

International Dendrology Society



Bits 'n Bytes Botanical – May 2021

After 18 months we have finally had a gathering though around us are reminders that things could change. The devastating problems in India of course are dominating the picture and again a government's refusal to admit their strategies are not working, seems to be compounding the situation.

I think the Mini-Tour to Melton and beyond was a great success. Just under 30 members and a couple of guests participated. The programme put together by Alistair Watt and Helen Page was as varied as you could imagine. Many others contributed and I would like to make specific mention of Barb Pye (Melton BG), Lyle Philippe (Roraima) and Ashley Filopovski (Geelong BG) for their expert guidance.



Melton BG. Barbara Pye, (2nd left) from Friends of MBG discussing the gardens community support.



Roraima Garden/Nursery. Owner Lyle Philippe expounding on the history of his garden in front of *Yucca filifera* ssp *australis*

On day one, we started with the relatively new dry climate *Eucalyptus* and other Australian native collection at Melton Botanic Garden, moved on to Lyle Philippe's Roraima Nursery with its surrealistic garden of succulents, Mediterranean plants, *Brachychiton*, cacti etc under a lush canopy of *Cussonia* and other unusual trees, then finished at Geelong Botanic Garden to inspect their new Pacific Rim Garden, created with the assistance of Alistair and Julie Watt who donated most of the plants.



Geelong BG. Ashley Filopovski Coordinator of GBG, introduces a Furphy.

The next day the contrast continued spending the morning at Lavers Hill in the Otways, the site of Alistair and Julie's home. Alistair and Julie's collection is now split into his and neighbour Vivienne Parish's garden who also kindly allowed us to visit. To say we were all blown away by the collection including the best Southern Hemisphere species conifer collection in Australia, is an understatement.



Otway Ridge Arboretum. Peter Crossing AM, presenting Alistair Watt a signed copy of the book, *Botanical Revelation*, in appreciation of our visit.

To finish, we visited IDS member, James Maund's Frogwood Arboretum, an ambitious project for the enjoyment of everyone now and in the future. The 40 hectare site is being transformed into a collection of 200 species of tree considered important to humanity, set into a design hoped to create a feeling of peace and wellbeing for generations to come.



The "Henge", Frogwood Arboretum.



View from hill overlooking Frogwood Arboretum

The above is just a brief summary of the tour, a more complete picture will be published later in the year in the Yearbook. There are more pictures from the tour at the end of the newsletter. One final thing, a couple of the FM receivers were not handed back. Could you let me know you have them, we can get them back later in the year.

On a sad note though, we have learned that our member, Chrissy Sharp is now very unwell and unlikely to improve. As a relatively new member I don't know Chrissy as well as many of you. Despite her poor health, last year she did however write to me on several occasions encouraging me on the content of Bits 'n Bytes. Her achievements have been incredible. Following a PhD from Murdoch University in politics, she was appointed to the Environmental Protection Authority of WA. In 1996 she won the upper house seat for the South West Region, WA, for the Greens, which she held in the balance of power until 2005. She chaired 15 diverse enquiries during that time. She was also one of the earliest members of the WA forest conservation movement. She and her partner Andrew Thamo were foundation members of Golden Valley Tree Park, a sixty-hectare arboretum near Balingup WA and in 2018 after nearly 40 years of service and commitment to the arboretum, they were

jointly awarded the 2018 "Volunteer of the Year" by the Minister for Environment.

I would like to wish Chrissy and all her family the best in such trying times.



Australian IDS meeting Stanley 1990's. Chrissy Sharp is in the 2nd row, 6th from the left. Photo sent by Jenny Indian.

Of Interest – "Swamp Kauri"

Today *Agathis australis* is confined to a few remnant pockets in northern NZ, though in the past, for tens of thousands of years they dominated large tracts of the upper North island. Listed as threatened due to past logging and land clearing, it seems they are still being dug up for their valuable timber. Thankfully now however these are long dead trees, ones that have been preserved having fallen into ancient peat bogs. They have been called "swamp kauri". At first in the 19th century, they were sought after for preserved resin for use in varnish and jewellery, but after the logging of live kauri on public land was banned, their wood became a valuable commodity as exotic timber for furniture. That also had negative environmental impact as "swamp cowboys" at times drained Northland wetlands, areas themselves that are under stress with only 8% intact. To protect the resource, limits on exports are now in place.

Apart from the economic value of the timber, these ancient trees have also provided valuable scientific information. They can live for more than 2000 years.

Dating the preserved trees has shown two age clusters; “young” ones that died between a few thousand and 13,000 years ago and “ancient” ones that died more than 25,000 years ago. None have been found between those two time frames! This coincides to the peak of the last glacial period when temperatures were cooler and seas lower. It is speculated that the range of the kauri shrank during that time perhaps to areas that are now submerged. Evaluating the growth rings and comparing them to other samples has allowed the piecing together a 4,491-year time-line back to 2488 BC. Information on changes of humidity, rainfall and soil moisture has been gained and a few chronologies dating back even to 60,000 years ago have been obtained. That is unique when compared to other regions of the world where migrating ice sheets have demolished everything in their path. Numerous ancient kauri trees are available to study but in other parts of the world, such specimens are very rare nor as old.



Extracted swamp kauri stump. Photo MPI.govt.nz

For the full article
<https://www.msn.com/en-au/news/world/what-a-1-600-year-old-new-zealand-tree-can-tell-us-about-climate-change/ar-BB1fBHKj?ocid=msedgdhp>

Tree Treats – The Sugar Maples

There are about 200 different maple (*Acer*) species, subspecies and varieties and although most come from eastern Asia, some of the biggest growing ones come from Europe and North America. They still have the characteristic features of the genus with opposite leaves and winged seed called samaras, but unlike the Asiatic species that are often large shrubs or small trees, the dominant few in Europe and eastern North America can become sizeable trees to 30-40 m. In Europe it's the sycamore maple (*A.pseudoplatanus*) or the Norway maple (*A.platinoides*) from sections *Acer* and *Platinoidea* respectively. In eastern North America (where interestingly there are no indigenous section *Platinoidea* maples), it is the sycamore maple equivalents, the sugar maples that dominate.



Acer saccharum, Mittagong 2021

Also from section *Acer*, the sugar maples are grouped in series *Saccharodendron*. Originally there was just the one species with several subspecies, but recently the “splitters” have been hard at work and most of the subspecies are now recognised as species though there is still some debate.

The currently recognised species are:

Acer binzayedii

Acer floridanum

Acer grandidentatum

Acer leucoderme

Acer nigrum

Acer saccharum ssp *saccharum* (with var *rugelii* and *schneckii*)

Acer saccharum ssp *ozarkense*

Acer skutchii

As you will see they can be hard to tell apart though some may better tolerate specific conditions.



Sugar maple leaves/samaras. From top left clockwise: *A. grandidentatum*, *A. skutchii*, *A. leucoderme*, *A. floridanum* with *A. saccharum* centre.

The type species, ***A. saccharum***, though first described by the American botanist, Humphrey Marshall in 1785, had had its sugary sap harvested by Native Americans for hundreds of years before. Their sugar-making process was noted by early European settlers and the species was introduced to Europe by 1735.

It is native to the hardwood forests of eastern Canada from Nova Scotia south, and eastern USA from Minnesota east, extending south to Virginia, Tennessee and Missouri. In the hardwood forests it is often a major component and almost pure stands are common. It is native to areas of cooler climates which increases sugar

production in the sap. Seed germination is poor above 10C. While it can grow in a range of soil types, it doesn't tolerate dry or swampy conditions where some of the other closely related species may prove more useful. It is usually 5-lobed (though var *rugelii* is predominantly 3-lobed), with the leaves at >10-15cm across amongst the largest of the group. Trees and Shrubs Online has a good key sequence to separate the close relatives. The lobe tips are sharply acute. Its samaras are also relatively larger at 30-35 mm in length with spherical nutlets, in u-shaped pairs. It is of course best known as the primary source of maple syrup and spectacular autumn colour, but it is also an important timber source.



Young *A. saccharum* changing in autumn.

Also relatively large leaved is the closely related ***Acer nigrum***. It has a similar distribution to *A. saccharum*, but doesn't extend quite as far north or east, being more midwestern. The 2 species have a tendency to hybridise making identification difficult, the differences are that *A. nigrum* is generally 3-lobed, has darker bark and duller leaves that turn golden yellow in autumn. It can also be

used as a source of maple syrup. Unfortunately the only specimen I managed to germinate “drowned” one wet season.

The other 2 large leafed species come from much further south, Mexico and northern Guatemala. Both are in critically endangered relic populations from the Miocene era, separated from the others since the end of the Pleistocene 9000 years ago. They are now confined to cloud forests on a few mountains. ***A.skutchii*** was first collected in 1934 and it was only in 2017 that it was recognised that the ones in Jalisco in western Mexico were a different species, ***A.binzayedii***. As I’m not familiar with *A.binzayedii*, I’ll confine my descriptions to *A.skutchii*. It has a more easterly and southern distribution than *A.binzayedii*, within a few widely scattered locations growing at higher altitudes in smaller numbers the further south you go. Only 8 trees remain in Chiapas in the south of Mexico. Its 5-lobed leaves are large at 12-16 cm and bluntly pointed. The newly opening leaves characteristically are warm pink in colour. The samaras are larger than *A.saccharum* reaching 50 mm in length and among the largest of the genus. Though exceedingly rare in cultivation, in Australia we are lucky as the late John Reid (an IDS member) collected some seed from Mexico and successfully raised a tree which has now provided many of us a number of treasured seedlings. It is likely to be one of only a handful of seed bearing trees in cultivation. Despite their origins they have proved quite hardy coping with our recent drought and heat. Its autumn colour of showy reds and oranges is late in the season, but good autumn displays may not develop until after the tree reaches flowering size.



A.skutchii, Mirrabooka, Castle Hill, Sydney



A. skutchii samaras, Mirrabooka, Dec 2020

The other 3 species all have generally smaller leaves. ***A. floridanum*** is distributed in the calcareous woodlands of south-eastern Virginia, Florida west to Oklahoma and Texas even into northern Mexico. It doesn't grow quite as tall as the type species, growing to 25 m. Its leaves are smaller at around 10 cm across as are the samaras that are 20-30 mm in length. The margins of the central lobe are divergent, and the undersides of the leaves are whitish. Its autumn colours are oranges and yellows. It comes from areas with generally over 1000 mm rainfall a year and though it is said to favour "moist but well-drained" soils, my 3 trees are planted below a dam which occasionally gets water-logged. So far that hasn't been a

problem so it may be a better choice for wetter soils.



A. floridanum, Mittagong 2021

Closely related with only subtle differences is ***A. leucoderme***. Its 5-lobed leaves are smaller at 5-8 cm across and likewise its samaras are only 15-20 mm in length. It is also generally a smaller tree only reaching 6-8 m in height and is often shrubby. Apart from its growth habit, the main difference from *A. floridanum* is the undersides of the leaves have a yellowish colour. My largest one has reached just 2 m after 15 years though admittedly it is in a dry west facing site. It is said to be capable of tolerating poor soil conditions. It comes from southern USA including North Carolina to Florida, Georgia across to Arkansas. Its autumn colour is good.



A.leucoderme, Mittagong 2021

The last species to be discussed is ***A.grandidentatum***. This species is the most westerly growing in the USA coming from Western Montana to central Texas and northern Mexico. Its distribution even extends west into Arizona. Its leaves are 5-lobed, 5-8 cm across and somewhat leathery in texture. The margins of the central lobes are parallel or even inwardly angled. Its autumn colours are splendid reds, orange or yellows.



A.grandidentatum, Mittagong 2021

Because of its distribution, I had great hopes for this species in our climate and although it tolerates it without a worry, its slow growth has proven somewhat frustrating. Everyone of multiple specimens creeps upward ever so slowly, 1 m after 15 years. I don't know whether it's just the seed lot I obtained or their usual behaviour, but at their current rate they're several years off even casting a shadow. Maybe I should water them!

Finally, one can't discuss this group of maples without at least touching on their importance in the production of maple syrup. The xylem sap of a number of maple species have a significant percentage sugar content and have been occasionally used as a source of maple syrup. The three species that have higher concentrations (2-5%) however are used predominantly. They are *A.saccharum*, *A.nigrum* and far less commonly, *A.rubrum*. Though the concentration of sugars in the sap is similar in *A.rubrum*, the earlier sprouting of that species imparts an undesirable flavour giving it a short collection season. Even in the other species the season only lasts 4-6 weeks

starting in early spring when there is alternating freezing at night and thawing during the day until the leaf buds unfold. Once collected, the sap has to be concentrated 40-50 fold, traditionally by boiling off the excess water, now also by reverse osmosis. The average tree produces 35-50 L of sap per year equating to 1 L of maple syrup. Climate change is predicted to move peak production further north but currently the province of Quebec produces about 70% of world's output.

As a group, all of the sugar maples have proved highly tolerant of our climate, even getting through the recent drought with minimal extra care. Their autumn colour may be the highlight of their year, but they are attractive trees at other times also.

Ref

1. Trees and Shrubs Online Sections on *Acer saccharum* and ssp
2. Van Gelderen, D. M. et al (1994) *Maples of the World*. Timber Press
3. Creech, D. (2016). *Acer skutchii* – The Rare Mexico Mountain Sugar Maple
<https://dcreechsite.com/2016/05/11>
4. Wikipedia online sections on *A. saccharum* and closely related species.

Some pictures from the Melton Mini-Tour follow.

Simon Grant, V/P IDS Australia



Melton BG. A selection of flower buds



Melton BG. Contorted Eucalyptus camaldulensis beside a pond.



Geelong BG. Planted in 1859 this *Ginkgo biloba*, possibly the largest in Australia has well-developed chi-chi (Japanese slang for breasts)



Otway Ridge Arboretum. New Caledonia *Araucaria* lawn.



Roraima Nursery. Memories of Salvatore Dali.



Participants at Otway Ridge Arboretum