AUSTRALIAN PLANTS SOCIETY Geelong

Correa Mail

Newsletter No. 311– September / October 2015

This edition of the Correa Mail is a double issue …September/October. My thanks goes to Bruce McGinness for his hard work and invaluable assistance. The August meeting was addressed by Julene Cook: notes by Bruce McGinness, Photographs and text on lichen supplied by Hannah Noorda. Amanita muscaria photograph supplied by Roger Wileman. Ed.

FUNGI **Julene Cook**

Julene lives in Forest where she photographs and studies fungi in the Otways. An application for the identification of fungi that is available from her website FungiOz for free was explained. The application works on smart phones and desktop computers, it allows users to identify features of a fungus using a visual glossary. Almost all the fungi photographs were taken within one kilometre of Julene's home in Forest. There is a link on the app to Fungimap which is a citizen science way of uploading photographs of fungi to record and share sightings. The photos are then collated and sent to Fungimap.

Agaricus xanthodermus **- Yellow Stainer Mushroom**

The native yellow-stainer mushroom was given as an example of a commonly-seen fungi, mistaken for edible. It is similar looking to the edible mushroom but has an angular cap when small and stains yellow when rubbed, it also exudes a yellow juice when cooked. It was noted that there are not as many edible mushrooms around as there once was, Julene suspects fertilisers and chemicals used in fields may have caused this. Mushrooms readily absorb chemicals from the environment and this must be kept in mind when harvesting fungi to eat from fields and roadsides. Mushrooms cannot be removed from National Parks but can be picked to identify and then left in place for the spores to disperse.

The largest single organism on earth is a 10 km square mycelium growing in the Oregon Redwood Forest. The mycelia have been found to be the one organism by molecular methods (PCR). Fungi are in a kingdom of their own; neither plant or animal they enabled the colonising of green plants on earth with large Prototaxites fungi dominated the earth millions of years before green plants. Vascular plants still rely on fungi with ninety percent of plants having fungal associates (mycorrhizal etc).

A bolete

The introduced Poplar Bolete is highly regarded for cooking; especially asian cooking. Another bolete *Phlebopus marginatus* has had a weight recorded of 29Kg, it grows on the margins of forests and is associated with manna gums generally occurring after

autumn rain. Boletes are effective in accumulating and chelating heavy metals; e.g.. 800 times the concentration of heavy metals has been recorded in boletes; again a warning to be careful collecting fungi for eating.

Many of the fungi in the Amanita genus are poisonous, they are identified by having a universal veil and a well-developed volva; veil fragments are often left on the top of the cap. *Amanita muscaria* the fly Fly Agaric is a commonly seen species growing under pine trees, it is a hallucinogenic species but is also toxic. A deadly poisonous import *Amanita phalloides* the Death Cap, generally grows in association with oak trees and is identified by its huge volva and a green tinge to the cap, but beware … colours can fade with rain and age

***Amanita muscaria* – The Fly Agaric**

The delightful coral fungi group are saprophytes which means they live on dead or decaying material as do many fungi. Many of them not described; *Hericium coralloides* has white pendulous spines on thin white branches it has been reported to have medicinal properties.

Cortinarius is a genus of mushrooms that have a universal veil as well, but the veil disappears as the fungus matures. The gills become rust coloured due to the brown spores produced and the cap is slimy, most of the *Cortinarius* are poisonous.

Cortinarius rotundisporus

A group of fungi which Julene called the decomposers are often leathery fungi found on decomposing wood, many have medicinal properties. This group has been used for bioremediation and filtration. Paul Stamets,mycologist, author and advocate of bioremediation and medicinal mushrooms is well worth watching on TED Talks for his work on fungi for the above purposes; just google Paul Stamets to find the talks.

Trametes versicolour (Turkey Tail) is a common bracket fungi which has been shown to be effective against a range of cancers in-vitro. Another two wood decomposing species mentioned were *Schizophyllum commune,* which is a very attractive medicinal species and *Omphollotus nidiformis* which emits a green luminescence visible at night.

Parasitic fungi can be a serious pathogen for the garden plants, a common parasitic fungi is *Armillaria luteobubalina* it generally attacks compromised trees,

once the fruiting bodies are visible the damage to the tree is most likely irreversible. To prevent further spread of the fungus remove the fruiting bodies before they set spores.

***Armillaria luteobubalina* - Honey Fungus**

Cordyceps gunnii parasitise moth larvae feeding on the roots of the Blackwood wattle. The fungus penetrates the head of the caterpillar and modifies its behaviour by inducing it to move closer to the surface. The fungal mycelium eventually kills the larvae and produces a fruiting body which is still attached to a mummified caterpillar carcass. *Coryceps sinensis* is a Tibetan species similar to *C. gunnii* that is searched by the locals during the fruiting season because of its medicinal properties and its resale value to the collectors. Nematophagous fungi are specialised to catch and digest nematodes by trapping them in rings which constrict and hold nematodes that move through them. A YouTube video shows the fungus in action trapping nematodes, again google the fungi to find this.

Cordyceps gunnii

Lichens are an amalgamation of a fungus and an alga and/or cyanobacterium. Lichens are good indicators of air quality, due to their ability to absorb various toxic substances from the air. Some can even fix atmospheric Nitrogen, which can later become available for plants.

Lichen on wood

Diversity of fungi is very high in soil with 6000 species of fungi found by DNA analysis in twenty six different samples of soil taken around Australia which only goes to show there is still a lot to learn about what we can take for granted.

Schizophyllum sp.

PLANT OF THE MONTH **by John Bell**

John's example of Grevillea flexuosa was chosen as plant of the month. John writes:

Grevillea flexuosa grows in a small area east of Perth in the Jarrah Forest geographical area. It considered rare and vulnerable in the wild but

specialist nurseries stock it. I have a grafted one as well as one growing on its own roots. The grafted one has thrived and is two metres tall and the same in width.

The other is growing well but is much more irregular in shape and not as tall, but both flower profusely and for several months of the year. The creamy yellow spike-like scented flowers are a great attraction to the birds and the long flowering period ensures that it is a showy and worthwhile plant.

It has long loose hanging stems and the plant requires a good prune after flowering has finished. The leaves are slightly prickly and sometimes it is referred to as the zig zag or tangled grevillea.

John and Barb's *Grevillea flexuosa*

October: John Arnott, Director of the Cranbourne Botanic Gardens will address us about his work at the gardens. There will be an excursion to the gardens on the following Saturday. Details to follow.

SNOW BERRY - *Gaulthera hispida* by Roger Wileman

Some time ago, Roger visited Tasmania and brought along an example of the Snow Berry to show the group. Here is his article …

Gualteria hispida is a native of Tasmania from the rain forest and sub-alpine shrub country, where it is widespread and fairly common.

The plants are usually 1.0 m in height with dark green leaves, 8-10 cm long, and lighter underneath. They have a slight serrated edge and the surface texture is not unlike human skin. They vary in colour and some plants have reddish foliage, the leaves and stems have reddish hairs on them, in particular the new growth, which is red pink in colour.

The tiny white bell shaped flowers that appear in spring are hermaphrodite, having both male and female organs, and are pollinated by insects.

This photo of Gaulthera hispida was taken at Lottah 30 Km west of St Helens.

The fleshy white fruits are present in a utumn. They are about 10 cm wide, round in shape and made up of five individual pieces. The ends of the fruit are usually red and shaped like a five pointed star. The fruits may be eaten raw and quite tasty. They can also be cooked to make tarts or jam. There are lots of fruit on the plants and it would not take long to collect enough to make jam.

This plant would make a great garden specimen in a cool damp part of the garden. Two other very small species occur in the high parts of the central plateau. *Gaulthera depressa* and *Gaulthera tasmanica*.

Plants are available from Plants of Tasmania, 65 Hall St Ridgeway. Ph 03 62391583.

DEFENCE MOLECULES IN PLANTS Bruce McGinness

The September meeting was addressed by our own Bruce McGinness, who told us about his work for a small company based at La Trobe University, searching for natural defence molecules to genetically

improve food and agricultural crops, or to make sprays for defence against insect and fungal pests.

Many plants have their own defence mechanisms, and produce chemicals which are poisonous or unpalatable in response to being eaten. It is these molecules which Bruce tries to isolate and introduce to other plants in an attempt to boost their own defences. Bruce has worked mainly with cotton, canola and corn in his twenty years as a technical assistant in this area.

For example, cotton seed oil from genetically modified plants is on the market in Australia, as a component of the vegetable oils you may use in salad dressings or to fry your chips. The plants have had a gene inserted which produces a molecule which makes the plant unpalatable to caterpillar pests, thus increasing the yield.

Bruce began at the Mt. Derrimut Field Station near Sunshine working with wheat. He then mobved to the Parkville campus of the University of Melbourne, growing *Nicotiana alata*, one of the tobacco plant family. It was found to contain a molecule in the style which repelled caterpillars and had an anti-fungal molecule in the petals. Bruce's job entailed growing thousands of plants, then picking, freezing and grinding up the flowers to isolate the genes responsible. These were then inserted into commercially grown cotton plants, and the yields measured against on-modified plants.

***Nicotania alata* – Winged tobacco plant**

Bruce then moved to the Bundoora campus of La Trobe University and began work on corn. Corn proved to be a little difficult in that not many molecules were discovered that made an improvement in the crop. So the search was widened to include a broad screen of native plants.

Permits were sought to collect small amounts of plant material from National and State Parks and Forests. No permits are issued for National Parks, but Bruce and his team have collected from the Wombat, Wail, Otway and Mt. Cole State Forests. Permits have also been obtained from local council for collection in their gardens, and Bruce has collected from Burnleigh, Karwarra, Geelong and Frankston Botanic Gardens and Maranoa. He also uses private gardens and roadside verges.

The permits allow Bruce to take 50gm of plant material from plants in the prescribed area. Parks Victoria provide a list called 'An Advisory List of Rare and Threatened Plants' and these may not be sampled under Bruce's permits.

Maranoa gardens, one of Bruce's permit sites.

Bruce records the part of the plant the sample came from – old leaf, new leaf, flower head, etc. – and these are recorded in a database which now has some 1100 entries.

The plant material, once collected, is kept cold and taken to the lab where it is chopped into 5gm samples. These are snap-frozen in liquid nitrogen and stored. These samples are them 'blended' to make a smooth paste called a 'diet' which is fed to caterpillars from the Genus *Helicaverpa*, which includes the Cotton Boll-worm. The caterpillars are studied to note any adverse effects from the diet. These plants are then further studied for future use in agriculture.

Plant materials being prepared in the lab.

ON THE TABLE **with Grahme Parkes**

Grahme walked us through a very heavily laden table this month. These a few highlights.

Grevilleas were a feature as they are most months with examples of *G. bronwenae, G. nivea, G. paradoxa, G. aquifolium, G. sericea, G. preissii,* three colour forms of *G. dielsiana* and the yellow form of *G. ruvularis.*

Chamelauciums also featured strongly with many lovely hybrids and cultivars on show; among them Sweet Rosy, Paddy's Pink and *C. ciliata* a small shrub with tiny white flowers.

There were many very attractive smaller plants like *Darwinia meeboldii* with its red,white and green flowers; *Chorizema caudatum* with orange and purple flowers and *Hypocalimna angustifolium* – a delightful pink and white mass of flowers.

Hakeas were again well presented with the ubiquitous and showy *H. bucculenta* and *H. francissiana.* But other less common ones like *H. circumalata* from the Geraldton area, *H. macreana* from southern NSW, *H. mitchellii* from Eyre Peninsular and *H. neurophylla* from Leseur's National Park in WA were just as interestingshowing a wide variety of flower and leaf forms.

It was a night for Boronias too, with Matt Leach bringing along six different examples:- *B.fraserii x mollis, B. mollis , B, muellerii* 'Sunset Serenade', *B. spathulata and B. megastigma* 'Jack Maguires Red'.

Boronia mollis

There were many more fascinating and unusual plants ... Baueras, Dryandras, Spyridiums and Lysiosepalums. Roger brought a gorgeous little Melaleuca with tiny deep purple flowers which comes from the Horsham area of Victoria. He knew it as *M. congesta*, although it does not appear in the Grevillea Book. He has grown it successfully at several sites.

Phebaliums were an interesting group on the night with exapmples of P. stenophylla, P. whitei, P. coxii and P. glandulosum all showing various shades of yellow, and P. nottii lovely rosy pink.

PLANT OF THE MONTH **by Matt Leach**

Roger donated some bouquets of Waratahs (Shady Lady Red with *Hypocalimna angustifolium*) as raffle prizes. Annette Packett won the raffle and chose *Cyphanthera albicans*, which was brought along by Matt Leach. Matt writes ……

The name *Cyphanthera* comes from the Greek *Cyphos*, meaning bent or stooping, *Anthera,* meaning anthers. *Albicans,* refers to the whitish flowers. The common name for this plant is Hoary Ray-flower. The genus *Cyphanthera* is part of the S*olanaceae* family, and comprises nine species endemic to Australia (Tasmania, Victoria, NSW & QLD).

Cyphanthera albicans is a medium shrub to 2-3m x 2-3m found in QLD, NSW and Victoria. It flowers from March to November. It has many branches, covered with dense, whitish star-shaped hairs on the surface. Leaves are ovate to oblong, to 2.5cm, rolled under margins, also covered in dense whitish star-shaped hairs.

The flowers are tube-like to 0.5cm long, with narrow lobes spreading to 2cm across borne in clusters of 2-3 in upper axils. Colour ranges from cream to pale yellow, with purple streaks inside. The fruits are capsular and globular.

Cyphanthera albicans was recently reinstated back from *Anthoceris* because *Cyphanthera* has unilocular anthers (meaning anthers with a cavity) and a chromosome number of thirty. *Anthoceris* has bilobular anthers (meaning anthers with two cavities) and a chromosome number of thirty six.

It is an easy to cultivate species that has grown well in a harsh, dry, well drained bed of granite sand. It is growing in my garden beneath some well-established plants, which give it partial sun. It withstands frosts, to -4^{o}C so far.

After flowering, the arching branches are pruned back by a quarter/half of their length. It has had

attacks of grey mould in the cold weather, only to bounce back in the warmer months.

My plant is four years old, bought from a nursery in Bendigo. The plant is currently 0.8 x 0.5m. It receives supplementary water throughout the dryer times in summer.

ACACIA BAILEYANA - Cootamundra Wattle

By Roger Wileman

Acacia baileyana is an indigenous acacia from the Cootamundra area of N.S.W. The original plant location does not have any plants still existing, but the Cootamundra wattle has been planted in almost every state in Australia and in some areas it has become an invasive weed.

There have been lots of forms of *Acacia baileyana* available over the years. eg plants with gold, red, green and purple tips to the phyllodes, mainly originating from California.

A. baileyana var. purpurea

A. baileyana var. purpurea originally came from a seedling raised in California which had purple tips on the new growth, George Althofer obtained seed from this plant in 1965 - 66 and had it sent to Australia. The first plants I can remember seeing for sale were in Lindsay Cook's nursery in Torquay Road in 1968. They were growing in veneer tubes that were made by the Australian Berry company from cotton poplar or willow after the failure of the Bryant and May match plantations along the Murray Valley Highway.

In Tasmania, good plants *var. purpurea* can be seen in lots of areas but not so much as the original grey form. It may be that *var. pupurea* plants were more readily available from the nurseries.

Interestingly, seed collected from young plants from *var. purpurea* have a higher percentage of darker foliage seedlings compared to seed collected from older plants.

One of the original prostrate forms of *Acacia baileyana* appeared in the Emu Creek Arboretum, Strathfieldsaye, to the east of Bendigo, which was owned by Geoff Gibson pre 1976. This plant had similar foliage to the original plants found at Cootamundra N.S.W.

Acacias can no longer be exported to America. Certainly, they may become an invasive weed, but they can also be the source plant in the manufacture of certain narcotics.

BRUCE'S LEMON CURD CAKE

It would seem that Bruce McGinness has a reputation as a baker of fine lemon curd cakes. Here, then, is the recipe.

Ingredients

150g butter, softened
1 cup (215g) caster sugar
2 eggs
2 teaspoons finely grated lemon rind
1 cup (150g) plain flour
1/2 teaspoon baking powder
1/3 cup (80ml) milk
1 1/2 cups (240g) icing sugar mixture
Lemon zest, for decorating

Lemon curd

50g butter, chopped

1/2 cup (100g) caster sugar
1 egg, whisked
2 teaspoons finely grated lemon rind
1/4 cup (60ml) lemon juice

Step 1 Preheat oven to 160°C. Grease and line the bases of two round 15cm (base measurement) cake pans.

Step 2 Use an electric mixer to beat the butter and sugar in a bowl until pale and creamy. Add eggs, one at a time, beating well between each addition, until just combined. Add rind and stir to combine. Add flour, baking powder and milk, in 2 batches; stir until just combined. Spoon mixture among cake pans and smooth the surface. Bake for 30 minutes or until a skewer inserted into the centre of the cakes comes out clean. Remove from oven and set aside for 5 minutes before turning onto a wire rack to cool completely.

Step 3 Meanwhile, to make the lemon curd, combine the butter, sugar, egg, lemon rind and juice in a small saucepan over medium heat. Cook, stirring, until mixture boils and thickens. Remove from heat. Set aside to cool slightly. Strain through a fi ne sieve into a clean bowl and place in the fridge to chill.

Step 4 Use a serrated knife to level the top of each cake. Combine icing sugar to 2.5cm, and 1/4 cup of curd in a bowl until a smooth icing forms. Spread remaining curd over the top of one cake. Sandwich cakes together. Spread icing over the top and put aside to set. Decorate with lemon zest, if desired

UPCOMING EVENTS

The October 20th meeting will be addressed by John Arnott, the Director of the Cranbourne Botanic Gardens. This will be followed by an excursion to the gardens on Sunday 25th October. All details will be posted soon.

Cranbourne Botanic Gardens Inland Australia Display

The November 17th meeting will feature Graham Woods talking about grafting techniques for Eremophilas. Graham is an informative and entertaining speaker, who has talked with us in the past about his Grevillea and Hakea collections.

3 & 4 October - APS Grampians Group Pomonal Native Flower Show, Pomonal Hall. 9.30 am to 5.00 pm.

17 October - APS Mitchell Annual Spring Plant Expo and Sale, from 9.00 am to 3.00 pm Memorial Hall, Sydney Street, Kilmore.

17 & 18 October - South Gippsland Native Plant Sale & Flower Show, Gippsland Historical Automobile Club pavilion, Leongatha. 10.00 am to 4.00 pm. Enquiries Coral 5664 2221.

24 October - APS Echuca Moama Native Flower Showcase. Echuca Uniting Church Hall, Hare Street, Echuca.

WHAT'S IN THE BUSH?

I was recently in Bendigo for a gymnastics competition and drove up through the Brisbane Ranges and Ballan. The bush along the Geelong/Ballan Road was pale yellow as far as the eye could see. Almost no other colour could be discerned in the under-story. So, today I went back to see what the 'culprit' is. It's *Acacia myrtifolia*, the Red-stemmed wattle.

A mass of *Acacia myrtifolia*

A. myrtifolia is one of several wattles in the area which are flowering now (late September) but it's by far the most prolific in this area. The other, taller one is *A. pycnantha*.

It is a small open shrub to about 2m with dark green, elliptical phyllodes on red stems ….. hence the common name. There are bunches of small, pale yellow flowers, deepening to a honey colour as they age and die off.

A. Myrtifolia , though attractive in its own right is not often cultivated. But, historically, it was one of the first Australian plants in cultivation in Europe. It is hardy, and adapts well to most sunny positions with reasonable drainage.