants grew under the *Callistemon citrinus* bushes in his garden, far fewer than might be expected from the effect of shading or leaf litter. This was shown to be due their roots producing a substance called leptospermone which suppressed the growth and survival of other plants, an example of a phenomenon known as allelopathy. Since then synthetic analogues of leptospermone have been developed for use in a commercial maize herbicide. More generally, the study of allelopathy remains important because it holds promise for the development of natural herbicides for sustainable agriculture. Meanwhile, if you don't need to weed under your *C. citrinus* it's thanks to leptospermone.

Reference:

Cornes D, 2005, *Callisto: a very successful maize herbicide inspired by allelochemistry* available from www.regional.org.au/au/allelopathy/2005.

Illustration acknowledgements

Tim Darrington: front cover and pages 20, 21 and 22 (*Grevillea* 'Desert Flame')
Peter Eaton: pages 9 and 10 (*Alygogne huegellii*)
Jeff Irons: pages 10 (*Cotula alpina*) and 22 (*Grevillea semperflorens*)
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Cathy Powers: pages 31 and 32