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

Edition: June 2024

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477

Phone (02) 6683 4188

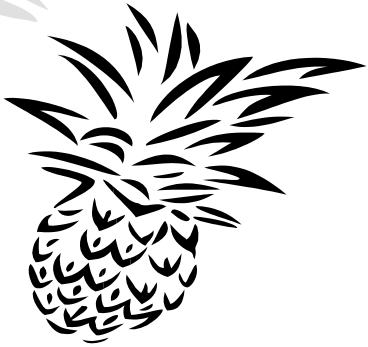
Study Group meets the third Thursday of each month

Next meeting July 18th 2024 at 11 a.m.

Editorial Team:
Ross Little
Helen Clewett

pinegrovebromeliads@bigpond.com

Life Members: Gary McAteer, Coral McAteer
Debbie Smith, Shirley Smith
Ross Little, Helen Clewett



Meeting 16th May 2024

The meeting was opened at approximately 11.00 am
The 9 members were welcomed.
Two apologies were received.

General Business

An update on Shirley after her recent fall - she was doing well but had a couple of setbacks, Debbie says she is fairly resilient so hopefully will get back on track soon. She really appreciated the lovely card sent to her signed by you all.

Show, Tell and Ask!

Keryn has been busy working the various shows and markets in recent months and helping people identify some of their unknown plants but wanted help on how best to discern the difference between a Neoregelia and a Nidularium.

Neoregelia are grown mainly for their colourful foliage, they are hardy and most are reasonably sun tolerant. The inflorescence is a single cluster of flowers set within the central cup/tank of the plant. Neoregelia sport good strong spines.

Nidularium on the other hand have barely noticeable softer spines, their foliage is more tender with a preference for a shadier part of the garden. Nidularium have a multistructural inflorescence. It is made up of brightly coloured primary bracts that conceal a central cluster of flowers plus additional flower fascicles within the lower primary bracts.

Keryn also asked about a tall, tubular variegated plant with a distinct 'thumbnail' imprint in the lower part of the leaves that has a raised inflorescence with bright red bracts. Suggestions were to look toward the *Aechmea nudicaulis* group.

Ian brought along his *Neoregelia* 'DeRolf' to show it has now produced a healthy variegated offset after the albino one was removed.

When is an albino a true albino - most albino offsets if left on the parent plant may eventually flower as per normal with all the associated colourful bracts. Well that really just makes it foliage lacking in chlorophyll. A true albino would have the albinism continue throughout the inflorescence also with it having albino bracts etc. A totally white plant and inflorescence completely lacking in any colour at all would equal a true albino.

A few of our members have been busy removing offsets and repotting, cleaning and fertilizing their plants before the cold weather sets in. Fortunately for most of us here in the Northern Rivers area of NSW that cold period is very short which allows us to work on our plants virtually all year round.

Some discussions had been had about making up your own potting mixes with ingredients such as: manures - sheep and cow, mushroom compost, rice hulls (dusty), composted mulch, fertilizer e.g. Dynamic Lifter, charcoal and ash from the fire, seasoned pine bark, good quality potting mix and anything else of your choice. The discussions reminded me of an article Debbie Smith wrote for our May 2016 FNCBSG NSW Newsletter, **If All Else Fails, Read the Instructions**.

I thought it prudent to reprint Debbie's article in part as a safety warning.

"As keen gardeners, we handle potting mixes every day, but do we know what's in them and the risks involved ?

How many of us have ever read the instructions for use? I googled lots of information, but when I actually looked at my bag of all-purpose potting mix, it was all there as follows:
Hazardous – compost, potting mixes and other organic gardening materials. This product is made from organic materials including composted pine bark, and contains micro-organisms including bacteria, fungi and protozoa. May also contain minerals and fertilizer additives.

Risk – inhalation of dust and/or liquid mists may irritate, inflame or sensitize the nose, throat & lungs, resulting in illnesses ranging from hay fever to asthma, pneumonia (Legionnaires Disease) or pneumonia-like illnesses. Direct contact may cause skin irritations (Dermatitis) and skin or eye infection or irritation. People particularly at risk are those suffering from asthma or allergies and those whose immune systems are compromised.

Safety - avoid contact with eyes or skin. Avoid breathing liquid mists or dust. Wear suitable protective clothing and gloves (ASA) and a particulate mask. Wash hands thoroughly immediately after use. Wash work clothes regularly. Clean up by wet sweeping or vacuuming. Store in a cool place.

First Aid – irrigate eyes for 10 minutes with water. Wash skin with soap and water. Seek medical attention for persistent eye, skin or respiratory symptoms.

Health Warning -- garden soils contain micro-organisms which can be harmful to your health. Always wear gloves, keep damp when in use, avoid inhaling the mix and wash hands after use. The most significant risk is that from the group of bacteria called Legionella, which can cause serious illness or death.

In conclusion, the risks and hazards of handling potting mixes are very real, but can be minimized considerably by using a commonsense approach as outlined above. Happy Gardening!"

It's always good to remind us of the dangers of the hazardous materials we are handling as we do get a bit lax occasionally. Thank you Deb, very informative.

Open Popular Vote

1st	Michelle Hartwell	*Neoregelia* 'Blast Furnace'
1st	Keryn Simpson	*Guzmania sanguinea*
2nd	Helen Clewett	*Neoregelia* 'Mad Max'
3rd	Mitch Jones	*Goudaea* 'PineGrove Mantis'

Tillandsioideae

1st	Gary McAteer	*Tillandsia ionantha*
2nd	Keryn Simpson	*Wallisia* 'Pink Plume'
3rd	Mitch Jones	*Tillandsia* 'Pitchfork'
3rd	Kayelene Guthrie	*Wallisia* 'Duvalii'

Decorative

1st	Coral McAteer	'Autumn Leaves on Broms'

Judges Choice

1st	Mitch Jones	*Goudaea* 'PineGrove Mantis'

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.

Bromeliad Species Database (BSD): www.bsi.org/members/?bsd
Refer to this site for species identification, photos, descriptions and more.

New Bromeliad Taxon List : https://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 many with Table of Contents Index and there's Detective Derek Articles.

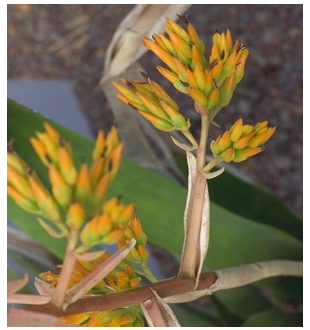
Keep these web sites set as desktop icons for quick reference access.

Where do I Find the 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.

Ian brought along an inflorescence from his garden for discussion, his query was which species is it as he has labels for both *Aechmea rubens* and *Aechmea leptantha*, clearly not the latter. Aechmea of the Gravisia complex in Australia can be difficult to identify without referring to the Gravisia key because plants from this complex were erroneously named and mostly keyed out to be *Ae. callichroma*. Use the photos as a guide only, key it to be sure.

Aechmea mulfordii



Aechmea emmerichiae

Aechmea leptantha

Aechmea rubens

Aechmea callichroma

The following is a guide to help Ian along his journey of identifying his Aechmea: *Aechmea callichroma* can be distinguished easily from *A. mulfordii* by its flowers, which are arranged along a distinct axis, not in tight fascicles or crowded spikelets, and by the large, lowermost primary bract, which nearly equals or is shorter than the stalk supporting the lowermost branch. Also, the floral bracts of *A. callichroma* are barely longer than the ovary which is fairly exposed, while those of *A. mulfordii* are broadly ovate and more tightly congested, thereby mostly concealing the ovary. From *A. rubens,* this species differs in the much shorter and yellow (not orange or red) floral bracts.

Photo of Ian's inflorescence by Ross Little, all other photos taken from the Butcher Files.

Mitch had offered to lead a discussion about his Ananas obsession this month and brought quite a selection from his collection.

In support Michelle and Kayelene also got into the spirit of the day with their Ananas outfit and a broach.

Many of the Ananas in Mitch's collection are hybrids and cultivars such as this *Ananas* 'Lava Burst' he entered into the Decorative section of our Popular Vote Competition that he titled 'Bonfire'.

He does grow the species Ananas in his extensive gardens, and we understand that these are too large to dig up and bring along to show the Group!

Like 'Lava Burst' many of the cultivars in his collection arise from tissue culture and are gradually released through retail nurseries in their indoor plant sections where you may find a surprise for yourself.

'Bonfire'
by
Mitch Jones

One such recent tissue cultured release Mitch came across was *Ananas* 'Camillo' unreg. This Ananas is a medium sized spineless creation from Pedro Nahoum of Brazil that should turn bright red to a burgundy colour on maturity.

Very few of this one have been released in Australia, hopefully it responds well to our local growing conditions to increase number availability to fulfil requests.

These are some of the Ananas Mitch brought along for us to see - from top to bottom L to R

'Lava Burst'
'Lucidus'
'Chocolat'
ananassoides var. *nanus*
'Lava Flow'
'Bracteatus'
'Candy Stripe'
'Bronze'

All of these Ananas are considered ornamentals. They flower and produce a fruit that is rather bitter and inedible.

Mitch prefers ground culture as opposed to growing in pots and suggests lots of fertilizer, foliar and slow release if you want lots of offsets from the base of the plant as well as plantlets from the fruit.

Thank you Mitch for an informative discussion.

Neoregelia 'Blast Furnace'
1st Open Michelle Hartwell

Guzmania sanguinea
1st Open Keryn Simpson

Tillandsia ionantha
1st Tillandsioideae Gary McAteer

Neoregelia 'Gun Powder'
grown by Kayelene Guthrie

Goudaea 'PineGrove Mantis' unreg
Judges Choice Mitch Jones

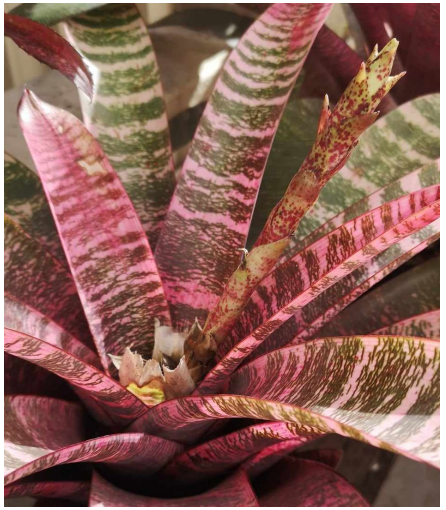
Tillandsia 'Pitch Fork'
a form of *Tillandsia capillaris*
grown by Mitch Jones

Neoregelia 'Mad Max'
grown by Helen Clewett

'Autumn Leaves on Broms'
1st Decorative
Coral McAteer

Michelle was going to bring her *Vriesea* ‘Maroochy Smooch’ along to ask if anybody had any thoughts about what was going wrong with it as the central leaves appeared to be dying/rotting. However the night before the meeting when prepping her plants she found a galvanized ’u’ staple nail in it and straight away realized it was most likely the cause of the problem.

Yes, a dropped nail during her recent shade area extension most likely was the irritant to the centre of the plant.



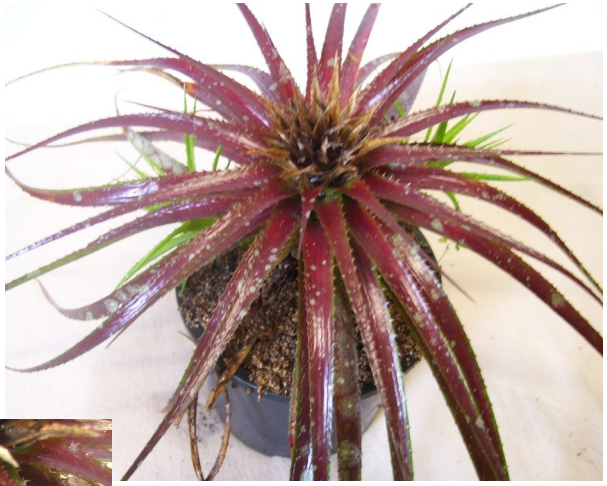
She nailed it though!, demonstrating how best to remove the two good offsets the plant produced regardless of the damage the nail caused.

Latest report is that it is also sending up a flower spike/inflorescence.

The moral here is:
Never give up on a Bromeliad
because they don’t give up either.

Photos by Ross Little, flower spike photo by Michelle Hartwell

Keryn brought along her x*Sincorphytum* ‘Blaze’ with concerns about unusual spotting on the leaves. On closer examination it was revealed to be lichen growth not the dreaded brown scale. It’s not particularly harmful to the plant, lichens are a good indicator the environment and air quality is healthy.



It is an easy fix, the high rainfall and humidity we are experiencing creates good growing conditions for lichens. Improve the amount of light and air flow the plant is receiving will help it dry quicker between showers. Better for the plant, not so good for the lichen.

Keryn’s *Tillandsia* ’Roma’ is having a leaf splitting moment.

The older leaves are being split longitudinally by the new growth.

What is causing this issue ??

Is the plant too dry ??

Is it having a sudden growth spurt causing the weaker lower older leaves to split ??

Thoughts welcome.

Wallisia cyanea, 'Duvalii', 'Pink Plume'

Wallisia 'Duvalii' and *Wallisia* 'Pink Plume'
grown by Kayelene Guthrie and Keryn Simpson
photo by Ross Little

We have been growing this delightful pink paddled plant in our collections for many years and simply refer to it as cyanea when we should make the effort to research for it's proper name. The green, narrow leafed plants make a wonderful border plant, when in bloom the pink paddle lasts for many months which makes it more colourful and interesting than using just green mondo grass.

In our FNCBSG NSW Newsletter, November 2016 we published the article ***Wallisia* or Single Paddles** by Derek Butcher where he explained the long and the short of the naming issues for this group:- "Basically, if it had no peduncle (stem/stalk) you thought *Tillandsia cyanea* and if it had a peduncle you thought *Tillandsia lindenii".* The genus name Wallisia (1870) has been resurrected and takes precedence over Tillandsia for this group giving us *Wallisia cyanea*. The name lindenii is now a synonym of *Wallisia cyanea*.

Many of the plants we grow today have a mid length peduncle indicating hybrids were made between the no peduncle plants and those with a long peduncle giving rise to a number of cultivars. If in doubt which cultivar you have maybe look toward *Wallisia* 'Duvalii' as the preferred name to use not *Wallisia cyanea.*

There is also a sport being grown in our collections with pink petals, this one is best referred to as *Wallisia* 'Pink Plume'. Refer to FNCBSG NSW Newsletter June 2016 article - Tillandsia 'Pink Plume' by Derek Butcher .

Genetics, Species, Varieties, Hybrids and Evolution - Part 3/4

by Frederick H. Gerber - Reprinted from BSI Journal Vol.11, No.5, No.6 and Vol.12, No.1

Selection and isolation may be thought of as equalifying factors which affect populations but which of themselves do not provide new genic constituents. Selection promotes population differentiation through differential survival of varying types within the limits imposed by the varying genotypes. If a single species were to extend over a thousand miles of geography (*Billbergia amoena* and its many varieties might be such an example, or *Tillandsia usneioides*, etc., etc.) the extremes of that continuous population (or segments of it) are probably existing under different ecological conditions, and in each environment differing forms (permissible within the plasticity of the genetic nature) could survive exaggerating the dissimilarities of relatively homozygous or homogenous population which might not at all resemble other segments of the same population. If intermediate forms of this population were removed by some force of nature, these extremes of the population might be varietal in status, or if the accumulated differences were great enough they might be of specific level, taxonomically. Diversity of form is described in terms of the observable differences (phenotypes) between varieties within a species, between species within a genus. These differences accumulate from mutations of the many kinds, and hybridization and the workings of selection and isolation, but from a once common genotype, and within the limitations imposed by the genic make-up.

One is reminded of Mr. Foster's advice to be certain that variability is no more than a response to environment rather than inherent genetic differences when he says that one should gather together all the forms of a given plant and grow them for extended periods of time under identical conditions and then draw conclusions. Some cases, the observer is cautioned, may be cultural or environment problems rather than genetic or taxonomic problems.

Each species, if so far evolved as to carry a certain specific pattern of genes, is usually of such a nature as to have some barrier to inter-breeding, under natural conditions. However, some species and even some genera occasionally will cross in nature to produce inter-specific or inter-generic hybrids. This may be interpreted as indicating a commonness of ancestry. There is evidence in the Orchidaceae and in the Bromeliaceae to this effect unless one is to conclude that the taxonomists have long been "all wet".

Species populations are not homogenous genetically, and they exhibit, therefore, certain variability in most cases. Note references to *Billbergia amoena* and its many varieties over a wide territory and the many forms of *Tillandsia fasciculata.* The suppression (or loss through differential survival) of some forms provides the plant breeder with many problems which have been resolved by

orchidists by the arbitrary assignment of varietal status to each outstanding form within horticulturally important species. The many named varieties of *Cattleya trianae* might be cited as an example.

Where fertile hybrids result between closely related species, the progeny in the F1 are typically intermediate, though not identical; and the selfing of this F1 typically yields an enormously variable F2. Seldom, if ever, are two of the individuals alike, and none is identical to either parent or to the F1. A large part of this progeny will carry various recombinations of the parental characteristics and may be arbitrarily lumped as intermediates, and whereas, some individuals may carry distinct traits particular to one parent or the other, none can be mistaken for either parent or the other. It is highly possible that some or even many of this F2 progeny may possess characteristics not represented in either parent. These new phenotypes owe their formation and appearance to novel combinations of the ancestral genes, possibly present as recessive or as a result of genic inter-actions, or through chromosomal inversions and translocations.

When one refers to a species he believes he knows what he means, so fundamental is the species concept to our biologic thinking, but, at best, the species is a serious problem. Genetic and taxonomic students are not necessarily in accord.

Taxonomists are varyingly referred to as "lumpers" or "splitters" dependent upon how conservative or how liberal they may be on bestowing new names. Denial of natural variability within a species can seriously impair the picture by the indiscriminate naming of each variant, thereby making each genus unwieldy and over definitive to the point that none but the described plant fits . . . and on the other hand, over acceptance of this natural variability within a species can compound the picture also by the inclusion of too greatly dissimilar types within single species.

Dobzansky has proposed to define a species as that stage of the evolutionary process "at which the once actually or potentially inbreeding array of forms becomes segregated into two or more segregated arrays which are physiologically incapable of inbreeding". The qualifications are important. Such a concept imposes a barrier against breeding between differing groups as a fundamental criterion, but to fully understand this isolation is to appreciate its complexity and its causative variability in nature. The parental forms simply may not meet in nature which would be an ecological isolation. The parental forms may not have sufficient flexibility in genetic nature to grow side by side or within the range of effective pollinating mechanisms or the capability of surmounting geographic barriers, therefore confinement to different ecological habitats. Or the isolation may be due to differences in flowering seasons, or there may be differences in the times of day of anthesis (production of ripe pollen) or of stigmatic receptivity to pollen.

Even if these conditions are met and the flowers appear simultaneously and are receptive, there may be a lack of a suitable agent for the transfer of the pollen. There may be physiological and/or morphological conditions which insure self-pollination. *Tillandsia lindenii* has the stamens far down in the floral tube tightly clasped in the colorful bracts and the stigma is equally inaccessible, requiring a mechanical prying apart of the floral parts to expose these essential organs in the absence of some natural agent of pollination which might be able to effect this function by some less cumbersome and destructive means.

There may be other factors of isolation involved. The pollen, for example, may have a genetically imposed limitation of producing only a short pollen tube which on a long pistil may be inadequate to reach the ovules. This sort of thing would be as effective as no pollination at all.

There may be a genetic incompatibility between the cellular material of the stigma or style of the seed parent and the pollen tube cells. The pollen tubes grow by deriving a greater or lesser degree of nourishment from the receiving plant, and any nutritional barrier to its growth is a barrier to fertilization. The genetic incompatibilities of plants may act as isolating mechanisms any time from the arrival of the pollen on the stigma to the actual fertilization of the ovule and these incompatibilities may occur later in the production of either the pollen or ovule, in the developing zygote, or it may express itself at any time up to and including the production of pollen and ovules in the mature hybrid form. It is quite possible that the barrier exerts itself by the production of hybrid forms incapable of reproducing themselves. Each hybrid form under such conditions becomes a dead end unless there are other changes to produce fertility.

Hybrid sterility may be the result not only of the production of nonviable or non-functional gametes but may also be the result of the production of nonviable zygotes.

It is evident that not all the factors in speciation require hybrid sterility, and the species concept does not require genetic incompatibility (even if it encompasses it) just as long as there is an isolation "at this stage of evolution between two or more arrays of forms, closely related". Geographic barriers such as mountains, oceans, or rivers or deserts provide effective barriers if the genetic constitution of the forms is not flexible enough to violate the barrier. Overcoming these barriers in the laboratory or greenhouse under artificial conditions is certainly beyond the concept "point in evolution", and hybrids produced under these artificial conditions do not necessarily invalidate their taxonomic status in nature. Hybridization under these artificial conditions would tend more to indicate a closeness of the forms involved or a relative closeness in ancestry or ancestral forms from which both were derived in the evolutionary process.

It is because of the unseen in the plant, those elements of the genotype that are not expressed in the phenotype, that we cannot tell what we will achieve in our hybridization work. These hidden genic potentials are extremely complex. It may require the selfing of the F1 generation progeny to get the desirable reassortment that we are seeking and which did not appear in the F1 generation. We cannot expect to regain a parental species by selfing of a hybrid, through genetic segregation. Self-sterile hybrids may possibly be made fertile and true-breeding if a doubling of the chromosomes can be effected. The inducement of this sort of tetraploidy or some other polyploidy is done often by subjecting the plant at the proper time in its development to X-ray, or colchicine, or high temperatures, which if the operator is fortunate may so alter the normal nuclear division so as to produce viable ovules and pollen cells with diploid chromosome counts (chromosomes present as one-of-a-kind will then be present in pairs, requisite for normal cell division).

As problems of hybridization are so fraught with complexities, the need for well-labeled plant materials becomes obvious and sources of "un-hybrid" plants should be sought, and once a reliable species form is acquired the labeling should he diligently guarded and accurate records kept. This is not easy, to be sure, after these years of hybridization and increasing dissemination of plants. By the same token, all records of hybridization work should be publicized so that all workers in the field can study the results. Patterns of genetics, breeding and evolution, evolve not from the limited work of a single person or a few people but from the sum total of all the data accumulated over a period of years representing the efforts of many. The significant relationships between plants indicated by a willingness to be cross fertile are important . . . but they are useless to the world of science when behind an "iron curtain". Negative data of incompatibility or production of sterile hybrids is quite as important as the data of fertile crosses. Evidences of dominance or recessiveness can form patterns when treated as a whole body of data rather than as isolated cases.

Some crosses have no commendable horticultural value and the time of other workers can be saved when such information is a matter of public record. But if such crosses should be self-fertile, an F2 generation should be raised before the cross is arbitrarily condemned, for there could be a reassortment of genes yielding some or many desirable things. The human animal has its limitations, and no one plant breeder can work effectively or thoroughly in all directions so the development of some particular "good parent", as in the breeding of orchids, should be recorded and the stud plants conserved. The nature and the results of all plant breeding work should be critically appraised and made a matter of record.

To be continued ……..