



Native Plants Capricornia

Cultivation - Conservation - Education



NATIVE
PLANTS
QUEENSLAND
Cultivation
Conservation
Education

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New website: <https://nativeplantscapricornia.org.au/>; BSB: 484799 - Acct: 452047497

June 2019 Newsletter No. 214

Next Meeting – Friday 28th June



Birds of Ecuador and Colombia
- Hummingbirds to Hoatzin
with BirdLife Capricornia's Allan Briggs



Not to be missed ...

Allan Briggs, Secretary BirdLife Capricornia will share his acclaimed presentation first shown at FBA's BIRD CONSERVATION WORKSHOP at Yeppoon on 11 May.

Meeting is at 6:40 for 7:00 pm. Turn up hill at the traffic lights on Frenchville Road through the car park. We hope to see you there. Bring along your labelled specimens (if you know them), some cuttings for everyone to identify and any extra native seedlings. We will be running a plant raffle so bring along your spare coins.

Last Meeting – Friday 24th May Steve Elson and John McCabe – The Mt Etna Revegetation Story

Members Steve and John were just back from their weekly efforts to maintain the Greening Australia and Fitzroy Basin Association plantings to link the semi-evergreen vine thickets (SEVT) to those on Limestone Ridge sections of the Mt Etna Caves National Park.

John provided a history of the protest days before the National Park was gazetted – known as Australia's longest running conservation battles. In relatively recent years, two large projects augmented earlier plantings to bridge the grassy gap between the spectacular limestone outcrops. Steve provided an excellent chronology of the plantings from preparation, actual plantings and the early maintenance – complete with the challenges of reticulating the limited groundwater supplies and indicting the various groups undertaking the plantings. There were some valuable lessons from the plantings, such as ensuring that the root balls were properly wetted before planting as nursery mixes can become water repelling once dried out.

Along with the regular band of volunteers they worked one day a week to control grass and to help the seedlings to get their heads above the guinea grass – that was before the catastrophic fire storm of late November 2018.

When they were able to access the site after the fires, they again had to battle the renewed vigour of the grasses. While appearing to be 'scorched earth' they were amazed to find the burnt sticks were actually alive. Those planted in depressions below ground level survived best. There was variation amongst species

with *Cordia* sp performing best, however they have not been able to identify any species that were killed completely by the fire – some just taking longer to re-sprout (6 months for the native ebony).

Steve and John were thanked in the usual way and presented with one of our native timber pens each.

Next Outing – 9:00 am Sunday 7th July – Ridgeland / Dalma day trip

Meet at the Northside Plaza at 9:00 am to car-pool for a day trip around some of our favourite road-side remnants west of Rockhampton. There are a couple of mysterious plants what we will check out – another ground-growing *Capparis* and a hairy broad-leafed wilga (*Geigera* sp). Join us for the leisurely drive around the spectacular scenery just west of Rocky.

Bring lunch, water, chair and stories to share over a cuppa. Let us know you can make it: Neil 0439 943 281 / hoynd@optusnet.com.au.

Last Outing – Sunday 2nd June – Annual pilgrimage to Gladstone’s EcoFest at Tondoon Gardens

The last outing saw a group of NPC members head down to Gladstone for the annual EcoFest at Tondoon Botanic Gardens. NPC has supported the Gladstone Branch with this event for over 20 years. Thanks to our wonderful team and a special thanks to our host Ruth Crosson for inviting us and also for these photos!



Oskar Stunzner OAM and Judy Stunzner



Shirley Hopkins and Selena Standfast



Neil Hoy chatting - all things native plants.



Antonia Haselton and Margaret Hale OAM




Alan Knight, Mungungo, North of Monto, with his bush tucker plants.



Our amazing host for some 25 EcoFests, Ruth Crosson as a butterfly

Upcoming Events

<p>9:00 am Sunday 7 July</p>	<p>Native Plants Capricornia July outing: Ridgeland and Dalma day trip (see details above).</p>
<p>14th July 2019 10am</p>	<p>Gladstone NPQ Outing. This month's outing is to the new garden of Teale and Emma at Calliope. BYO morning tea. Register your interest in attending with Ruth Crosson at ruthcrosson@hotmail.com. For members who do not have access to email, please contact Emma Owbridge on 0474 861 181 who will get in touch with Ruth.</p>
<p>7:00 pm Friday 26 July</p>	<p>Native Plants Capricornia July meeting: details coming.</p>
<p>11th Aug 2019 9am</p>	<p>Gladstone NPQ Outing. The August outing will be to a private property on the Discovery Coast. Denise Wild is our host with a rural block on 40 acres. Meet at the Miriam Vale Information Centre on Roe Street at 9am. This visit will be followed by a walk through the Agnes Water Orchid and Foliage Show in Community Hall. Register your interest in attending with Ruth Crosson at ruthcrosson@hotmail.com. For members who do not have access to email, please contact Emma Owbridge on 0474 861 181 who will get in touch with Ruth.</p>
<p>Sun 25 Aug 2019</p>	<p>Rockhampton Native Bee Workshop</p>
<p>30 & 31 August</p>	<p> Garden Design Study Group Queensland Join Lawrie Smith and the NPQ Garden Design Study Group on one of their fascinating trips to Gadd Garden, Gympie, Johnston and Vlismas Gardens at Buderim. Contact: Lawrie at lawries@live.com 0411 228 900 (07) 3481 0292</p>
<p>8th Sept 2019 9am</p>	<p>Gladstone NPQ Outing. The September outing is to Wild Cattle Creek where members will complete the short 2km walk through the area. Meet at 9am at the boat ramp carpark at Wild Cattle Creek Register your interest in attending with Ruth Crosson at ruthcrosson@hotmail.com. For members who do not have access to email, please contact Emma Owbridge on 0474 861 181 who will get in touch with Ruth.</p>
<p>9am - 3 pm Saturday 14 Sept 2019</p>	<p>Tropicana 2019 Held at the Rockhampton Botanic Gardens, Tropicana 2019 is a celebration of sustainability. Connect with nature in hands-on kid-friendly workshops, learn new skills and be inspired by local environment and sustainability projects.</p>

29th Sept to
4th Oct 2019



held in Albany, Western Australia from 29th September to 4th October 2019, hosted by the members of the Wildflower Society of Western Australia. The Conference themed *Blooming Biodiversity* is still in the planning stages, but will include a series of tours to and from Albany, the host town, and a variety of day excursions during the conference, taking in native flora in bushland settings as well as gardens and landscaped areas. Since the south-west of Western Australia is known for its pristine bushland, there will be an emphasis of native flora in its natural setting. All of the registration information is already on their [WWW site](#). Several Rocky branch members are ordering their NPQ apparel ready to show our interest! Visiting this area at the same time of the year was a breath taking introduction to the WA flora at its peak – just regret that I did not know how to use our new digital camera to full capability! Ed.

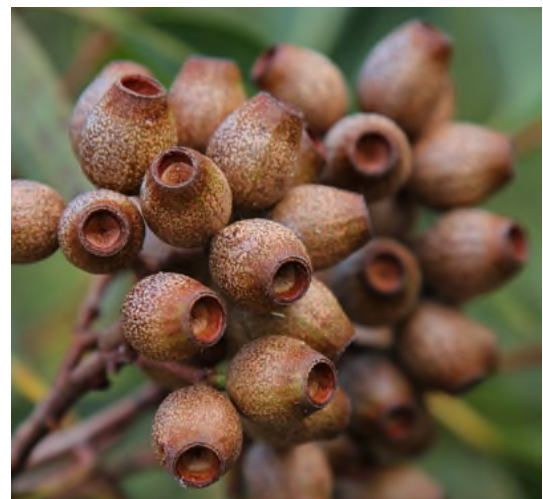
Eucalypts

I sometimes get asked why the *Corymbia* are now recognised as a separate genus of gum trees distinct from the remaining trees in the genus *Eucalyptus*. The simple answer is that the *Corymbia* form a discrete/coherent group that are as different to the *Eucalyptus* as are the *Angophora* (or alternatively, the *Corymbia* are more similar to the *Angophora* than they are to the *Eucalyptus*). This grouping is backed by the newer molecular analysis such as of the matK gene (a plastidial gene Maturase K).

What is confusing is that there is no single visible/obvious character that uniquely identifies the *Corymbia*. Wilson et al (2001) found that with 45 non-molecular characters, the *Corymbia* formed a discrete group but the relationships of the genera in the F Myrtaceae could not be resolved very well. Melzer and Plumb (2007) note that the *Corymbia* **usually** have urn shaped fruit/capsules and that the sap is **often** reddish (bloodwoods). They **often** have tessellated bark to some degree and less obviously the angle and distance between veins **can be** distinctive.



Fruit of the locally common *Eucalyptus crebra*. (Photo: EUCLID 2019).



Fruit of *Corymbia intermedia*. (Photo: NPQ Townsville 2009).

A very recent study by Thornhill (2019) reported in *Australian Systematic Botany* has sequenced the DNA of 711 of the 800 eucalypt species. The tall eucalypts of southern wet forests appear not to be part of the original Gondwanaland flora as was previously assumed. While the eucalypts are quite ancient (60 million years) and the earliest fossils come from S America, most of the diversification occurred relatively recently within Australia over the last 2 million years. The eucalypts that occur naturally outside Australia migrated within the last 2 million years. The capacity of eucalypts to survive fire has no doubt contributed to their success. [Extracted from May 2019 E-Bulletin of Save our Flora].

As an aside, the genus *Calistemon* by contrast to the *Eucalyptus/Corymbia* split has been subsumed within the genus *Melaleuca* (on the basis that they do not form a discrete group that is sufficiently different to the *Melaleuca*. The genus *Calothamnus* (mainly WA) has suffered a similar fate.

Finally an interesting outcome of the recent analysis and revisions is that the mangrove *Osbornia* groups quite closely with the *Melaleuca* but retains its identity as a separate genus (and tribe).

Contributed by Bob Newby.

The Identity of Sir Joseph Banks' "Wrathful Mititia": The Larvae of *Doratifera stenora* Turner

This abstract is reproduced from the *Australian Entomologist* published in 2003 and written by Chris Burwell and Ted Edwards. This species of cup moth is known to occur in the Round Hill Creek area at 1770 and first recorded by Joseph Banks there in May 1770.

A description of an encounter with stinging caterpillars on 23 May 1770 at Bustard Bay, Queensland in Joseph Banks' Endeavour journal refers to larvae of *Doratifera stenora* Turner and is the first record of Limacodidae from Australia. Mature larvae of *D. stenora* matching Banks' description were collected at Ningi, southeastern Queensland, feeding on leaves of Spotted mangrove, *Rhizophora stylosa* Griffith (Rhizophoraceae). Notes of the life history, larval morphology and distribution of *D. stenora* are provided. Larvae of *D. stenora* differ markedly from those of other species of *Doratifera* Duncan [and Westwood]. It is the only known species with gregarious mature larvae and the only species known to feed on Rhizophoraceae. Mature larvae have a full complement of 10 pairs of lateral and 10 pairs of subdorsal scoli, all apparently armed with stinging setae. They lack the pairs of subdorsal protuberances armed with eversible rosettes of stinging setae that are characteristic of other known *Doratifera* larvae.



Doratifera stenora. (Photo: Coffs Harbour Butterfly House 2019).

Plants can smell, now researchers know how

This article is reproduced from research conducted by the University of Tokyo published on 23 January 2019.

Plants don't need noses to smell. The ability is in their genes. Researchers at the University of Tokyo have discovered the first steps of how information from odour molecules changes gene expression in plants. Manipulating plants' odour detection systems may lead to new ways of influencing plant behaviour.

The discovery is the first to reveal the molecular basis of odour detection in plants and was more than 18 years in the making. "We started this project in 2000. Part of the difficulty was designing the new tools to do odour-related research in plants," said Professor Kazushige Touhara of the University of Tokyo.

Plants detect a class of odour molecules known as volatile organic compounds, which are essential for many plant survival strategies, including attracting birds and bees, deterring pests, and reacting to disease in nearby plants. These compounds also give essential oils their distinctive scents.

Touhara's team exposed tobacco cells and 4-week-old tobacco plants to different volatile organic compounds. They discovered that odour molecules change gene expression by binding to other molecules called transcriptional co-repressors that can turn genes on or off. In plants, the odour molecules must move



into the cell and accumulate before they affect plant behavior. In animals, odour molecules are recognized by receptors on the outside of cells in the nose and immediately trigger a signaling pathway to recognize the odour and change behavior. "Plants can't run away, so of course they react to odours more slowly than animals. If plants can prepare for environmental change within the same day, that is probably fast enough for them," said Touhara. Speed is unnecessary for plants, but they may be able to recognize a much greater variety of odour molecules.

[Photo:](#)

"Humans have about 400 odour receptors. Elephants have about 2,000, the largest number in animals. But based on how many transcription factor genes are in plants, plants may be able to detect many more odours than animals," said Touhara.

Touhara imagines applying these discoveries to influence crop quality or character without the complications of gene editing or pesticide use. Farmers could spray their fields with an odour associated with a desired plant behavior. For example, an odor that triggers plants to change the taste of their leaves to deter insects. "All creatures communicate with odour. So far, our lab has studied within-species communication: insect to insect, mouse to mouse, human to human. This understanding of how plants communicate using odour will open up opportunities to study 'olfactory' communication between all creatures," said Touhara.

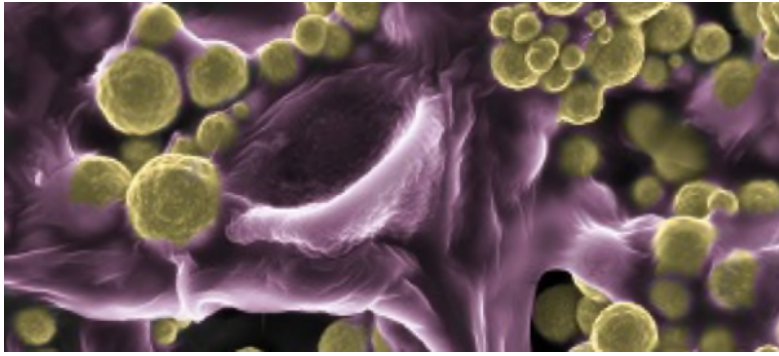
The University of Tokyo research team made their discoveries using tobacco plants, a common model organism. They expect research teams around the world will soon verify the discovery in many other types of plants.

Surprising fungi-gold interaction reveal potential deposits

An article reproduced from [Australian Mining published 29 May 2019](#).

Australian scientists have discovered gold-coated fungi near Boddington, Western Australia that may offer clues for finding gold deposits. The thread-like fungi attach gold to their strands by dissolving and precipitating particles from their surroundings, posting signs of gold presence. This finding highlights the possibility of using fungi as a bioremediation tool to recover gold from waste. Researchers are, however, yet to understand the reason for the interaction.

“Fungi can oxidise tiny particles of gold and precipitate it on their strands – this cycling process may contribute to how gold and other elements are distributed around the Earth’s surface,” CSIRO lead author



Tsing Bohu said. “Fungi are well-known for playing an essential role in the degradation and recycling of organic material, such as leaves and bark, as well as for the cycling of other metals, including aluminium, iron, manganese and calcium. “But gold is so chemically inactive that this interaction is both unusual and surprising – it had to be seen to be believed.”

While *Fusarium oxysporum* is commonly found in soils around the world and produce a pink “flower”, it is not something prospectors should go foraging for. The particles of gold can only be seen under a microscope. CSIRO is undertaking further study to discover if this unusual interaction could indicate a larger gold deposit below the surface.

Australia is the world’s second largest gold producer, and while production hit record peaks in 2018, forecasted estimates show that production will decline in the near future unless new deposits are found, according to CSIRO.

Livingstone 2050: Shaping Our Tomorrow

Livingstone Shire Council is undertaking a long-term strategic community planning project in order to gain a greater awareness of the Livingstone community's needs, aspirations, opportunities, and challenges over a thirty-year horizon.

Livingstone 2050: Shaping Our Tomorrow will draw on consultation and engagement from stakeholders across the local community, not-for-profit community organisations, advocacy groups, non-government organisations, and government agencies to ensure a comprehensive vision for the future is achieved.

This project, guided by the community, will enable Council to:

- provide a united strategic vision for long-term sustainable growth and development in the Livingstone region;
- provide a foundation for consistent decision making over the long term;
- provide a basis for project and resource allocation priorities;
- facilitate understanding of our roles and responsibilities in the community and build stronger relationships between Council and the community; and
- give confidence to key stakeholders, investors and the public that the Council and the region knows where it is heading and how it intends to get there.

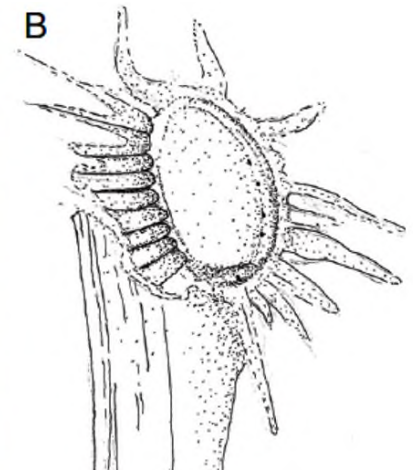
Throughout the development of the *Livingstone 2050: Shaping Our Tomorrow* project, stakeholders from across the community will be invited to participate in consultation and engagement activities and asked to provide comment, feedback, perspectives, and other information to guide the long-term strategic planning process.

Get involved and complete the survey [here](#).

July Native Plants Capricornia: Coming up – a photo report about LSC’s landscaping of the new Barmaryee intersection (Old Rockhampton Road) – worth a look if you are on The Coast.

The unexpected, recent history of horsetails in Australia:

Congratulations to Dr Andrew Hammond, Senior Lecturer in Geosciences, CQUniversity, for co-authoring a paper in *Australian Systematic Botany*, 2019, 32, 255–268. A new fossil flora from central Queensland, of late Eocene or early Oligocene age, has yielded a diverse assemblage of flowering plants and ferns, including the first evidence of horsetails (*Equisetum* L.) from the Cenozoic of Australia.



Equisetum sp. from Lowmead Formation (QMF58973A, B). Stem fragment and leaf sheath. A, B. Focus stacked image and line drawing of part A.

It was exciting to recognise another author H. Trevor Clifford as the author (with Gwen Ludlow) of *Keys to the families and genera of Queensland flowering plants (magnoliophyta)* that botany undergraduates used in the 1970 – before today's WWW based resources. The paper sadly reported that Prof. Clifford passed away on 6 May 2019.

Dr Rhonda Melzer had these kind words: *Prof Clifford ('the Clever Trifod') was a mentor for me when I was doing my PhD and taught me an enormous amount about writing...for which I will be forever grateful!*

Vale Professor Trevor Clifford – A scholar and a gentleman



The world of science lost a great scientist and a true gentleman in the passing of Harold **Trevor** (Trevor) **Clifford** PhD DSc FLS FAIBiol OAM, on Saturday 4 May 2019 after a rapid and steep decline in his health.

Professor Clifford was invested as an Honorary Life Member of the Society on 24 March 2017. In his 70th year of scholarly activity, he officiated at the launch of the inaugural round of applications for the Society's Research Fund, on 5 June 2018. He celebrated his 92nd birthday on 18 April 2019.

The President and many members attended his funeral on 13 May at Christ Church St Lucia. It was a celebratory affair, as befits a person of such goodwill and scholarly achievements over a long period as Professor Clifford.

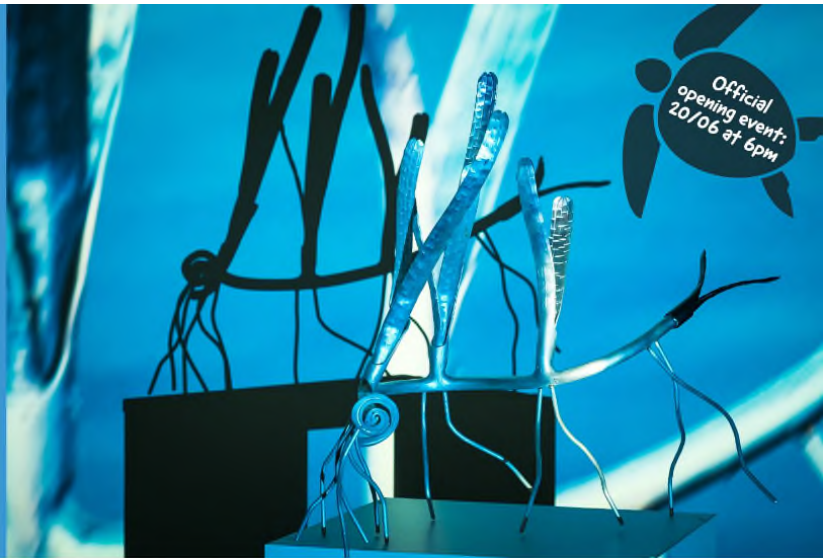
The Society sends its condolences to Mrs Gillian Clifford and family. The Society shares their sense of loss of a gentleman and a scholar in the finest tradition and has assured the family that we will perpetuate his memory. From: [The Royal Society of Queensland](#).

Seagrass Seascapes

Sculptures & Drawings
by Margaret Worthington

Interactive Exhibits
+ Fun Science
with Dr Emma Jackson

At Photopia Studio & Gallery from 14/06 to 12/07
Open 9am to 3:30pm weekdays.
6 to 9pm during Crow Street Creative events.



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Brought to you by:



Gladstone Healthy
Harbour Partnership



Community Centre



The Community Centre would like to invite you to attend a
Community Course

“Plastic-Free Living Tips”



Facilitator: Sabrina Burke

This workshop will be run over 4 weeks and you will learn:

- How to switch from single-use plastics to more sustainable alternatives.
- Make easy low waste products to take home.
- Learn facts about compostable vs degradable, recycling vs avoidance.

What you need to do:

- Tell a friend and make a booking www.livingstone.qld.gov.au/whatson
- Bring your questions plus a notebook & pen.

Thursday Mornings 4, 11, 18, 25 July 2019

9:30am – 11:30am

Garage Community Centre

Bookings www.livingstone.qld.gov.au/whatson

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