

## Coffs Harbour Group NEWSLETTER No.149: October 2020



### 2020 COMMITTEE

**President:** Gwyn Clarke  
[gcl.38500@bigpond.com](mailto:gcl.38500@bigpond.com)

**Vice President:** Morrie Duggan  
[morris@guarana.org](mailto:morris@guarana.org)

**Secretary:** Rob Watt  
[rob8milehill@yahoo.com.au](mailto:rob8milehill@yahoo.com.au)

**Treasurer:** Janice Fitzpatrick  
[jfitzpatrick9@bigpond.com](mailto:jfitzpatrick9@bigpond.com)  
0418350937

**Newsletter Editor:** Jan Whittle  
[jan64garden@gmail.com](mailto:jan64garden@gmail.com)

**Publicity Officer:** Angela Lownie  
[angela\\_lownie@hotmail.com](mailto:angela_lownie@hotmail.com)

**Ordinary Members:** vacant

### APS Coffs Harbour Membership

We warmly welcome our new members: Ann & John Drinan, Janet Holmes, Lee Maddox, Martin Martini, Richard Murdoch, Kim Murdoch, Romina Rader, Geoff Densley, Ruth Rudge, Naomi Rynne, and Douglas & Julie Yates.

### APS 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)

---

### Committee News

We congratulate our valued member Barry Kemp on receiving the inaugural AAFBG *Handbury Award* (Category 1) for his meritorious work with the North Coast Regional Botanic Garden.



Barry Kemp - the quintessential quiet achiever;  
Kemp, B (2004) *Wildflowers of the North Coast of New South Wales*, Reed New Holland.

The Committee has accepted with regret, Lindy Hill's resignation. We extend the thanks of the Coffs Harbour Group for the work she has done and give her our best wishes for her future.

We are seeking nominations for committee' membership as all positions will be open at the AGM on November 10<sup>th</sup>. Please contact Rob Watt for more information.

A group of native plant enthusiasts from the Lismore region have approached the Coffs Harbour APS about becoming affiliated with us. They currently have a program of activities that they invite our members to participate in, and they will attend ours where possible.

## Program Update

### Registration of Attendance at Meetings and Field Trips

*Registration is Required to Comply with COVID-19 regulations:* all participants must register with Rob Watt ([rob8milehill@yahoo.com.au](mailto:rob8milehill@yahoo.com.au), 02 6655 0043), prior to attending any APS – CH gathering to ensure safe practice and physical distancing.

### Meeting

**November 10, 7.00pm – 10.00pm**

**Annual General Meeting**

**Dr John Hunter, UNE**

**Plant Diversity of Inselbergs** (rock outcrops) and OCBILs (Old, climatically buffered, infertile, land) and Yodfels (Young, often disturbed, fertile land) - ways about thinking about how plants persist.

### Field Trip

**TBA**

**Sunday November 29, 9.00 am**

### Lismore region Field Trips

Please register with: **Caroline Cox** [carocox@outlook.com](mailto:carocox@outlook.com); **Doug Yates** [doug.yates@tafensw.edu.au](mailto:doug.yates@tafensw.edu.au)

**October: Saturday 24 at 10.00am**

**'Miss Tree' nursery, 420 Rosebank Rd**

**Greg Lascelles and Stephanie Medew**

The property has 2 production nurseries, extensive native gardens that feature many popular cultivars and a 30+ year old cabinet timber plantation that is now a regenerated forest and nature reserve. Stephanie will be the main host of the day and will show us her nursery, 'Miss Tree' and the gardens that serve as examples of many of the plants she propagates and sells in the nursery. Greg will show us his propagation nursery, 'Cutting Edge Tubestock' and show us the basics of propagation by cuttings. We will walk through the forest to see examples of splendid native trees and discover a wonderful example of reforested pasture land and the effect on the wildlife in the area.

### November

The idea of visiting wetlands was put forward with Richard Gates offering to lead and investigate several options in the Evans Head, Broadwater NP area in addition to contacting potential local expert speakers for the activity.

### Sue McEntyre: Flypaper Traps Droseraceae (Sundews)

It is without exception that Australia is the centre of diversity for the Sundew family Droseraceae. We have 100-170 species; with the highest numbers in southwest Western Australia and 14 species

South Australia. There are several species found in the Coffs Harbour which will eventually be displayed in the Botanic Garden Glasshouse for you to enjoy.

Carnivorous plants have adapted to live in nutrient poor soils worldwide and Australia has some of the poorest soils in the world. In many parts of the world they tend to be swamp (America) or rainforest associated (Asia) whereas in Australia the Sundew habitats are varied. In general they are found in seasonally moist (rarely consistent wet habitats) acidic soils with high sunlight and they can tolerate moderate frosts. A significant number are dryland species, usually found in sclerophyllous heathlands and open forests. One example is the Shaggy Sundew (*D. scorpioides*), native to the jarrah forests in WA growing in laterite rock (high in iron oxide). Many are salt sensitive, which means that they mainly occupy areas that have not been subject to recent marine incursion or the effects of dryland salinity. Sundews have varied reproductive structures to survive these seasonally moist environments. *D. zonaria* grows in deep silica sands in open woodland and coastal heathland near Perth and Esperance. It dies back in summer, to a fleshy tuber and only flowers after a fire, when ethylene is released into the air. Many as, *D. whittaker* (native to SA) and *D. peltata* (found SA, WA and Eastern Seaboard to South East Asia) have underground tubers that allow for aestivation (the summer version of hibernation) over summer.

Some of the local sundew species are *D. pygmaea* and *D. burmannii* have been recorded growing in the heath forests around Dirty Creek, Corindi and Moonee. (CHCC Vegetation mapping 2012). *D. binata* (found in southern and eastern Australia and NZ) is part of the Garden Collection.

Sundews employ a flypaper trap whereby the upper surface of the Sundew's leaf is covered with sticky tentacles. When an insect lands on the leaf, it gets glued to the leaf by a sticky fluid secreted from a small gland at the end of the tentacle and when the insect struggles, the tentacles close around it then the tentacles release further chemicals to kill the insect and then enzymes to digest it. These plants grow from seed, but do not self-pollinate. In winter they die back to a hibernacula (a winter bud that grows in the warmer months). They can grow from vegetative parts also (as a leaf anchoring into the soil).

*D. burmannii* is found in northern and eastern Australia, India, China, Japan, and south east Asia. It is a tropical plant. Size ranges from less than 1 cm to about 3 cm across. Colour may be golden green, dark green, green with red tentacles or all red. The scapes (flower stalks) tend to be greater than 10 cm long and bend at the base. The species is described as having white flowers but at some locations it has pink flowers. *D. pygmaea*, Latin for dwarf, is native to Australia and New Zealand. This biennial or annual herb forms a rosette base which grows from 8mm to 18mm in diameter. *D. binata* is found primarily in sandy marshes of southern and eastern Australia, Tasmania, and New Zealand. There is an abundant display of this species along the moist Blue Mountain cliff faces. The species has many forms. The single fork leafed forms are most widespread with the multi-forked forms restricted to eastern Australia north of Sydney. The forms from cooler locations tend to be smaller than the relatively large plants found in the warmer part of its range. The Garden form is responding to regular watering with stalks 20-30cm in length.



## Phil O'Shea: The Genus *Typhonium* (Araceae-Areae) in Australia.

Australia has a diversity of arum flora and about 80% of them fall into the *Typhonium* genus. They are within the Areae tribe. Probably the most spectacular of this family is the closely related gigantic Titan Arum (*Amorphophalus titanum*), which is one of the largest inflorescences in the world.

*Typhonium* (Schott) is a genus of about 70 species of rhizomatous and cormous sapro-entomophilus (ie pollinated by insects attracted to rotten material) geophytes, which occurs in southern and eastern Asia, Malesia and Australia. They are deciduous or evergreen and generally have trifoliate leaves which emerge from a rhizome or corm. The inflorescence consists of a spathe with a bulbous base and a spadix which houses a long dark purple sterile tip, above a male zone, above a sterile zone and a female zone at the base. (2)

The *Typhonium* genus was discovered over 160 years ago in Australia. Ferdinand von Mueller reported on a specimen (*Typhonium lillifolium*) found in the Victoria River area of NT during the expedition of Augustus Gregory in 1855. Mueller recognised it as a new sub genus. In 1860, using Mueller's specimen Heinrich Schott formally described the species. Following later expeditions von Mueller described two other *Typhonium* species in north Queensland: *T. alismifolium* and *T. angustilobum*.

All *Typhonium* are pollinated by insects and release scents to attract specific flies and beetles. Insects are trapped in the globose lower part of the spathe for about 12-24 hours then released to make their way out when the plant releases its own pollen. Thomas Sayers (3,4) wrote a PhD thesis on the dung mimicry by two species of east coast *Typhonium*. Prevalent volatile organic compounds emitted by *T. eliosurum* and *T. brownii* taxa included the common dung constituents skatole, indole and *p*-cresol. It was found that different populations had different combinations of these chemicals probably in response to different insect populations. They also have the ability to increase their temperature up to 16 degrees C above background.

Australia has about 19 species, however this number could change as more scientific work, in particular DNA sequencing is done. *Typhonium* are notoriously difficult to study because most of them are ephemeral or deciduous, dying down to nothing on the surface sometimes for years at a time. They usually emerge only in spring a summer with individual inflorescences last less than 48 hours, making field examination in northern Australia problematic. This also makes the identification of species difficult as it usually requires internal examination of the inflorescence. The leaves are very variable and often strongly polymorphic, meaning they change shape during their life.

Most species occur in the monsoonal tropics but three species (*T. eliosurum*, *T. brownii*, *T. clemeshae*) are associated with forests on the east coast. Others are found in seasonally wet inland areas as far south as Lake Eyre. The Tiwi Islands off the coast of NT are a *Typhonium* hotspot having 3 endemic but endangered species. (6)



(L) *T. Alismifolium*      (R) *T. clemeshae* with emerged inflorescence

Most of the species are endemic to Australia and many are listed as endangered plants. Several are known to be poisonous eg *T. Brownii* is reported as being poisonous to cattle and goats. Several species have been found to contain compounds with anti-cancer and anti-inflammatory properties (*T. flagelliforme*, *T. blumei*).

Typhonium is well known for its ethnopharmacological uses, and some Southeast Asian peoples consider it as an alternative medicine to treat cancer. Recent DNA studies have indicated that the endemic Australian species are distinctly separate from the Asian species and could be placed in their own clade. There are also indications for a Gondwanan origin of this genus. (5) There is evidence that despite toxicity, indigenous people used the rhizomes as food after thorough preparation. (1)

*Typhonium sp. aff. brownii* was first described by Alex Floyd in 1958 when it was observed to erratically occur after forest harvesting. It had similarities with but was different to *T. brownii*. It has only been found to occur in the Coffs Harbour region and has recently been officially named as *T. clemeshae*. (after Steve Clemesha, a late member of the Coffs Harbour APS group).

It seems to occur erratically and only after disturbance of forest. The Environment NSW website listed it as an endangered species occurring only in four locations west of Coffs Harbour. Its main threats are competition from native and exotic regrowth.

In 2007 it was found to have emerged and was flowering in several locations in an area west of Ulong. This area had previously been cleared and then planted as a *E. grandis* (Flooded Gum) plantation in the 1970's and had been harvested several months before. In early 2007 the area was being re-planted as eucalypt plantation. To protect this species, the locations of individual *T. clemeshae* were excluded from plantation establishment. Over the years it is probable that natural regrowth eventually shaded out these individuals. The entire area was severely burnt during the November 2019 bush fires, however by March 2020 *T. clemeshae* had emerged in several of the previous locations, "rising from the ashes" of the forest. This implies that it can lie dormant as either seed or rhizomes for at least 12 years and possibly much longer. (7)



(L) Steve Clemesha (R) *T. clemeshae* emerging from ash bed Ulong Area.

## References

- 1 Elliot and Jones. " Encyclopaedia of Australian Plants suitable for cultivation"
- 2 Hay Alistair. 1993. The Genus Typhonium (Araceae- Areae) in Australasia. Blumea 37 (345-376)
- 3 Sayers TD. 2019. The Ecology and Evolution of Plant Pollinator Interactions in Australian Typhonium (Araceae) PhD. Thesis University of Melbourne.
- 4 Thomas D. Sayers, Martin J Steinbauer, Kevin Farnier, Rebecca E Miller. Dung mimicry in Typhonium (Araceae): explaining floral trait and pollinator divergence in a widespread species complex and a rare sister species. Botanical Journal of the Linnean Society, Volume 193, Issue 3, July 2020.
- 5 Natalie Cusimano, Matthew D. Barrett, Wilbert L.A., Hetterscheld & Susanne S. Renner "A phylogeny of the Areae (Araceae) implies that Typhonium, Sauromatum, and the Australian species of Typhonium are distinct clades"
- 6 Top End Native Plants Society Newsletter October 2010
- 7 John Willoughby, Doug Binns ( FCNSW Ecology) pers coms.

## Jan Whittle: Wallum Heath at Red Rock

There was a 'Covid' maximum number of members who gathered at Red Rock for our exploration of heathland, led by Barry Kemp. We welcomed three members from the Lismore region on our walk. A colour-coded list of many of the 250 species recorded in this area of Wallum Heath was distributed and proved very helpful in identifying flowering species. The heathland lies immediately behind the sand dunes and is characterised by flora-rich coastal shrubs and heath on deep, nutrient-poor, acidic, sandy soils. Seasonal changes in the water table due to rainfall create swamps in some areas here, but none was evident on this visit. Bushfires swept over the heath about two years ago, and while many Wallum banksia (*Banksia aemula*) perished, others have regenerated. A standout feature was the density of Flannel flowers (*Actinotus helianthi*) on the western side of the Red Rock road and the proliferation of Boronia (*Boronia falcifolia*).

Many thanks to Barry for guiding us through this fascinating floral landscape and sharing his knowledge of the area.



(L) Flannel flowers (*Actinotus helianthi*) and Wallum banksia (*Banksia aemula*) (R) *Dampiera stricta*



(L) Christmas bells (*Blandfordia nobilis*) (R) Wallum Heath with *Boronia falcifolia*



(L) Purple flag (*Patersonia fragilis*) (R) *Boronia falcifolia*

## Bianca Golding: Mount Hyland Nature Reserve\*

Situated high up on the Dorrigo plateau to the northwest lies Mt Hyland, the highest point on the north coast Tablelands at 1400m above sea level. This visit was the first since the fires of 2019, which was evident in the surrounding landscape. It was a chilly start for group, but a good day was had by all, followed by a picnic lunch at the beginning of the track walk.



(L) Start of Walking Track (M) *Banksia integrifolia* (R) Mt Hyland Trig point



APS members at the summit.

\* **Editor's note:** Some of the reserve is included on the World Heritage List as part of the Gondwana Rainforests of Australia World Heritage property. The nature reserve contains several plants of regional conservation significance, including rare examples of coastal banksia (*Banksia integrifolia*) occurring at high elevation. Very large mature specimens of the tree can be observed from the Mount Hyland walking track.

Information about the nature reserve's protected 21 plant communities, including stands of old growth forests, and seven rare or threatened plants as well as 23 threatened fauna species, can be found at <https://www.environment.nsw.gov.au/research-and-publications/publications-search/mount-hyland-nature-reserve-and-state-conservation-area-plan-of-management>

**Editor: Contributions to Newsletters can be sent to  
jan64garden@gmail.com**