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

Study Group meets the third Thursday of each month

Next meeting July 21st 2016 at 11 a.m.

Venue: PineGrove Bromeliad Nursery

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Discussion: June 2016

General Discussion

Editorial Team:
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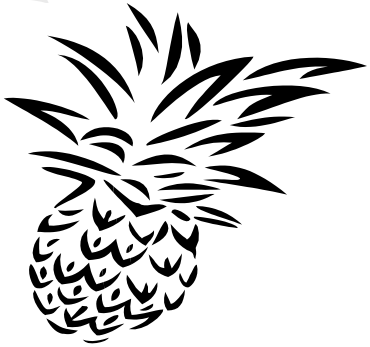

Meeting 19th May 2016

The meeting was opened at approximately 11.00 am
The 13 members and one visitor present were welcomed.
A total of six apologies were received.

General Business

Ross presented to the Group NEWSLINK from the Illawarra Bromeliad Society which has gone into the library for borrowing. He also drew the Group's attention to articles in our April newsletter advising us of several name changes so please change your labels if you have any of these plants on:
pages 6 and 7
Nidularium innocentii var. *lineatum* is now *Nid.* 'Lineatum'
Nidularium innocentii var. *striatum* is now *Nid*. 'Striatum'
pages 10 and 11
Aechmea coelestis var. *albo-marginatus* is now *Ae.* 'Roehrs'
Aechmea comata var. *makoyana* is now *Ae.* 'Makoyana'.

He also thanked Debbie for her very interesting talk and notes she put together for the article on Legionnaire's Disease.

Show, Tell and Ask!

John showed an orange *Guzmania wittmackii*, only having seen a pink/purple form before he didn't realise what exactly his plant was until it was in full bloom. He also brought in a *Tillandsia punctulata* which had a flower emerge overnight, a first time flowering for John and it had lots of pups around its base. John also showed the *Hohenbergia catingae* var. *elongata* which Kay had given out as seedlings last year. It was still in the original 10cm pot and had been lost amongst all his other bromeliads but had achieved quite a good size.

Keryn showed a *Neoregelia* 'Pink Spider' which had long limp leaves indicating it has been grown in too much shade. Keryn was advised to remove the pup and grow it in its original growing place until established. Put the mother plant into full sun, any new pups should acclimatise and gain much better shape and form.

Ted wanted an identification of a Billbergia which he keeps in a shady position in his garden. Thoughts are that it may be *Billbergia amoena* or a hybrid of it.

Les showed *Cryptanthus* 'Rainbow Star' which he says is not as good as the original which had 3 bands. He thinks people are starting to realise that you can't keep naming every pup just because they appear slightly different to the parent plant. (Articles p.12, 13, 14 and 15)

Ross showed several interesting plants. The first was *Aechmea bracteata* which would make a good hedge if you want to keep out the neighbours! Next was an Aechmea manzanaresiana x zebrina with brilliant orange bracts and thirdly a cute *Ananas ananassoides* var*. nanus* which can be grown in shade or full sun. He showed a *Tillandsia cyanea* var*. tricolor* which has a blue flower with a white centre. There are many different names for those with pink flowers e.g. 'pinkie', 'pink plume' etc., perhaps they should all just have the same name. (article p.10 and 11)

Marie brought in a *Aechmea blanchetiana* which she had bought as 'Red Form', however it was the normal blanchetiana with a little orange tinge to the foliage. There are a few of the 'true' red form around. Ross showed one that he received from Lynn Hudson who imported it. The foliage of this plant was clearly different to Maries, although the inflorescence / flowers are the same. The 'red form' has glossy leaves, smaller spines and doesn't seem to like full sun as much as the regular form of *blanchetiana* in our area. Unfortunately we too often see plants sold as this 'red form' when clearly they aren't. Generally they are hybrids of *Ae. blanchetiana* sold as 'red form' due to the more reddish foliage they attain, however the inflorescence is distinctly different as seen on the BCR when we check *Aechmea* 'Forest Fire'. Is it $$$ or ignorance that can be blamed for these unfortunate misidentifications/deceptions ?

Jeannette showed *Cryptanthus* 'Rainbow Star' which looked very different to the one that Les brought in. Another shown which was tagged incorrectly as *Crypt*. 'New Fosters Favorite' is actually *Crypt*. 'New Coster's Favorite'.

After lunch Ross gave a talk on Catopsis which have male (stamens only) and female (stigma only) flowers, the term for this is dioecious. A typical flower being hermaphrodite has both stigma and stamens. Catopsis need a male and female plant to set seed, last year Ross got seed and it germinated - who was the dad? Next flowering of this plant he needs to check to see if it has anthers or stigma or both. Originally thought to be *Catopsis compacta,* new information indicates if this plant is dioecious it may be a separate species e.g. *Catopsis occulta.*

Tidy-up Corner (corrections) by Eagle Eyed Observer

In the May issue of our FNCBSG Newsletter we presented a plant tagged as *Tillandsia uncispica* (photo p.9) shown by Laurie Mountford. It turns out the plant by this name is very rare in our collections and Derek Butcher doesn't have a decent photo of it so has to rely on a herbarium specimen which Laurie's plant doesn't match. Derek feels Laurie's plant looks more like *Tillandsia fasciculata* var*. clavispica.*

Fog History of Atacama Reconstructed by Jonathon Amos 2015

It is hard to imagine you could reconstruct a record of fog dating back thousands of years, but this is exactly what Chilean scientists have done.

The low-lying cloud is seemingly so transient and intangible, and unlike rivers and glaciers it leaves no easy-to-read impressions on the landscape.

And yet, a Santiago team has been able to trace the fog history of the Atacama Desert by studying *Tillandsia* plants.

Their chemistry suggests strongly that this local fog has increased over time.

It is a period covering the last 3,500 years.

"I don't think there's any other place in the world where I've actually seen a record of fog, even spanning the last hundred years," said Claudio Latorre Hidalgo from the Catholic University of Chile.

"What little we know about fog is from measurement instrumental data that we have, and from satellite data that only spans the last 20 years.

"So, this is actually a unique opportunity to study the evolution of a fog ecosystem over the Late Holocene, and what are the major drivers and controls of the mechanisms that produce that fog in the long term - the very long term."

The palaeoclimate expert was discussing his team's research here at the Fall Meeting of the American Geophysical Union - the world's largest annual gathering of Earth scientists.

The Atacama is famous for its super-arid conditions; there are places where it has not rained for years.

But life can eke out an existence if it can exploit the fog that rolls in off the Pacific. *Tillandsia* are a perfectly adapted opportunist.

These wiry, grey plants have no roots. They clutch weakly at sand dunes, but arrange themselves at every spatial scale to maximise their capture of the fog.

They derive everything they need from the damp air - not simply the must-have water, but also all the chemical nutrients required to underpin their biology.

Dr Latorre Hidalgo and colleagues have dug deep into the dunes to uncover a multi-millennia succession of *Tillandsia*; and they have described a pronounced trend: the younger the plants, the more of the lighter type, or isotope, of nitrogen atom that they have incorporated into their tissues.

The plants, pictured here by co-worker Angélica Gonzalez, underpin a whole ecosystem.

The structure of Tillandsia maximizes fog capture – by growing in a mesh (left) and using appendages on the leaves called trichomes (right) to corral the water.

Analysis of modern fog suggests this lighter nitrogen is favoured, and so the observed trend in the Tillandsia would strongly indicate the fogs of the Atacama have increased over time… with some complications.

"How the nitrogen gets into the fog is a much more complex question," said Dr Latorre Hidalgo.

"I suspect a lot of that nitrogen is of marine origin. There is a huge oxygen-minimum zone off the coast of northern Chile, where there is a lot of denitrification going on.

"So, there is a lot of molecular nitrogen going into the air and a lot of nitrous oxide as well.

"We know there is both ammonia and nitrate in the fog. So, you get both organic and inorganic forms of nitrogen."

Oxygen-minimum zones are mid-water regions in the ocean that are extremely low in oxygen abundance, in part because marine organisms are removing it very fast and also because the waters that move into the zone fail to replenish the oxygen as they themselves are depleted. This is usually cold, upwelling water. And, again, this fits the overall picture because cold coastal waters will produce more fog.

"Our monthly fog collector data shows there is a significant trend with the coastal sea-surface temperatures and the fog. So, when you get El Niño events (and local surface waters warm), this warm water dissipates the thermal inversion that's holding in the low-lying cloud and this dissipates the fog.

"We think that over the last three thousand years, the coastal waters have gotten much colder, much more productive and that's releasing nitrogen from this oxygen-minimum zone to fertilise the plants."

And it is more than just the *Tillandsia* that are benefiting.

The plants' success in trapping and using fog anchors a whole ecosystem that supports creatures as diverse as beetles, scorpions, spiders and even lizards.

The team dug down through the dunes to find and analyse the ancient plants.

Acknowledgement: Jonathan Amos BBC Science Correspondent, San Francisco

Billbergia amoena
or hybrid of *amoena*
◄ grown by Ted Devine

Aechmea bracteata
grown by Ross Little

Aechmea manzanaresiana x *zebrina*
grown by Ross Little

'Cryptanthus in Bamboo'
grown by Jeanette Henwood

Photo's supplied by: Ross Little

Pitcairnia smithiorum
1st Open Jeanette Henwood

Canistrum fosterianum
Judges Choice Kay Daniels

Hohenbergia correia-araujoi
1st Novice Ted Devine

'Gecko Garden'
1st Decorative John Crawford

Guzmania wittmackii 'Orange'
grown by John Crawford

Guzmania 'Mango'
grown by John Crawford

Cryptanthus 'Red Eyed Gravy'
grown by Les Higgins

Tillandsia punctulata
grown by John Crawford

Cryptanthus 'New Coster's Favorite'
grown by Jeanette Henwood

***Tillandsia* 'Pink Plume'**

by Derek Butcher May 2016

This name has been in circulation for many years and according to the BCR was a name used by RainForest Flora since at least 1980. We know little about this plant or even why it was linked to *Till. lindenii* and not *Till. cyanea* or a hybrid between the two. History shows us that in the 1870's there was great discussion as to which was which from detail given by Lyman Smith (1951).

Tillandsia cyanea as *lindenii*

Tillandsia lindenii

The main difference appears to be that *Till. lindenii* has a long peduncle (was called scape) and *Till. cyanea* has a short peduncle. From the horticultural point of view both species were very popular with much hybridising having been done if we read Dutrie (1947). Therefore a very high proportion of plants in cultivation these days would have strong links with horticulture rather than collections in the wild. Also the crossing between these 2 species would surely give a medium sized peduncle!

Investigation in Australia in recent months show that sporting to pink petals (be it almost white to 'standard' pink) seems to occur fairly regularly whether you have a 'new' cultivar or an 'old' cultivar. 20 years ago I would have been disputing these claims of colour changes in photos because the beta cyanin in the blue petals created havoc with colour film irrespective of brand and produced reddish tones. We argued this point for many years in Adelaide and never came up with an answer. I had thought that digital cameras might have solved the problem but the early versions seemed to depend on the make of camera. Luckily this problem seems to have disappeared. We know that botanists are shy when it comes to colours (seen a herbarium specimen lately!) but they do refer to bluish tones in these two species without any reference to reddish tones. To me it suggests that man-made inbreeding has caused instability.

A *Tillandsia lindenii* with pink petals now *Till*. 'Pink Plume'

Many of these cultivars originate in Europe because of their popularity in the European trade. The European trade is different to that in Australia because there they are competing with the cut flower trade. Therefore at the point of sale, sellers cull ruthlessly so that plants sold are true to name. In Australia many plants are grown on by hobbyists for secondary flowering and culling does not occur.

Should these pink flowered sports be given separate names or will one name be sufficient for the lot? After all, a cultivar is:-

cultivar: Produced in cultivation as opposed to one growing in habitat; – an assemblage of plants that has been selected for a particular attribute or combination of attributes and that is clearly distinct, uniform, and stable in these characteristics and that when propagated by appropriate means retains those characteristics.

In this case if you get a *Till. lindenii / cyanea* looking plant that has sported to having pink petals then all can have the name *Tillandsia* 'Pink Plume'.

Why this action? Well, there is a plant called *Till*. 'Pinkie' ► circulating in Australia and nobody knows where it came from or who named it. If you look up the BCR you will find a 'Pinkie' but it is a form of *Till. ionantha* therefore the use of this same name linked to *Till. lindenii / cyanea* is illegitimate.

To think this started with a posting of a *Tillandsia lindenii* with what I thought had white petals whereas we know that this species has predominantly blue petals with a possible white eye. It emerged that the colour was pale pink. Should it have a Cultivar name? We know that there is 'Pink Plume' in the BCR. Simple? No because it was revealed that in Australia *Till. cyanea* and *Till. lindenii* AND the linked Cultivars also had this tendency to sport/mutate from blue petals to pinkish tones. White petals were also mentioned but that is another problem yet to be solved. It was also seen that a plant called 'Pinkie' was making the rounds but nobody could give me an idea of its provenance. The only viable solution seemed to be as a 'lumper' with all the plants that can be linked to lindenii / cyanea irrespective of length of peduncle (how long is a piece of string?) that have pink petals be called 'Pink Plume'. We even have Ross Little changing his label from 'Pinkie' to 'Pink Plume'. It is your decision what name to use. Either a referrable one or an NN (Nursery Name).

One last point that you will be able to help with in years to come:
How stable is this colour change?
Do the offsets revert to blue?

All the more reason for changing your label to *Tillandsia* 'Pink Plume' so if the colour goes back to blue you can report back.

Cryptanthus 'Rainbow Star'

In the Oct/Dec 2000 issue of the **Cryptanthus Society Journal,** page 78, Harry Luther pointed out that the plant we have been growing for many years as *Cryptanthus bromelioides* is in all probability *Cryptanthus osiris* Weber. The true *Cryptanthus bromelioides* has been re-discovered in Brazil by Ivon Ramirez.

This leads me to that widespread variegated plant called *Cryptanthus bromelioides* var. *tricolor* which Harry left in limbo in his article. This plant should never have been given botanical varietal status because it is a Sport which brings it into the realm of the cultivar.

If we refer to the Bromeliad Cultivar Registry (1998) we will see this plant goes under at least three disguises, namely 'Rainbow Star', 'Wendy Variegata', and 'Seaborn's Leather Leaf'. As luck would have it, this plant is known in the general plant trade as the "Rainbow Bromeliad;" therefore, I believe the best name to use is 'Rainbow Star'

It is a very unstable variegate with almost every offset different to the parent plant, so each could be considered a separate Sport! What will never be proved is whether the other allied cultivar names in the BCR occurred by sporting from a, now, *Cryptanthus osiris* in exactly the same way that Foster reported his *Cryptanthus bromelioides* var. *tricolor* in 1953. Was there more than one clone of the non-variegated form in circulation, or were all of them offsets from the same plant? Were all sporting variegated offsets selected for vigour or were runts allowed to grow on too? An intriguing situation!

In the same way that it has been accepted that *Crypt. bromelioides* var. *tricolor* could vary I will be treating all Sports of this kind under the same name 'Rainbow Star' and will make note in the Bromeliad Cultivar Registry accordingly.

Cryptanthus 'Rainbow Star' grown by Jeanette Henwood

Cryptanthus 'Rainbow Star' showing variability, grown by Les Higgins.

Photos by: Ross Little

Cryptanthus `Rainbow Star' de-mystified

by Nina Rehak 2002

Formerly known as *Crypt. bromelioides* var. *tricolor*, *Crypt*. 'Rainbow Star' is now considered as possibly a sport of *Crypt. osiris*, an oddity in the genus. Most *Cryptanthus* have a single rosette which matures, flowers then stops growing, directing its energy towards seeding and pupping. By comparison, `Rainbow Star' produces one or more basal pups while still juvenile, as the parent continues growing.

Culture is similar for most *Cryptanthus*: good, filtered light for foliage colour; warmth and humidity for continuous growth. The terrestrial growing medium should be light, humus-rich and free-draining with fertiliser added. The mix should never dry out and high humidity can be maintained by standing the pot in a tray with wet peat-moss. Depending on climatic conditions and if dormant, watering and feeding should be adjusted accordingly.

I grow two distinct forms which are both natural clumpers akin to a small shrub and cannot be grown as a single rosette. Basal offshoots are not pups but immature stems and must not be removed from the parent. Do not remove pups as they develop for they will produce the next generation of offshoots -- that is `Rainbow Star's forward growth habit. There are exceptions but seldom do these offshoots appear evenly-spaced nor simultaneously from the rosette's base. Removal of the first offshoots will interrupt the natural growth cycle. A heavily - variegated rosette cannot flower without support from the clump and is too weak to produce more offshoots. A single rosette will grow disproportionately tall and vegetate for a while, perhaps as a last resort producing a leaf axil pup. It has reached the stage where complaints are heard, like "My plant just sits there, doing nothing !" It becomes obvious that constantly propagating single rosettes causes stagnant growth -- every vegetative cut or division is a set-back.

My interest in *Crypt*. `Rainbow Star' began in 1977, soon after joining the BSI. Somebody told me about Mrs. Olwen Ferris in Queensland and whilst ordering some Billbergias from Olwen I asked also for `Rainbow Star'. In the *Billbergia* parcel was a letter informing me "We have had a very cold Winter and all the pups died!" Several years later, during a "nursery crawl" one day, I did find my first 'Rainbow Star'. I did not know it then, but it was the perfect size to start with -- about twice the height of a medium-sized Cryptanthus, with two small pups attached. All the `Rainbow Star' 'Form A' clone I have now are its descendants.

I have been growing and exhibiting *Crypt*. `Rainbow Star' for many years now. My two distinct forms have stayed true to their original variegation for 20 and 14 years respectively.

Form A :- Pliant, soft-textured recurving foliage; slightly-undulating leaf edges; approximately 50/50% white and mid-green variegation, the irregular creamy-white stripes flushing pink in bright, diffused light.

Form B :- Stiffer-textured, mostly albo-marginated foliage; leaves longer, more upright with pointed tips; in strong filtered light, leaf blades change to olive green with red edges; sometimes has random central fine lines.

Both my forms can be viewed on the website : http://fcbs.org/

Contrary to Rainbow Star's reputation, both forms do flower if left undivided. 'Form A' needs to build up to a large clump and throughout its life will need re-potting several times. 'Form B' will bloom as a smaller-sized clump. Only post-flowering will several pups develop slightly below an inflorescence. These pups are rather slow-growing and should not be harvested until reasonably mature. They are distinct from vigorous leaf axil pups which, unless over-crowded, I prefer to leave intact as they add fullness and enhance the clump's appearance.

Both forms are excellent subjects for the show table, from a single rosette with small offshoots to a spectacular multiple up to 40cm.tall and almost as wide. To produce large specimens takes some management which I find a creative and pleasant task. As the clump grows, some side stems may need support by staking -- I prefer thin bamboo side branches. Occasionally Form A produces albino offshoots which should be pulled out whilst still small. Remove any old or damaged leaves by splitting each down the middle, teasing off the two halves in opposite directions. With reasonable care, leaf dieback or spotting are not a problem -- avoid overhead watering in extremely hot or cold weather. If brown marks occur, see if removing the whole leaf is the better option rather than trimming it. You must watch the whole clump's conformation and a rosette which does not comply with the overall desired shape can be cut out (never twisted) at its base and propagated.

Cryptanthus `Rainbow Star' is chiefly a foliage plant and although there are valid reasons to want it to flower (simply the challenge, for seed-raising or hybridising), the blooming means a partial end to a long-growing, beautiful specimen. However, by removing the oldest stems and re-potting the rest, not only will flowering be prevented but the clump will be rejuvenated.

Eventually the clump, having completed its life cycle, becomes difficult to manage, tending to fall apart. The time for real propagation has arrived. Carefully peel off the older rosette stem's capillary leaves. Adventitious stem roots should be visible, perhaps for 1cm. at the base but hardly discernible higher up. Leave

foliage intact at the top for 10 - 12cms. Plant the rosette stem as deep as possible to maximize rooting, but not burying the lower leaves.(If not planting immediately, stand the stem in water with a drop of fertilizer added. This prevents drying out and encourages rooting). As rooting occurs, basal offshoots emerge which, if the parent is too tall to begin with, will never "catch up" to achieve a balanced multiple. The developing pups, at various growth stages, begin filling the pot.

In the short term, but only if absolutely necessary, no harm will come by dividing the young clump in two or by removing the oldest stem with roots intact, planting it as it is, unless too tall. *Cryptanthus* `Rainbow Star' has a very fine root system which should be disturbed as little as possible.

For the long-term benefit, propagating by old stems is preferable to preserve the clone's vitality. An old stem has fulfilled its first duty by producing pups and its remaining purpose is to flower. Therefore removing the old stem , which is still capable of further pupping, does no harm to an already-established young clump. By this method of vegetative reproduction, the previously-weak clone is strengthened.

Cryptanthus `Rainbow Star' has been accused of having unstable variegation with every pup differently-striped, which is partly true. However, stability of variegation is judged by a plant's ability to transmit variegation to its progeny, not by the pattern of variegation, in my opinion. Both my forms I describe as "consistently inconsistent" which have never produced totally green pups while in my care, surely a record among variegated bromeliads. Variegation is a bonus enjoyed and sometimes artificially induced by humans but it is a genetic defect. Sometimes the plant succeeds in "curing" itself by reverting back to all green leaves.

Cryptanthus `Rainbow Star' is hardier here than its appearance suggests. I live in Sydney, not far from the Pacific coast. The sub-tropical climate is usually mild and humid with frequent temperature changes in Spring and early Summer. During Summer's humid heat my *Crypt*. 'Rainbow Star' are hung outside among other bromeliads in the fresh air under 50% shade cloth. When Autumn temperatures begin dropping below 10° Celsius, my *Crypt*. 'Rainbow Star' are returned to the heated, double glazed glasshouse. If cold winter nights drop below 5 degrees Celsius, an electric oil heater raises it to 10° Celsius, but mainly because of other tropicals housed there. *Cryptanthus* 'Rainbow Star' is easier to grow and flower here than many other bromeliads -- all it needs is some understanding.

Acknowledgement: Many thanks to Geoff Lawn for assisting with this article.

Novice Popular Vote

1st	Ted Devine	*Hohenbergia correia-araujoi*
2nd	Shirley Smith	*Vriesea* 'Pete's Pride'
3rd	Keryn Simpson	*Neoregelia concentrica*

Open Popular Vote

1st	Jeanette Henwood	*Pitcairnia smithiorum*
2nd	John Crawford	*Guzmania* 'Mango'
3rd	Kay Daniels	*Canistrum fosterianum*

Judges Choice

1st	Kay Daniels	*Canistrum fosterianum*

Decorative

1st	John Crawford	'Gecko Garden'

Comments from the Growers:

Ted bought his Hohenbergia from Gloria several years ago. He grows it in full sun and keeps it up high so the leaves fall down naturally. It thrives on rainwater and some slow-release fertiliser which is evident by its prolific pupping habit.

Shirley received her Vriesea from PineGrove at Christmas 2014. It is kept in her shade house and has received no special treatment.

Keryn bought her Neoregelia years ago from the Gold Coast Society. It is kept under the shade of a tree, scale is controlled with Confidor and for her problem with worms Les recommended D.E. in the mix.

Jeannette bought her Pitcairna 8-9 years ago as a seedling in a flask. She has had trouble adjusting the watering regime but seems to have it right now.

John's Guzmania is a good pupper, it is fertilised when potted up, he uses sea-weed foliar spray twice a year. It is cold-hardy and the only problem this year has been grasshoppers. It is grown under 50% white shade cloth for winter, next summer will be 50% + 30% for better colour than this Summer of 2 lots of 50%.

Kay's Canistrum from Marie several years ago produced many pups, on show was one to show how well they have done. It has slow release fertiliser when potted up and kept in the greenhouse under black shade cloth.

John keeps his *Neoregelia* 'Pink Spider' (Gecko Garden) a metre from the roof of his shade house under white shade cloth, it's grown into an attractive clump.