

Far North Coast Bromeliad Study Group N.S.W.

Edition: September 2020

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477
Phone (02) 6683 4188

Study Group meets the third Thursday of each month

Next meeting 15th October 2020 at 11 a.m.

To be advised

Editorial Team:

Ross Little

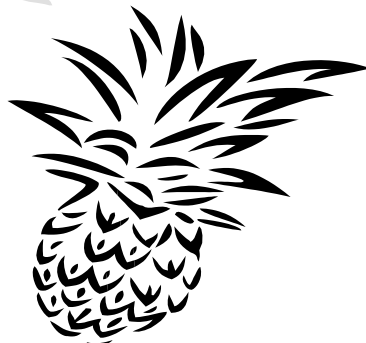
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Meeting 20th August 2020

There was no meeting in August due to corona virus Covid-19.
Take care, stay safe and well everybody in these dire times.

Getting Meetings Started Again

We have a Covid Plan for our Meetings which includes the following:

The number of people allowed for our meeting space i.e. 4 square meter rule.

From same household can/should seat together.

Travel buddies - same vehicle can/should seat together.

Seating in line with the above will assist in space saving - otherwise 1.5 meters apart.

Tables and chairs will be sanitised prior to meeting.

Hand sanitiser will be available at the entrance to the external room area.

All attendees need to be documented upon arrival in the attendance book - your name and phone numbers need to be made available with dates and times of attendance. These will be transcribed to an electronic format after the meeting.

If unwell with flu-like symptoms including temperature, shortness of breath, runny nose or sore throat you need to stay at home, please do not attend the meeting.

Those who have been in Sydney and or Victoria are also not to attend
NOTE: this is current advice and will change as the covid situation changes.

Bring your own cup/mug for use at the venue.

If you feel comfortable to wear a face mask, you are free to do so but wearing of them is not mandatory in NSW at this time so they are optional.

Wash your hands regularly.

Hand sanitizer will be provided so please use it regularly.

Greetings - **NO** handshaking and sorry ladies **NO** cuddles!

We are trying to get ourselves as back to normal as we possibly can, so let's keep ourselves safe and enjoy our meetings once again on a regular basis.

PRONUNCIATION!

From Stearn's Botanical Latin

Botanical Latin is essentially a written language, but the scientific names of plants often occur in speech. How they are pronounced really matters little provided they sound pleasant and are understood by all concerned. This is most likely to be attained by pronouncing them in accordance with the rules of classical Latin pronunciation. There are, however, several systems, since people tend to pronounce Latin words by analogy with words of their own language. Even within the Roman Empire when Latin displaced native languages having different speech rhythms there must have been great regional diversities of pronunciation, as indeed is evident from the different Romance languages, Spanish, Italian, etc., descended from it.

Lack of uniformity in pronunciation led Erasmus in 1528 to publish his *De recta Latini Graecique Sermonis Pronunciatione* in which he described how a French ambassador at the court of the Emperor Maximilian made a speech in Latin with so Gallic an accent that the Italians present thought he were speaking French; a German, called upon to reply, sounded as if he was speaking German; a Dane who spoke third might have been a Scotchman, so marvellously did he reproduce the pronunciation of Scotland. (cf. Britain, Latin in Church, 26-30).

Nevertheless, people were able to make themselves understood despite such differences of pronunciation. In 1608 Thomas Coryat, the author of *Coryat's Crudities*, travelled widely in Europe using Latin as an international language. In 1735-6 Linnaeus visited north Germany, Holland, England and France, likewise using Latin as his major tongue, for he knew little other than his native Swedish.

In English-speaking countries there exist two main systems, the traditional English pronunciation generally used by gardeners and botanists and the 'reformed' or 'restored' academic pronunciation adopted by classical scholars as presenting 'a reasonably close approximation to the actual sounds of the language as spoken by educated Romans'. Etc etc.

Ed: The moral of this article for our newer to bromeliads enthusiasts is that it doesn't matter how you wrap your tongue around a word we will sort of understand what you are trying to say. Plant names are like places or peoples names, I can't pronounce them all but I chuckle trying at times. I live near Ballina, that is Bal in a not Ball een a as I've heard it pronounced but I knew what was meant. I was told back in the 1970s for Latin words to pronounce each letter as it sounds, it doesn't always work but it gets the message across.

I struggle with Worcestershire Sauce, pronounced lazily as wooster sauce ??!!
So, however you say it, we'll get it, so don't be embarrassed about it, enjoy.

Add the Partners

example: Trial and Error

- | | |
|--------------------|---------------------|
| 1 Nice and | 16 Fir and |
| 2 Wax and | 17 Hammer and |
| 3 Flesh and | 18 Kiss and |
| 4 Pins and | 19 Lo and |
| 5 Bread and | 20 Song and |
| 6 Skin and | 21 Meat and |
| 7 Apples and | 22 Neck and |
| 8 Beck and | 23 Nip and |
| 9 Bells and | 24 Null and |
| 10 Odds and | 25 Nuts and |
| 11 Dead and | 26 Rank and |
| 12 By and | 27 Safe and |
| 13 Leaps and | 28 Sick and |
| 14 Down and | 29 Out and |
| 15 Nook and | 30 Pure and..... |

The Partners

About, Behold, Blood, Bolts, Bone, Bounds, Buried,
 Butter, Call, Cranny, Dance, Easy, Ends, File, Large,
 Neck, Needles, Out, Pears, Simple, Sound, Tell, Tired,
 Tongs, Tuck, Veg, Void, Wane, Whistles, Yew.

This months Cheat Sheet / Answers are on page 15.

Mexico Tillandsia Sweep – part 4: *Tillandsia carlsoniae*

Photos and text by Ross Little (except where specified).



Tillandsia carlsoniae L. B. Smith, Phytologia 7: 1, pl. 1, figs. 1, 2. 1959

Type: Carlson 1697 (holotype US; isotype F), Las Casas to Comitan, Pan American Highway, Chiapas, Mexico, 6 April 1949.

Distribution: Epiphytic in woods, 1500 - 2400 m alt, Chiapas, Mexico.

Photo of Dr. Carlson who collected this *Tillandsia* in 1949 later to be described by L. B. Smith. Reprinted from: BSI Journal Vol.48, No.5, 1998.

Friday May 25, 2018, another long day of photographing *Tillandsias* in Chiapas Mexico and it's now early evening as we arrive at our accommodation the Hotel Hacienda Don Juan, San Cristóbal de las Casas. It's never too late for a quick browse around the grounds though especially after seeing *Tillandsia comitanensis* as we entered the hotel courtyard.



In the fading light as we wandered around the grounds we came across some historical items such as the vintage horse drawn buggy, now kept under cover. Of great interest to us were several Tillandsias up in the trees, among them was the majestic *Tillandsia eizii* with its long pendulous spike with large showy pink bracts. A *Tillandsia guatemalensis* with its bright green foliage had a partly developed inflorescence still rising skyward. Several trees were adorned with flowering clumps of *Tillandsia vicentina* with reddish pink bracts surrounding a cylindric type inflorescence.



After rising bright and early the following morning we set off from San Cristóbal on a round trip to Lagunas de Montebello via Comitán.

Prior to setting off for the day we checked our itinerary of what we may expect to see on the day's journey. What was listed made us very eager to get moving.



When travelling in groups of around a dozen keen Bromeliad enthusiasts many eyes make for good spotting, however often some are always quicker to yell out "STOP" than others. In this case it was Stan that spotted our most exciting visual feast of the morning. He said he'd caught a glimpse of pink bracts well off the road but looked to be accessible on foot. Our first thoughts and hopes were that he had spotted *Tillandsia carlsoniae*, he had.

Having grown and flowered *Tillandsia carlsoniae* myself many years ago and awed at its beauty then, I was excited to see it growing in habitat.

We scrambled across the road and through a barbed wire fence to get to see these beauties. Not only did we find *Till. carlsoniae* but also growing in the same trees was *Tillandsia ponderosa*. Being so distinctive with its silver grey leaves surrounding a multi spiked inflorescence with dark purple petals upon a short scape made *Tillandsia carlsoniae* a standout for me.



◀ *Tillandsia ponderosa* was first collected by Steyermark in 1939.

We'll continue our journey to Lagunas de Montebello in the near future.

Show, Tell and Ask! - During Covid

by Drew Maywald

As it looks like being quite a while before we will be able to meet again I have some Show and Tell items for you: How I Introduced More Colour to Our Garden

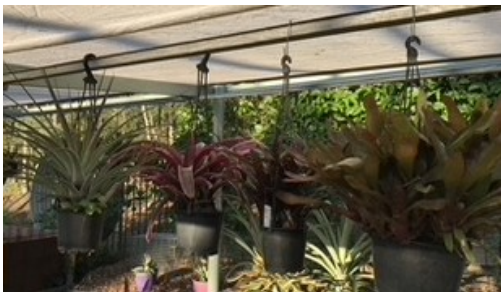


One of the great joys of growing Bromeliads is the variety of colour they bring to the garden. I decided to take that even further by putting plants in one part of the garden in coloured pots. I started with the section of my garden in the photo, by putting all the plants in red pots. The red pots bring in more colour, in what is a shady part of the garden.

Another section that I'm experimenting with by putting succulents in blue pots. The coloured pots grouped together, make quite a feature and draw your attention to the plants they contain.



How I've Hung Baskets in My Shade House and Created a New Pot Plant Shelf



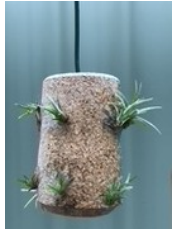
I know that many people use barbed wire in their shade house for hanging pots and baskets on. I had some steel ceiling battens at the back of the shed so I screwed them to the supports of my shade house to make perfect tracks for hanging baskets. I made some small hooks out of wire for the smaller hanging baskets and it works a treat. I am now going to make some longer wire hooks so that the hanging baskets are not too high so that I can enjoy the plants more.

Being on a town block, space is a premium, so I have made up some shelves out of aluminium security screen door off cuts, and attached them to my fence. This is my latest one with a Ananas - pineapple and a couple of Aechmeas on it. I am about to separate some pups so they will go here too.



Mounting Tillandsias on Wine Corks

There have been many articles and discussions about mounting Tillandsias on wine corks. I decided to try something a little different. Rather than cut the cork in half, I drilled a hole down the length of the cork and put a wire right through it. I then glued Tillandsias around the cork. I had enough small Tillandsias (thanks to John Crawford) to do three corks this way as illustrated.



I have deliberately left the wire long as I don't know what will happen in the future, or how big they will grow. I could only glue one or two plants to each cork at a time, and once the glue had dried I was able to rotate the cork and glue on another couple of Tillandsias.

Are there too many Tillandsias on each cork? Probably, but it is an interesting experiment and will make a great feature one day - I may even be able to enter one in a monthly competition when we are able to reconvene. So far they are doing very well in my shade house. I am going to need a lot of Tillandsias if I want to make more of these structures to use up my collection of 1,000 corks!



Water Conservation



Like many people we collect the water in the shower in buckets while we wait for the hot water to come through. I bought a 100-litre heavy duty storage container (around \$17), with lid, from the discount shop and now put the buckets of water in that.

I then add liquid fertiliser (Power Feed), worm tea or Thrive to it (well below the recommended strength), and I now always have liquid fertiliser on hand, which is great when I want to fertilise my Bromeliads weekly weakly. I also use it on the vegetable garden and other plants. I made a rough measuring stick and when not in use I put the lid on the container to stop mosquitoes from breeding in it.

I am now experimenting with putting chopped up Comfrey leaves in a red onion bag putting that on the bottom under a brick to add to the mix. Comfrey is a member of the borage family and makes an excellent fertiliser. The green leaves can also be added to mulch or direct to the garden where they give a nutrient boost to the soil. If you don't have any Comfrey and would like to try using it in your garden let me know and I'll pot some up for you. It is a vigorous grower and I find I can cut leaves every month or so.

Hybridising Responsibly - Seedling Culling - Is it Necessary?

by George Stamatis 2020, reprinted with permission from Planet Tillandsia.

A few people have asked why culling has to happen when producing hybrids. Some wanted to know what the culls look like versus the good seedlings. Hopefully these photos answer those questions.

With some crosses you get almost 100% excellent plants in the seedling batch, making culling very difficult. With other crosses you get almost no good plants and culling is easy. Most hybrid seedling batches are somewhere in between these two scenarios.

Characteristics I look for in Tillandsia seedlings are:

- Vigor and ease of growth under local conditions.
- Good plant form.
- Good colour in the foliage (even if it's just green, it has to be an appealing shade of green).
- A good inflorescence that combines the best of good colour and good form.

The seedling batch I'm using as an example is *Tillandsia* 'Lucille' x 'Showtime'. So far it's about seven or eight years of work from seed to get to this point. It is a very long process.

I'm down to the last stages of culling with this batch. It's now down to the top three of the best seedlings. One of them has flowered and will probably become a registered clone. The other two good ones still need to flower before I decide if they are good enough to register or just sell under formula.



This is the best of the top three seedlings so far and will probably be registered. It has all the characteristics I look for, it's a 10 out of 10.

The other photos are the runts that are neither good enough to register, nor good enough to sell under formula.



These are 2nd and 3rd of the top three. I'm still waiting for them to flower before I decide if they make the cut. They have all the characteristics I look for so far. I just need to see the quality of their inflorescences to make the final decision.

At this point 8 out of 10.



These are runts. Poor inflorescence. Poor form. Foliage colour isn't great. Not overly vigorous. About 4 out of 10.



Another runt. Lousy inflorescence. Poor form. Poor size. Not very vigorous. About 2 out of 10.



More runts. Very small. Slow growing. Poor vigor. 2 out of 10.

Ed: Culling over \$\$\$ can be a difficult decision for some hybridisers, here quality is shown to be the priority, thank you George.

Bromeliads and Mosquitos

by Rob Smythe M.Sc.

A bit of history as to why I am doing this research. The Townsville City Council in Queensland has been prosecuting people for having mosquitos in their bromeliads. They have advertised these plants as the arch enemy. I contacted the World Health Authority asking for any research where *Aedes aegypti*, the mosquito carrying Dengue Fever has been found breeding in bromeliads. The latter are of no concern to them so far as Dengue Fever is concerned as only two cases of finding larvae in bromeliads have ever been reported and the number of wrigglers was negligible. The Council (Health Department) is saying bromeliads are bad in the tropics while I am saying that we in the dry tropics, like Hawaii, have the best growing and colouring up conditions in the world. Bromeliads should be promoted as a tourist attraction here in the tropics. Somewhere between the two is probably correct. The Townsville City Council (Parks and Gardens) is helping me resolve this dichotomy by supplying me with some of their larger bromeliads to add to my study so that I would have a larger range of genera and species than I had in my pilot study. While I was waiting for new growth of pest free plants, and waiting for the vases to become large enough to possibly attract mosquitos I made a strange observation. The council supplied plants were getting mosquitos in some of their plants while my plants weren't. How could this be? Was someone trying to show me that we were both right? I had proposed in my previous publication that I believed there could be a chemical inhibitor to mosquitos released by bromeliads. My wild unspoiled plants up the trees never had mosquitos in them in 30 years so my hypothesis sounded reasonable. After all some carnivorous bromeliads are known, so we know they can utilise flesh. If this is true why were the council ones performing differently?

My son, Dr. Mark Smythe working at University of Queensland read and forwarded to me an article found in their newsletter stating that a predator of mosquitos called *Mesocyclops* had been found by a Dr. Michael Brown working at the Queensland Institute of Medical Research. My garden has been pesticide free for thirty years while council plants would have been sprayed. Could the council have killed a predator?

Now that I have started asking questions I feel that I can explain my findings better in a Question and Answer format.

Predators, that is my favourite word at the moment. I have spent a lot of time studying the water in vases of bromeliads, and so far have found several predators worthy of my research. As I am now retired, I do not have the funds to exactly identify these so accept my names with some reservation, that is until someone gets paid to research them properly.

What are Mesocyclops?

Mesocyclops are found in the bromeliads with clearer water. These have only recently been discovered as a mosquito predator by Dr. Michael Brown working at the Queensland Institute of Medical Research. They are very small and just visible to the naked eye. They zig and zag about often carrying two large egg sacks. Several researchers are using these creatures to study mosquito breeding in mine shafts and water tanks. These fellows keep my bromeliads free of mosquitos right through the year up until the heat and heavy rains of summer. They are now gone, dead or washed out of my bromeliads. They do not like putrid conditions and do best in clearer waters in cooler conditions, however they can be replaced after the heat of summer. (Uncle Derek says they look like very miniature Mitsubishi logos if you clean your bifocals)

Where can I get the predators?

Up here in Townsville one looks for a pond that has no fish or tadpoles and as yet no wrigglers. It (the pond) is under predator control if it has not been sprayed. I brought the water home from two ponds and set up my own tubs in the yard. I have never had to top it up, but I do watch that my ponds do not get too hot or polluted. Midgees have come to the ponds of their own accord and can be found in most neglected collections up here.

Are there any other predators?

Blood worms, these little creatures are small red aquatic worms which multiply via some weird divisionary process. They hatch into non-biting midges. These appear to be predators only in the sense that they can kill wrigglers, I have never seen them eat the wrigglers, though some midges can be carnivorous. While I was ill I set up glasses of possible predators around the bed, I had time to observe these creatures. Using wine glasses to simulate bromeliads, wrigglers came down to the bottom where the worms were concentrated. Anything touching the worm was wrapped in a ball of worm. These worms do not hunt. I found them in old neglected billbergias on the trees, they concentrate at the bottom of the vase, they are unusual creatures in that they can survive in putrid conditions. Their red colour is due to their possessing haemoglobin like ours. This concentrates the oxygen in their bodies, and is apparently very rare in insects. Spirogyra, this is a filamentous algae found in ponds. When healthy, this collects bubbles and floats to the surface of the bromeliads and eventually becomes impenetrable to the wriggler, which subsequently drowns. Unfortunately, it can hook on to the spines and be carried out of the water. It then bleaches and looks ugly so you must be prepared to push it back into the water. Bladder-worts, I have read about these as being mosquito traps in wild bromeliads (in habitat). The first one appeared in my *Neoregelia burle-marxii*. Maybe it was imported with the plant? When the plant was small, mosquitos appeared, I guess it was trapping and eating my *Mesocyclops*. Now the plant is larger mosquitos are not present. It may be useful, it's early days yet.

How do I treat my bromeliads to minimise mosquitos?

For the dry season and incidentally the cooler season, they are totally under predator control. I rarely find a single mosquito during this period. Spirogyra is best, Mesocyclops are very efficient but so small you do not know they have died until you find mosquitos.

Do you recommend any particular spray treatment?

For the wet season I spray once a week. I have written of my aversion to insecticide sprays in the environment, the spray I use is my own formula, it does not contain harmful insecticides. I mix together 50m1 Alginox, 50m1 vinegar and 100ml of kerosene shaken to make an emulsion and made up to 5 litres with water. The kerosene is used only at swarming times. I walk around and spray the plants at dusk - 5 litres covers a thousand plants. If I have too much on the leaves of delicate plants I water these plants half an hour later, time enough for wrigglers to go beyond the point of no return on the health charts. This dilute emulsified kerosene, presumably because of the oil in water emulsion formed, does not appear to damage the plants like kerosene or kerosene based sprays do. Do not be tempted to try commercial white oil. Kerosene has a low boiling point and hence higher vapour pressure and does not hang around like the damaging white oil.

If I add kerosene to the spray, how long should I leave it on delicate plants?

If you have delicate plants with soft new leaf, wash off 15 minutes after spraying. My studies have shown that large wrigglers die quickly but minute ones can survive 15 minutes under the spray in well-oxygenated water. Probably something to do with thinner skin and larger surface area to body weight of the smaller wrigglers.

How does the spray work?

The kerosene stays only long enough to smother the wrigglers. The Alginox is surfactant, which would lyse and destroy eggs. It would also change the surface tension of the water which might cause landing mosquitos to get wet and sink, and also make it impossible for hatching mosquitos to escape from the surface. The vinegar changes the pH of the vase water killing the larvae.

What is the easiest way to check for mosquitos?

Tip the water into a white bucket is the surest method, a white bucket will show the smallest wriggler. Should this method be impossible or even impracticable then try the battery acid tester to sample the water. Check for surfacing wrigglers looking for air after the spray treatment. Use a torch at night. All these methods will work for you.

When/where am I most likely to find mosquitos in my bromeliads?

Flowering neoregelias, these have rotting flowers in the vase supplying food for the predators as well as the mosquitos, and they release carbon dioxide as the old flower ferments. Mosquitos are attracted to water, flesh tones, heat, and

carbon dioxide. Flowered neoregelias score 3 out of 4. Shaded plants also attract mosquitos. Very rarely do I see a mosquito hatching of any size - the worst offenders in my collection are neoregelias, frequently offending, but not big hatchings unless their water is putrid. Screwing out the spent flower removes the food source and also cleans up the plant's vase.

What else can I do?

When you are sitting in your garden amongst your broms having a coffee and a cigarette just drop your coffee swill and your butts into the broms. The caffeine and nicotine will kill just about everything in the animal kingdom including your pet dog!

Before signing off I should point out two things. I will probably change the recommended amounts in sprays in the future as experiments need a lot of time and patience. I wish to get the Alginox as low as possible as it could harm frogs and it wipes out the desirable algae and spirogyra. The spray does not seem to worry the midges and I do not yet know what it does to the Mesocyclops.

The second thing is probably obvious now, and that is, the predator method and the spray method cannot be carried out concurrently. The spray kills the algae spirogyra.

In conclusion, if you use insecticide, observe closely as in some areas of the world there are mosquitos now immune to all known insecticides. It is happening here to a degree. If I am right, the next step would be to develop chemical resistant organisms and then use integrated pest management.

Ed: As it's coming into mozzie season now it was thought it very timely to reprint this article for our newer members, hope it helps with your mozzie issues. Take care snakes are awake and the wallabies are eating our Dyckia inflorescences.

Answers to this months Partners Puzzle on page 4.

1	Easy	11	Buried	21	Veg
2	Wane	12	Large	22	Neck
3	Blood	13	Bounds	23	Tuck
4	Needles	14	Out	24	Void
5	Butter	15	Cranny	25	Bolts
6	Bone	16	Yew	26	File
7	Pears	17	Tongs	27	Sound
8	Call	18	Tell	28	Tired
9	Whistle	19	Behold	29	About
10	Ends	20	Dance	30	Simple

New Word for the Month - Protogyny

From Andrew Flower: Collegiate Dictionary of Botany, Delbert Swartz, 1971.

Protogynous: With receptive stigmas before the anthers open.

From: Glossary of Bromeliaceae Terms compiled by Derek Butcher.

Protogynous: Having flowers in which pistils mature before stamens.

From in part: Biology of the Bromeliads by David Benzing.

A **protogynous** flower becomes receptive before the adjacent stamens are sufficiently developed to shed pollen. The system works because the presence of young and older flowers in the population at the same time makes crossing possible. In some cases a fail-safe device is present. Should a precocious pistil fail to intercept outcrossed pollen, it remains receptive long enough to allow selfing after the associated anthers mature. One blossom every few days seems to be the rule in tillandsioids with unbranched inflorescences and also in some with compound flowering stalks. Many Tillandsias (subgenus Tillandsia) appear to be protogynous with the style emerging from the corolla tube several hours before the anthers dehisce.

From: A Bromeliad Glossary - The Bromeliad Society Inc.

“Unbranched inflorescence” - of one piece, not compound, a single unbranched inflorescence is referred to as a simple inflorescence.

“Compound flowering stalk” - having two or more similar parts in one organ.

A compound inflorescence is a branching inflorescence.

Where to Find Bromeliad Groups & Societies Meeting Dates

www.bromeliad.org.au then click "Diary".

Check this site for regular updates of times, dates and addresses of meetings and shows in your area and around the country.

Web Links for Checking Correct Identification and Spelling

Bromeliad Cultivar Register (BCR): <http://registry.bsi.org/>

Refer to this site for correct identification and spelling of your hybrid or cultivar.

New Bromeliad Taxon List: <http://bromeliad.nl/taxonlist>

Refer to this site for latest species name changes and correct spelling.

Bromeliads in Australia (BinA): <http://bromeliad.org.au/>

Refer to this site for its Photo Index, Club Newsletters, Detective Derek Articles.

Keep these web sites set as desktop icons for quick reference access.