

## Coffs Harbour Group NEWSLETTER No.153: October 2021



### 2021 COMMITTEE

**President:** Gwyn Clarke  
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**Treasurer:** Bianca Golding  
**Newsletter Editor:** Jan Whittle  
**Publicity Officer:** Angela Lownie  
**Ordinary Member:** Phil O'Shea  
**Liaison Member:** vacant

### APS Coffs Harbour Membership

We warmly welcome our new member:  
Kylie Wruck

### APS NSW Website

[www.austplants.com.au](http://www.austplants.com.au)

Keep up-to-date with news, program of  
outings and meetings via our pages:

[www.austplants.com.au/Coffs-Harbour](http://www.austplants.com.au/Coffs-Harbour)

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### Jan Whittle: Long-Stem Planting of Native Seedlings

Finally, after a long hiatus we were able to participate in a field outing ... hopefully, 2022 will be a 'normal' year when we are no longer restricted by Covid-19 regulations. Despite the forecast of rain, it was a very pleasant morning at the McCabe property to watch and learn as Rowan demonstrated the techniques of long-stem planting of tube stock.

This approach to improving the survival rates of native seedlings in problematic environments (e.g. poor quality sandy and saline soils, river banks, rainforest, and other degraded situations) emerged from successful trials in the late 1990s. In addition to improved survival and growth rate, seedlings planted in this way require little (if any) maintenance such as watering, fertilising or mulching. The 'downside' is that you need to dig a **very deep** hole. Fortunately, Rowan had prepared one earlier!





*Rowan planting Yellow satinheart (Acradenia euodiiformis)*  
 (L) Deep hole ~ 1m; (M) Approx. two-thirds of stem is buried; (R) Note the 50mm square pot

Typically, seedlings need to develop long woody stems, taking 10-18 months in a tube; then two-thirds to three-quarters of the woody stem is buried. Subsequently, roots will emerge from the buried stem and leaf nodes, giving the seedling a strong root system.

Building on the success of this method, long-stem plantings are now routinely used in environmental restoration projects around Australia. For instance, in saline landscapes, these species has been successful: *Eucalyptus botryoides*, *Eucalyptus tereticornis*, *Eucalyptus robusta*, *Melaleuca styphelioides*, *Melaleuca linarifolia*, *Melaleuca quinquenervia*, *Acacia binervia*, *Acacia saligna*, *Casuarina glauca* and *Casuarina cunninghamiana*.

Many native and exotic species have yet to be tested, but if you have a plant that strikes easily from woody cuttings, it is worth a try. Personally, I can't wait!

My heartfelt thanks to Rowan, Lyn and Bianca for providing a wonderful field outing in the delightful setting of their large garden; and providing a delicious morning tea.

**Resources:**

*Guide to long-stem planting*

<https://www.environment.nsw.gov.au/resources/grants/Longstemguide.pdf>

*The Australasian Journal of Ecological Management & Restoration*

<https://site.emprojects.summaries.org/2011/12/06/planting-for-success-using-long-stem-plants/>

<http://anpsa.org.au/APOL33/mar04-3.html>

<https://www.austplants.com.au/Central-Coast-Resources>

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## Bellinger Landcare Inc. Announcements

### NEW MYLESTOM TO TUCKERS ROCKS COASTAL VEGETATION CORRIDOR PROJECT

We have gained \$170,000 from the NSW Environmental Trust for a four year project which builds upon the work by the Mylestom Landcare in the south and Tuckers Rock Dunecare in the north, this project aims to improve the condition of the coastal vegetation corridor containing a number of endangered ecological communities such as Littoral Rainforest, Swamp Oak Forest, Swamp Sclerophyll Forest, as well as important grey-headed flying-fox forage. Local groups will be supported through the engagement of professional bush regenerators to undertake weeding and revegetation. Integral to the project is engagement of residents and visitors, including people living and staying in an adjacent residential van park.

### BUSHFIRE RECOVERY PROJECT COMMENCES IN CRITICALLY ENDANGERED LOWLAND RAINFOREST

We're very excited to announce that as part of Jaliigirr Biodiversity Alliance (JBA), we were successful in obtaining bushfire recovery funding for critically endangered Lowland Rainforest across the Bellingen LGA. As part of a larger project across Bellingen and Coffs Harbour area, Bellinger Landcare will be undertaking works in collaboration with NPWS targeting severely burnt rainforest patches in New England National Park, as well as unburnt rainforest patches in Bindarri National Park. These works will help to facilitate the recovery of burnt lowland rainforest, as well as help to expand unburnt patches of lowland rainforest for all future generations to enjoy!

### Jan Whittle: GREEN TREE SNAKE (*Dendrolaphis punctulata*)

Green Tree Snakes have no fangs and no venom; they are not aggressive but are actually inquisitive. They have large eyes and keen eyesight. Expert at camouflage, merging amongst tree branches, shrubs, leaves, and leaf litter. Their colour varies from grey to olive-green in NSW and most of QLD, dark brown, black or blue in northern QLD, and golden yellow with a bluish head in the NT. Tree snakes are fast climbers that spend most of their time above ground. They are usually active during the day hunting frogs, skinks, geckos, lizards, reptile eggs, small mammals, tadpoles and fish.

I have become used to a resident adult that spends the winter and nights sheltering in a crevice where my bedroom courtyard wall joins the main house. This season has been ideal for breeding snakes and 'my' green tree snake has produced numerous off-spring that I have been finding while gardening. The juveniles are so very cute and rather bold (like this one exploring my garden bench).



After finding an *intact 1.6m snakeskin* in my courtyard garden last week, I turned to the Web to see if I could identify its owner by the scale patterns. I was relieved to discover it was a harmless green tree snake. Images below: (L) intact head section; (R) my neighbour holding the skin; (B) the actual tree snake with its new skin crossing the courtyard wall.



## Rob Watt: Citriodoras in the Garden

As my garden has been sold and I have only a few weeks before we need to vacate, I was wandering around to see what I could take cuttings of. It suddenly struck me that I had three citriodoras that I would love to take.

The first was ***Corymbia citriodora*** - the lemon-scented gum, a favourite from my childhood. I had carefully planted a dozen at regular spacing down the drive hoping to achieve the look of Cruden Farm in Victoria. The date was 2010 and the date is important because it was about June 2010 that myrtle rust (*Puccinia psidii*) was first detected at Gosford on central coast of NSW. My little trees looked healthy for a year or two but by 2013 the signs were there. Five barely grew and by 2015 had been culled. A sixth reached a reasonable size but each summer the rust was heaviest on it and so it was removed in 2019. Of the six remaining, five tend to show signs during wet summers but have recovered if dry and over winter. The sixth is fine and produces fruit annually. If I were to stay on the property I would seek to harvest some of the fruit and try again.



(L) *Corymbia citriodora*; (M) *Darwinia citriodora*; (R) *Backhousia citriodora*

My second citriodora is the ***Darwinia citriodora*** or lemon-scented myrtle. In my garden it tends to grow to one metre with similar spread. While the books say they grow into a compact rounded shrub, mine tends to be messy with nice newer growth at the extremities but fewer leaves in the middle. Luckily it is easily propagated by cuttings and as a young plant always looks great. That will be my first candidate to take via cuttings. It is a plant that always allows a little showing off when asking a visitor to guess whom the genus was named after. Not the grandson, Charles Darwin, but his grandfather Erasmus Darwin (1731-1802).

Finally, the plant that both looks great and smells even better: ***Backhousia citriodora*** or lemon myrtle. Endemic to the Queensland coast, from Mackay to Brisbane, it can grow into a small shrub and is suitable for a large pot. Mine is now 1.5m and was planted about 2 years ago into an area that I had cleared of lantana. It has many uses in the kitchen, none better than a tea infusion. And it will be easy to propagate – although the recommended time is around March. So, this will be one I return to when I take up the invitation to come back for after I leave.

Jeff Howes, writing for the APS, recommends that the easiest way to obtain new plants is to raise them from seed. Pick fruit when mature in March to May, sprinkle the seed with propagating mix and keep moist in dapple light position. He warns cuttings are slow to strike; but if that route is more suitable, use tip cuttings taken in March together with a rooting hormone. All agree that soil for planting should be rich, moist, well mulched and well composted.

Now, what more can I take....

## Rob Watt: *Lepidozamia peroffskyana* in the North Coast Regional Botanic Garden

As you enter the NCRBG in Coffs Harbour, the striking collection of the cycad *Lepidozamia peroffskyana* located at the entrance adjacent to the car park is immediately apparent. What may not be as evident is the remarkable place they occupy in the development of world flora.

The cycad is part of a group of plants that are now known as the gymnosperm, literally meaning 'naked seed'. Taking its name from a characteristic played out hundreds of millions of years when gymnosperms were the only kind of plant life on Earth and mostly pine cones with a seed inside were the principal way plants procreated. Here the wind played a role in fertilization. Between 250 and 200 million years ago, that group now known as the angiosperms started to evolve. With the dominant characteristic of its seed encased within a flower or fruit, angiosperms are now more widely distributed and populous, and can be considered the dominant plant life on the planet. Angiosperms now comprise a far more diverse range of plants, with a range of 250,000 to 400,000 species Vs the roughly 1,000 species within the four broad divisions of gymnosperms (cycads, ginkos, conifers and gnetophytes).

**Taxonomy of *Lepidozamia peroffskyana*** : named by Eduard von Regel, a 19<sup>th</sup> century German horticulturalist who ended his career at the Russian Imperial Botanic Garden in St Petersburg. Regel named and described over 3000 plants sent to him by collectors from around the world. In this case he named the plant:

**Lepid** – Greek for 'scale'

**Zamia** – cycad

**Peroffskyana** – in honour of Count Peroffsky, a benefactor of the St Petersburg Botanic Garden.

As noted above the cycads comprise an ancient group of gymnosperms with a fossil record dating back to the Permian, with their diversity greatest in the Jurassic but declining during the Cretaceous transition from gymnosperm to angiosperm-dominated floras. There are now some 200 cycad species in 11 genera covering Central and South America, Southern Africa South-East Asia and Australia – exactly where you expect to find Gondwana-sourced plants.

In Australia within the family Zamiaceae there are two genera that we will examine:

**(a) Genus *Lepidozamia*** of which there are two species:

- *Lepidozamia hopei*,
- *Lepidozamia peroffskyana*

The principal difference between the two is that the former grows principally in North Queensland around Cairns, grows upwards of 20 m ; while the latter grows from Gympie in Queensland down along the NSW coastal range to about Taree. It only grows to about 7m. Otherwise they have much in common. In NSW *L. peroffskyana* tend to be found in a wet sclerophyll forest with a Eucalyptus canopy and an understory often dominated by *L. peroffskyana* and *Xanthorrhoea* sp. grass trees.

**(b) Genus *Macrozamia***, also endemic to Australia with 41 species. The one that interests me is *Macrozamia communis*.

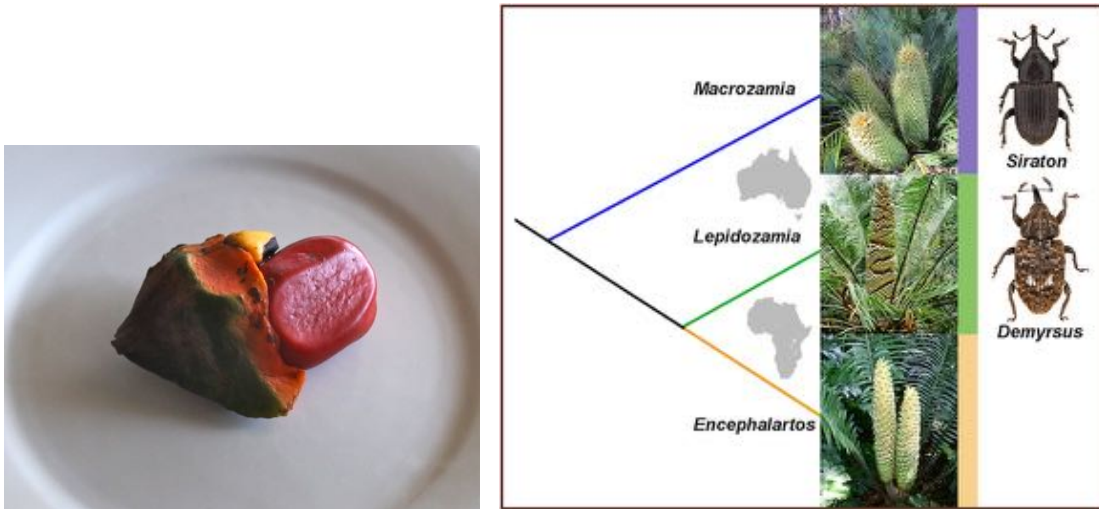
This will be found from the districts around Armidale down to Bega and is one of the widest spreads of a cycad. There are extraordinary collections in the Batemans Bay area of the south coast, which feature in an iconic photograph by Murray Fagg taken in a dry sclerophyll forest (open forest) with *Eucalyptus maculate* over *M. communis*. Indeed Narooma means, in the local Indigenous language Dharug, the place where the Burrawang grow. It doesn't develop a tall trunk – about 1 – 2m, but is easy to propagate from seed. And the name tells you a lot

- **Macro** – Greek for 'large'
- **Zamia** - cycad
- **Communis** – its abundance in a dense communal mass

Now here is where one problem begins. The common name of *Communis* is "Burrawang"; but for most areas around where I live near Coffs Harbour that particular common name is the name also used for *L. peroffskyana*. Probably the name 'Pineapple Zamia' should be used but Burrawang persists. Nan & Hugh Nicholson in their 6-volume series use Burrawang Palm' for *L. peroffskyana*.

The two plants have a lot in common (as would be expected from species in the same family):

- Being cycad, they don't produce flowers, but have reproductive organs known as cones;
- Male and female cones are borne on separate plants; the larger female cone in the shape of a pineapple– up to 35kg – on the *L. peroffskyana*.
- Both have been used by the First Nation peoples for the starch contents of the seed by roasting but only eaten by prolonged soaking to remove the toxins. Where the smaller plants grow in Queensland, there has been extensive eradication because the cones are also poisonous to cattle.



(L) *L. peroffskyana* seed; (R) Thrane weevils with *Macrozamia* & *Lepidozamia* cycads

**The Male Cone.** Near my front door in the Kalang Valley, there is a *L. peroffskyana*, planted about 11 years ago it has had about 4 (male) cones in the past 7 years. The cone makes an appearance very early November, grows quickly for the next 6 weeks to about 30cm and then starts to change appearance. It starts to swell and grows slightly taller until at about 7 weeks, in late December, it starts to develop a concentric crack in the cone and is then about 40cm tall. In the last few days of its life it starts to lean and about exactly 2 months after initially appearing it collapses into a mouldy heap.



(L) The male cone in early November; (R) Just days before collapsing and covered by weevil

However, in that last 10 days small beetles make an appearance and swarm over the cone. These beetles are about one cm long. For many years, indeed from work done by Regal in St Petersburg, it was known that there were beetles and they were identified as the *Thrane* weevil.

**The Female cone:** as noted previously it can grow quite large – 38kg – and certainly much larger than the cones found on a conifer. Yet as a group, the pollination of cycads has generally been attributed to wind. References to wind and pollination have been found from 1919 through to 1974.



Female cone: (L) emerging (M) mature (L) seeds

And this is our second problem. These references have been largely based upon untested assumptions that wind pollination was “characteristic of the whole group of gymnosperms” (1935). It really has only been in the last 25 years that of the seven cycads studied, all were found to be primarily insect pollinated. Also found is that the host-specific beetle tends to be different to each of the cycads as they appear in various parts of the world. See diagram above. Terry (2001) demonstrated that *M. communis* is pollinated both by thrips and Tranes-group weevils, but not so *L. peroffskiana* that relies solely on the latter.

Hall, et. al., 2004 explain the pollination process. Primarily, there was no effect on pollination by the wind – the Thrane weevil did all of the work. On p336 the authors set out the time sequence of the male and female cones. Thus, when the male cone is within days of collapsing in late December and covered by the Thrane weevil, in nearby female cones, only 43 days since appearing and still about 160 days to maturity, slight fissures open between the megasporophyllus of the female cone and the pollen-bearing weevils enter, fertilizing that cone. At this time, in early January, the male cone collapses and the larvae of the weevil will enter the soil under the male cone and feed on it and probably remain dormant, while the female cone once fertilized will continue to develop until late September/Early October when it falls apart dispersing the fertilized seeds onto the ground under the plant.

Check them out next time you enter the Garden. Make a special trip in December to see if this is the year the male cone makes an appearance.

### References

Fagg, M in *Flora of Australia*, vol.1, 2<sup>nd</sup> ed., fig. 20.

(<<https://www.environment.gov.au/system/files/pages/5822457a-1744-4aaa-a5e0-74dc485f825d/files/flora-australia-01-introduction-second-edition-2.pdf>>)

Hall, et al 2004 ‘Pollination ecology of the Australian cycad *Lepidozamia peroffskyana* (Zamiaceae)’ *Australian Journal of Botany*,(52) 333-343.

Terry, 2001 ‘Thrips and weevils as dual specialist pollinators of the Australian cycad *Macrozamia communis*’, *International Journal of Plant Sciences* (162) 1293-1305.

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**Contributions to Newsletters can be sent to  
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**Diary Reminder: AGM November 9, 10am NCRBG Display Room**