



AUSTRALIAN
PLANTS SOCIETY
— Geelong —

IMPORTANT

APS GEELONG IS MOVING!!

At our last committee meeting we discussed a letter from the Geelong Botanic Garden management with the following notice attached.

Myrtle Rust Alert. ... *Myrtle Rust has been detected in Victoria. To assist in protecting the plant collections and historic trees at the Geelong Botanic Gardens, an immediate control mechanism is in place.*

NO PLANT MATERIAL IS TO BE BROUGHT INTO THE GBG.

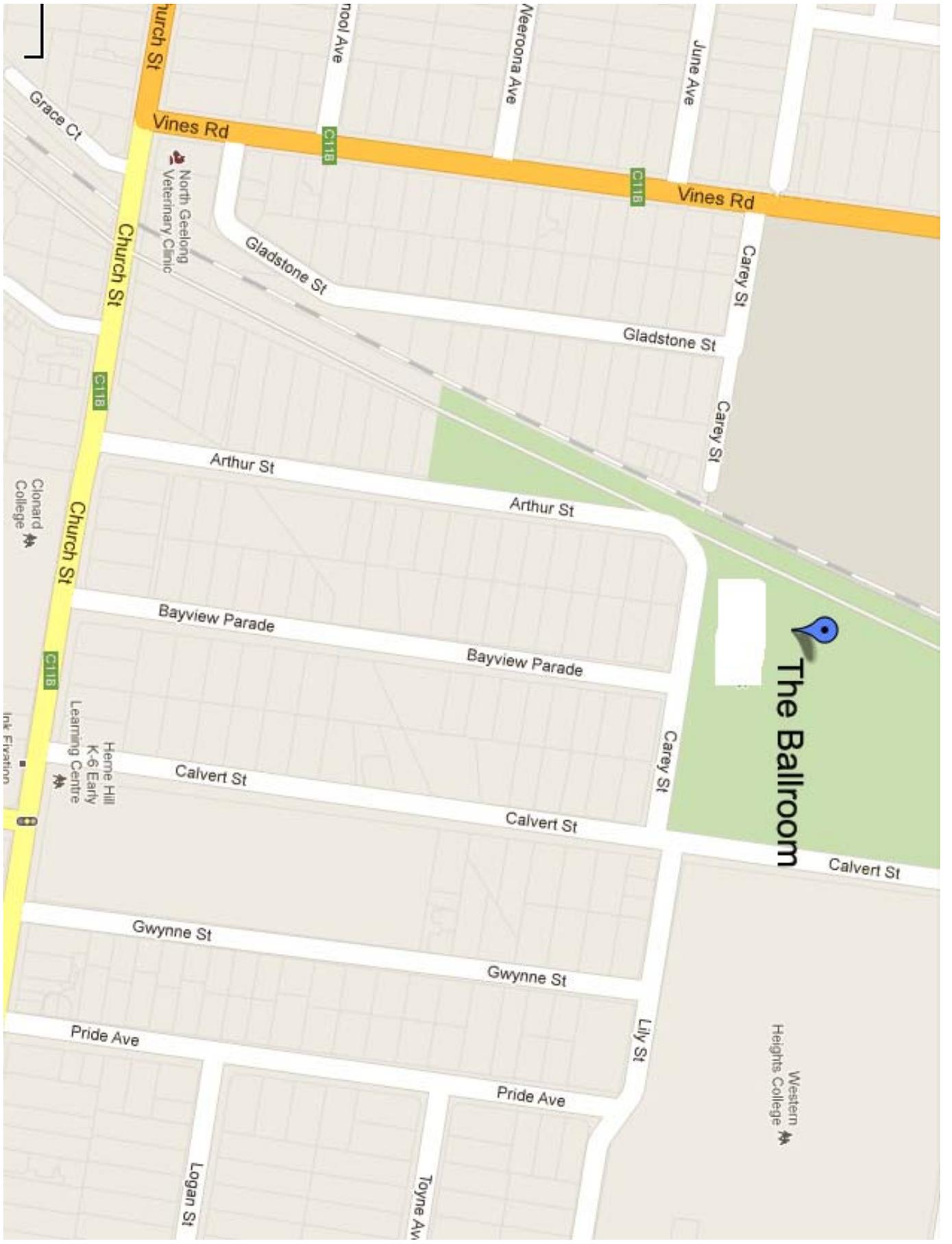
Obviously this means no plant table at our monthly meetings. The committee feels that the plant table is an integral and very important part of the meetings, and to go ahead without it would detract greatly from everyone's enjoyment of the evening. So it was decided to seek an alternative venue for our monthly meetings. Things have moved much more quickly than anticipated.

A venue has been found and as from 20th March, 2012, our meetings will be held at **The Ballroom**, Hamlyn Park in Hamlyn Heights. The Ballroom is in Carey Street Hamlyn Heights, enter the car-park at the north end of Bayview Parade, which is opposite Clonard College. See the map on the next page for more details.

The Ballroom provides a very comfortable meeting room with ample space, excellent parking and security, kitchen, indoor toilets and more. It is centrally located, and offers us more flexibility than the GBG site.

There is some work to be done to provide secure storage for our gear - test tubes, data projector, name tags, banners, and of course, our library. This will all be ready and moved in by the 20th March.

The Committee is pleased that such a great venue has been located quickly, so that no meetings will be affected by the lack of a plant table. See you at The Ballroom, Tuesday 20th March at the usual time of 8.00 pm.





AUSTRALIAN
PLANTS SOCIETY
— Geelong —

Correa Mail

Newsletter No. 272 – March 2012

IMPORTANT INFORMATION

MYRTLE RUST

The discovery of the fungal disease, Myrtle Rust, in Victoria is already having serious ramifications for the APS Geelong. Last month we reported on the outbreak and the APS Victoria decision to ban the movement of *Myrtaceae* at APS sanctioned events. Since then there have been further developments which affect our club and its future.

APS GEELONG PLANT SALE

Cancelled

As a direct result of the Myrtle Rust situation, and the APS Victoria directive, the plant sale will not take place in 2012. Following much (sometimes heated) debate, the committee decided that the club has more to lose than to gain by continuing with the sale.

With no clear understanding of our rights or legal responsibilities, the committee felt it was unwise to take a legal and ecological risk at this time.

Over the past 25 years or more, our plant sale has become an institution in Victoria. We hope that the situation becomes clearer soon, and that we can continue with the sale in 2013 and beyond.

OUR NEXT MEETING

Liz Benetto

Our March 20 meeting will feature Liz Benetto as guest speaker. Liz arrived in the Geelong region in 2001. She is currently a voluntary guide in Geelong Botanic Gardens, and in this role has researched the history of the Wathaurong people and the importance of plants to their survival. She is also a member of FGBG Growing Friends, and is particularly interested in the propagation and sale of native plants. Her background is in secondary education, but she has also studied horticulture at Burnley.

Liz will be speaking about Australian plants in Geelong Botanic Gardens, and the way they have been used for food & medicine, especially by the aboriginal people. Plants indigenous to this area were very important to the Wathaurong: some of these plants are in the GBG – others will be familiar to most locals. A brief history of the Wathaurong will be included in the presentation.

MYRTLE RUST: HOW BIG A THREAT TO NATIVE PLANTS?

Carol Booth

This article, from ECOS magazine, a CSIRO Publication, appeared on August 29, 2011. It is the most informative and least hysterical bit of information I have read to date. If you, like me, have been worried by reports of widespread 'devastation' of Eucalypt forest, and dead koalas dropping from trees, read on. Ed.

What happens when a plant pathogen invades a new continent brimming with potential victims? Australia is set to find out, as myrtle rust spreads within the country's dominant plant family – the Myrtaceae.

In 1973, a rust disease killed swathes of young flooded gums (*Eucalyptus grandis*) in plantations and nurseries in Brazil. A few plant pathologists started worrying about what would happen if this fungus or its relatives reached Australia, home of the gum tree.

The infection was caused by guava rust (*Puccinia psidii*), so named because it was first described in Brazil in 1884 on guavas (*Psidium guajava*) – members of the same plant family as eucalypts. Now also known as eucalyptus rust, it infects 28 Myrtaceae species native to South and Central America, usually with mild impacts.¹

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Leaf of broad-leaved paperbark on NSW's north coast infected with myrtle rust.

Credit: Angus Carnegie.

The pathologists' foreboding was reinforced when the rust turned up in Florida in 1977, severely damaging broad-leaved paperbarks (*Melaleuca quinquenervia*), an Australian tree that is weedy in that region.²

In a 1996 CSIRO review, Australian mycologist John Walker predicted that the rust would be an 'ecological disaster' if it entered Australia, where about 10 per cent of flora are Myrtaceae.³

In April 2010, unusual leaf blotches on plants in a New South Wales nursery signalled the pathogen's arrival. Out checking eucalypt plantations for disease, Dr Angus Carnegie – a forest pathologist with the NSW Government – received a message to drop everything.

'This was the disease we'd been waiting for but hoping would never arrive,' Dr Carnegie says.

With eradication having failed, Dr Carnegie is now monitoring the rust's spread through the Australian bush. More than a hundred species have been infected so far, in a zone stretching about 1000 kilometres from Wollongong to Gympie.⁴

Although fungal experts agree that the rust invading Australia is a member of the eucalyptus/guava rust complex (*Puccinia psidii*), it has been officially designated a separate species called myrtle rust (*Uredo rangelii*). The Australian invader differs from eucalyptus rust in the structure of one of its spore types, but no genetic differences have been found.⁵ The Australian government is funding work to resolve relationships within the eucalyptus rust complex.

Different members of the complex infect overlapping suites of Myrtaceae species with varying severity.

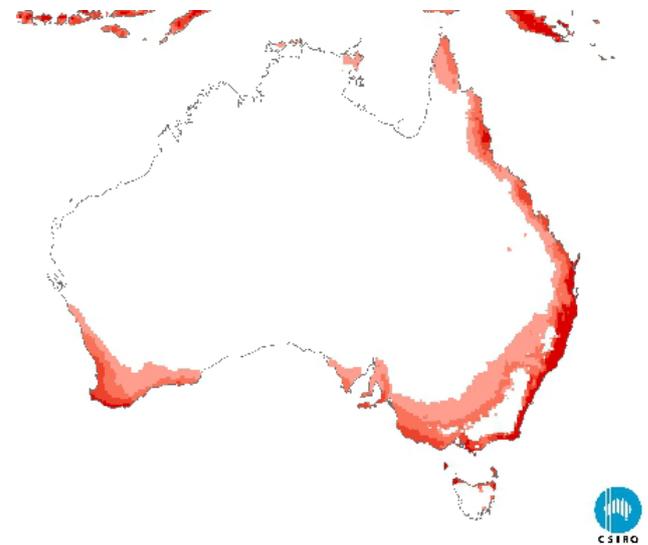
CSIRO plant pathologist Dr Louise Morin says while she has seen rusts that cause more damage, myrtle rust is 'remarkable for its wide host range'. Most rusts infect only one or a few species – yet of the 118 Myrtaceae taxa Dr Morin has laboratory tested, only 11 were immune to myrtle rust. The rest – about 90 per cent, including representatives from 13 of 15

tribes in Australia – proved susceptible to some degree.⁶

However, adds Dr Morin, this wide host range 'may not be realised in the field'. Although most of the 2200 Australian Myrtaceae species may be susceptible, the disease can develop only in actively growing shoots, in the presence of sufficient infective spores and conducive climatic conditions.

CSIRO ecologist Dr Darren Kriticos has used the rust's overseas distribution and known temperature and moisture requirements to map the areas at risk. The rust requires at least three hours of leaf moisture to germinate, and grows best between 14 and 25°C. Areas east of the Great Divide are most at risk.

'Future climate change will extend the areas at risk in southern Australia, significantly increasing the risk to Tasmania,' says Dr Kriticos.



Climate suitability map for myrtle rust (CLIMEX Ecoclimatic Index). Darker red areas indicate higher climate suitability. With microscopic spores that float in the wind there is nothing to stop the spread of myrtle rust in eastern Australia, but its spread to Western Australia may be slowed by quarantine measures, helped by the fact that the prevailing winds typically blow from the west.

Credit: Darren Kriticos, CSIRO.

Degrees of damage

With a favourable climate and a plethora of hosts, myrtle rust should thrive in Australia. But whether the rust is dire for plants and ecosystems will depend on the severity of infection and extent of resistance.

Plant pathogens can be typified as killers (causing rapid host death), castrators (attacking reproductive structures) or debilitators (causing damage that reduces plant fitness).⁷

Eucalyptus rusts are primarily debilitators – stunting plant growth, compromising reproduction and rendering them vulnerable to infection by other pathogens. They attack growing tissues such as young

leaves and stems, and sometimes flower buds and fruits. Seedlings often die, but mature plants survive, unless they are infected year after year and depleted of energy reserves.



Regenerating broad-leaved paperbark with myrtle rust, July 2011. Credit: Angus Carnegie.

‘It’s only been a few months, but already we have seen severe impacts on a few species, including shoot death, fruit collapse and seedling death, and impacts on stands across many localities,’ Dr Carnegie says.

Of host species showing moderate to severe infection, some are rare (the endangered *Rhodamnia angustifolia*), some are ecologically important (broad-leaved paperbarks, the nectar of which feeds lots of wildlife) and some are economically valuable (crops of aniseed myrtle and lemon myrtle).

Surprisingly, although many eucalypts have proved susceptible in the laboratory, they’ve been hardly affected in the wild. But, cautions Dr Carnegie, ‘it’s early days yet.’

The rust’s greatest impact may be on plant succession – for particular species and for landscapes. Queensland government forest pathologist, Dr Geoff Pegg, warns that the rust could retard regeneration of key Myrtaceae species and reduce their ability to compete, resulting in dramatic changes in plant composition over large areas.

‘For example, *Rhodomyrtus psidioides* (native guava) has an important successional role in rainforest regeneration and is being badly affected by the rust,’ Dr Pegg says. Recent cooler, drier conditions have not halted its spread.

‘We thought it would slow much more than it has, but it continues to reproduce and infect new hosts,’ he adds. ‘It seems there is no seasonal respite for susceptible plants, and the maintenance of infectious spores in the environment means we could see increased disease severity and spread with the return of even more favourable conditions.’



Myrtle Rust on Chamelaucium – Geoff Pegg

The potential for resistance

There is some hopeful news. In about two-thirds of the 118 taxa tested by CSIRO, only some individuals became infected.

‘This suggests that there could be some level of resistance present in many species,’ says Dr Morin.

Brazilian plantations now use flooded gum clones containing resistance genes. CSIRO molecular biologist Dr Simon Southerton will investigate the potential for breeding resistant varieties of another important plantation tree, blue gum (*Eucalyptus globulus*). He suspects the same major resistance gene is widespread among eucalypts, and could be in other Myrtaceae.

‘It probably evolved in response to some other common pathogen in Australia,’ he says.

Pathogens can outpace resistance-breeding programs through sexual recombination or mutation. Fortunately for Australian Myrtaceae, the rust may not be able to reproduce sexually here. Dr Morin suspects it has an alternate host in the Americas essential for sex. The recent discovery of a race pathogenic to some of the flooded gum clones grown in Brazil, however, highlights the need to keep other members of the eucalyptus rust complex out of Australia.⁸ Otherwise, ‘Australia appears to be a very nice place for myrtle rust,’ says CSIRO evolutionary ecologist Dr Peter Thrall.

‘A pathogen with diverse and plentiful hosts is less liable to boom-and-bust dynamics than one with few hosts. It is less likely to disappear if any particular host is missing and may be partly buffered from changes in the local environment.’

With different species to infect at different times, a pathogen can maintain and build infective spore levels.

‘Higher levels of inoculum can help a pathogen overcome general plant defences,’ adds Dr Thrall.

There is much to be learned about plants and pathogens from this giant unplanned experiment, particularly if Australia is to protect its Myrtaceae-

based industries and ecosystems. But, in contrast to diseases that deliver drama and dead bodies, investigating the insidious potential of myrtle rust is not high on the national agenda.

'If Australians could gaze into a crystal ball and see the consequences 50 years from now, they might be clamouring for much more research into this disease,' Dr Carnegie says.

¹ Simpson J, Thomas K and Grgurinovic C (2006). Uredinales species pathogenic on species of Myrtaceae. *Australasian Plant Pathology* **35**, 549–62.

² The rust infects 86 Australian Myrtaceae species growing overseas. Carnegie AJ and Lidbetter JR. (2011). Rapidly expanding host range of *Puccinia psidii* sensu lato in Australia. *Australasian Plant Pathology*, in press.

³ Walker J. (1996). Biogeography of fungi with special reference to Australia, *Fungi of Australia* 1A, 263–320. CSIRO Publishing and Australian Biological Resources Study.

⁴ See ...

http://www.outbreak.gov.au/pests_diseases/pests_disease_s_plant/myrtle-rust/national_host_list.html for a list of plants infected (The Victorian Site is updated regularly).

⁵ Carnegie A and Cooper K. (2011). Emergency response to the incursion of an exotic myrtaceous rust in Australia. *Australasian Plant Pathology*. DOI: 10.1007/s13313-011-0066-6. Carnegie and Cooper (2011) recommend that the rust be identified as eucalyptus rust (*Puccinia psidii*) on the basis that teliospores matching the description of *P. psidii* have been found, which means the rust should be referred to as a species of *Puccinia*, where the only name currently available is *P. psidii*.

⁶ Morin L, Aveyard R and Lidbetter J (2011). Myrtle rust: host testing under controlled conditions. CSIRO Ecosystem Services and NSW Department of Primary Industries

⁷ Barrett L, Thrall P, Burdon J and Linde C (2008). Life-history determines genetic structure and evolutionary potential of host-parasite interactions. *Trends in Ecology and Evolution* **23**, 678–85.

⁸ Graça R, Aun C, Guimarães L, Rodrigues B, Zauza E and Alfenas A (2011). A new race of *Puccinia psidii* defeats rust resistance in eucalypt. *Australasian Plant Pathology*. DOI: 10.1007/s13313-011-0056-8.

GETTING TOUGH ON WEEDS?

Press Release

The Victorian Government is targeting recalcitrant landowners who fail to control invasive plants and animals on private property. Agriculture and Food Security Minister Peter Walsh said the Department of Primary Industries (DPI) had more than doubled property inspections in a major crackdown on

agricultural pests such as blackberry, gorse, ragwort and thistles.

"The government allocated an additional \$21.2 million in the State Budget to boost the fight against weeds and pests and this investment is paying off," Mr Walsh said. Mr Walsh said DPI officers inspected 2,768 properties from July to December 2011 compared to just 1,290 for the same period in 2010.

"As a result of this crackdown, 12 property owners have been hit with fines and another will be prosecuted through the courts by DPI inspectors," Mr Walsh said. "Some 633 landowners have received land management or directions notices over the period, demanding they take action to clean up their properties or face penalties. This is up on 288 notices issued the previous year. "The government is committed to taking action on those landholders who allow their properties to become a haven for pests and weeds."



Gorse (*Ulex europaeus*) invading pasture

Mr Walsh said previous governments had not done enough to control widespread weeds such as gorse and blackberry. The fact that more than one in five properties inspected required an improvement notice is proof the state has been going backwards.

Mr Walsh said DPI inspectors would target weed enforcement actions to support communities where landholders were working together to co-ordinate pest control action, for example through Landcare groups or weed taskforces. The department is implementing 90 weed enforcement projects across Victoria to support community-led action on weeds.

WHAT'S IN A NAME?

Tony Cavanagh

Tony continues his informative series ...

The three names I will talk about include two English noblemen and a young Italian botanist who died in tragic and mysterious circumstances. Such is the rich

diversity of the origins of the names of some of our plants.

Blandfordia. This is a small group of only four species which are often called Christmas Bells because of the shape of their flowers and their summer flowering. They grow only in often damp areas in Queensland and New South Wales and Tasmania but unfortunately are rarely cultivated. I have seen them in full flower in Queensland in swampy soil and the sight is spectacular. Propagation is by seed and the couple of times I tried them I had no success. They are members of the *Liliaceae* or lily family so form a tufted plant with an eye-catching display of red and yellow or plain yellow bells hanging down from an upright stem. They can make excellent tub plants.



***Blandfordia grandiflora* – Large Christmas Bells**

They were named by the English botanist James Edward Smith after George Spencer-Churchill, born 6 March 1766, died 5 March 1840, 5th Duke of Marlborough, formerly known as the Marquess of Blandford. He was a member of Parliament but is better known for his extravagance as a collector of antiquities, books and the development of his estate, Whiteknights, a contemporary account describing it as “The splendid gardens, beautifully laid out with the rarest of plants, were its greatest attraction – the envy of kings”. It couldn’t last and the Duke was bankrupted in 1819 and everything was sold.



Marquis of Blandford, 5th Duke of Marlborough

Boronia. When we think of *Boronia*, most of us think of the beautifully perfumed brown and yellow flowered *B. megastigma* although there are probably over 100 species throughout Australia. Many are various shades of pink with soft aromatic foliage and make delightful garden plants, in the right spot. They have a reputation for “touchiness” and cannot stand dry situations and are often killed on extremely hot days. The best place is probably in a sheltered position on the south or south-east, in dappled shade among other plants, keeping the soil moist over summer. Although they can be grown from seed, propagation is easier from cuttings and plants benefit from regular pruning which promotes bushiness and improves flowering.



***Boronia serrulata* – Native Rose**

The English botanist, James Edward Smith (above) also named *Boronia* after a young Italian botanist Francesco Borone, born 6 April 1769, died in Athens in a fall from a balcony on 20 October 1794. Borone was only 18 when he was Smith's assistant on a botanical expedition to Europe in 1787. He was later assistant to a Swedish botanist in 1792 on the west coast of Africa and in 1794 was with the English botanist Dr John Sibthorp collecting plants from Constantinople to Athens when he died. (See the article by Dick Burns in *AustralianPlants*, June 2009, pp. 89-94). Smith was so impressed with his abilities that he named a new genus of Australian plants *Boronia* in his honour in 1798. Previously, a plant of what we now know as *Boronia pinnata* was flowered in a London nursery in 1795, grown from seed probably supplied by the naval surgeon John White of First Fleet fame. Sadly there is no picture of Borone so I have included two pictures of plants.

survived our winter and are looking good for summer. It could be a few years yet before they flower.



***Buckinghamia celsissima* – Ivory Curl Tree**

The plant was named by the Victorian Government Botanist Ferdinand Mueller in 1868 after Richard Grenville, 3rd Duke of Buckingham and Chandos (born 10 September 1823, died 26 March 1889). This seems to be one of those examples of naming plants after nobility/royalty rather than for any botanical reason. As far as I can determine, Richard Grenville's main claim to fame in connection with Australia was that he was Secretary of State for the Colonies from 1866 to 1868 – I have found no reference to any interest in botany or horticulture.



***Boronia megastigma* – Brown Boronia**

***Buckinghamia*.** There is only one plant in this genus, *B. celsissima*, a tree from North Queensland rainforests. Its common name is Ivory Curl because of the beautiful ivory cream clusters of flowers that can cover the plant from December to April. In cultivation, it is usually a large, bushy shrub to perhaps 4m and despite its origins, it can grow and flower this far south. There is a beautiful specimen in the Geelong Botanic Gardens where I took the attached picture. When we were last in Queensland, I obtained two plants from the Fairhill Nursery near Yandina. They



Richard Grenville – 3rd Duke of Buckingham

BUSHLAND CONSERVATION

Roger Wileman

Thanks to Roger for the heads up on these bushland preservation stories from the *North Central News*, and *Herald Sun*.

A private conservation group, Bush Heritage Australia, has purchased 96 hectares of land at Stuart Mill, near St. Arnaud in Central Victoria. The land supports unique old growth woodland, and is home to some of Victoria's rarest orchids.

Known as the John Colahan Griffin Nature Reserve, it will join with other tracts of land in the area to create an 8000 hectare bushland corridor by 2025. Most of the ancient woodlands of central Victoria were cleared during the early days of settlement. Remarkably few places retain their original trees, and much of the box and iron-bark dominated woodlands and forests that remain are regrowth.

But this reserve retains very large old growth specimens of Yellow Box, *Eucalyptus melliodora*, Yellow Gum, *Eucalyptus leucoxylon*, and Long-leaved Box, *Eucalyptus goniocalyx*, including one ancient tree over 500 years old. It also has grassy woodland, heathy dry forest, and herb rich woodlands interspersed with box Ironbark forest.



Old-growth long-leaved box eucalypt. Photo: Matthew Newton

The John Colahan Griffin Nature Reserve is also home to the Stuart Mill Spider-orchid, *Caladenia sp. aff. venusta*, and the Red-cross Spider-orchid, *Caladenia cruciformis*, both listed as Nationally endangered. The Stuart Mill Spider is down to fewer than 200 plants in the wild.

For more information, visit the website at ...
http://www.bushheritage.org.au/reserves_john-colahan-griffin

Meanwhile, threatened orchid species are being propagated in their thousands at the DSE's Horsham facility. Biodiversity Officer Nuschka Reiter said the orchids would be re-introduced to parts of Victoria, NSW and the ACT where habitat destruction had all but wiped out the wild populations.

Those to be re-introduced in 2012 include the Metallic Sun-orchid, Castlemaine Spider-orchid, Candy Spider-orchid, Yellow-lipped Spider-orchid and Melblom's Spider-orchid



Candy Spider-orchid – *Arachnorchis versicolor*



OPEN GARDENS AUSTRALIA

Victoria's Annual Plant Fair

Saturday 3rd and Sunday 4th March

10.00 am – 4.30 pm.

Being held for the very first time at this exceptional garden, the Open Gardens Plant Fair is an ideal opportunity to meet and talk with expert growers of the most interesting and unusual plants, and to find something out of the ordinary.

The Fair will feature choice perennials, rare trees and shrubs, Australian natives, bulbs and succulents, as well as garden art, tools and books with an exceptional group of 40 exhibitors from both Victoria & interstate.

Throughout the weekend there'll be a series of talks given by some notable and interesting guest speakers & on Saturday morning **774 ABC Radio** will be live from the Fair until 11am with **Libby Gore**.

This is a wonderful opportunity to visit the very beautiful garden of **Cruden Farm** in all its late summer glory. Possibly the most famous garden in Australia and the lifetime achievement of national treasure **Dame Elisabeth Murdoch**, Cruden Farm has reached a level of sophistication and maturity unparalleled in Australia. Indeed, it is unusual anywhere in the world to find a garden that has been designed, nurtured and developed by one person over such a long period of time. Visitors can wander through the picking garden, across tree shaded lawns and, of course, between the

lemon-scented gums along Australia's most famous tree-lined driveway.

Lunches and refreshments are available all weekend or you're welcome to bring a picnic. This is truly gardener's heaven, and a lovely family day out.

Entry: Adults \$15.00. Children under 18 no charge. Free parking on site. Cranhaven Rd, Langwarrin. Melway 103:G5

AUSTRALIAN OPEN GARDEN SCHEME

24 – 25 March

Dot's Garden

The owner's particular passion is Australian natives, and this is reflected in the wide range of plants in this small, but interesting, ¼ acre garden. 59 Yarraview Road, Yarra Glen. 10.00 am – 4.30 pm. \$12 which is a joint fee with Currawong Cottage and Station Master's Cottage, also open that weekend.

FEBRUARY BBQ GET-TOGETHER ... GREAT NIGHT!

The weather was beautifully warm, without being hot, and a nice breeze kept things pleasant. About 30 members gathered around the pool at Arthur and Linda Pape's place for a very enjoyable and entertaining BBQ.

The early talk, not surprisingly, was about Myrtle Rust and its effects, real and imagined, on the landscape and nursery industry. Once the 'heavy' stuff was out of the way, it was on to our usual brand of conversation.



It was great to welcome 'new' members the Clarkes and the Vaughans to our social get-together. I hope we didn't frighten them away.

As the evening progressed and the mound of empty wine bottles grew ever higher, Roger mortified some and delighted others by taking a swim in his unmentionables. Linda found him a towel and a beautiful sarong to wear, and the mood for the evening was set.



Arthur brought out his guitar and there was much tuneful and tasteful singing, despite recorded evidence to the contrary. A great time was had by all.

Another big **THANK YOU** must go to Arthur and Linda for their hospitality and readiness to make their beautiful home available for us once again.

Many of us enjoyed Rolf Baden's delicious chilli jam, on our barbeque, so, here is the recipe.

ROLF'S CHILLI JAM

Makes 3 1/2 cups. Prep. & cook time: 1 hour 30 min. (+cooling time)

- 1 kg ripe Roma egg tomatoes, chopped coarsely
- 2 1/4 cups (500 g) caster sugar
- 1/3 cup (80 ml) white vinegar
- 1/4 cup (60 ml) lemon juice
- 6 fresh long red chillies, sliced thinly
- 2 fresh small red Thai chillies, sliced thinly
- 4 cm piece (20 g) fresh ginger, grated
- 3 cloves garlic, crushed
- 2 tablespoons fish sauce
- 1 teaspoon coarse cooking salt.

1. Stir ingredients in a large saucepan over high heat, without boiling, until sugar dissolves. Bring to boil. Reduce heat; simmer, uncovered, stirring occasionally, for about 1 1/4 hours or until jam is thick. Cool for 15 minutes.

2. Blend or process chilli mixture, in batches, until smooth. Pour into hot, sterilised jars; seal immediately. Label and date jars when cold.

3. Store Chilli jam in a cool dark place for up to 3 months. Refrigerate after opening. (Not suitable to freeze or microwave.)