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

Edition: April 2023

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
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Study Group meets the third Thursday of each month

Next meeting May 18th 2023 at 11 a.m.

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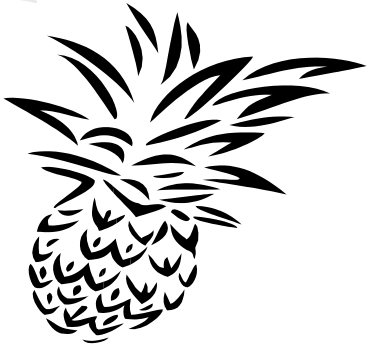

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Meeting 16th March 2023

The meeting was opened at approximately 11.00 am
The 13 members present were welcomed.
One apology was received.

General Business

We reviewed last month's Newsletter highlighting the two corrections made in 'Tidy-up Corner'. Of particular importance is our use of botanical language and correct terminology. We recommend using the latest Bromeliad Glossary that is available, a copy is in our library. We have quite an extensive library for members to make use of at any time, there are Newsletters and Journals from other Societies with very informative articles where you will find answers to many of your questions.

Show, Tell and Ask!

Discussions have been had over recent months about preparing or tidying plants up for the Popular Vote Competition table. Some cleaning can be performed the morning of the meeting, however some should be done well in advanced, the week before the meeting would be best.

The following advice has been taken from: Bromeletter, Vol.50, No.1, 2012.

Ron Farrugia showing a plant which had been brought in by a new member, with a request for advice on what should be done to it to prepare it for showing in competitions. There was a lot of rubbish in it which needed to be removed, also the old mother plant was still in the pot and it should be taken out. There were some leaves with brown tips which should be trimmed to match as far as possible, the normal shape of the leaf. It is nearly impossible to copy the natural shape. The middle of the plant should be cleaned out, if it is outside under a tree, leaves will fall into the centre and should be removed, long tweezers will make this job a lot easier. Leaves also tend to accumulate where the leaves join the plant. Inverting the pot will often dislodge these, but, if you don't want to lose all of the potting mix, cover the top of the pot with a cloth and then tip it upside down. This usually gets rid of the unwanted leaves and retains the potting medium in the pot.

Ants sometimes take up residence in pots and they are not easy to see. If you dunk the pot in a bucket of water to just under the rim, the ants will not survive. It needs to be done at least a week before bringing the plant in to a Show, competition or sales night.

Preparing your Bromeliads for Competition

by Kerry McNicol

Reprinted from: Bromeletter, Vol.53, No.5, 2015.

When choosing your plant, look for a plant which has had the right amount of water and fertilizer, has consistent markings and growth habit for the particular plant variety. It is best to choose 'mature' plants but not those that are 'past it'. Cultural perfection is what we are aiming for.

Your plant pot should be immaculately clean, undamaged and in correct proportion to the competition plant (something which only 'the eye' can determine).

Choose a plant that has had consistent growth and has good conformation (shape). Make sure the plant is centred in the pot. If re-potting, do not over or under fill with potting mix.

Your plant should be perfectly clean (no debris in leaf axils) and free of insects and disease. Remove any weeds or 'rubbish'. 'Top up' with fresh potting mix if required.

A specimen plant should be centred in the pot and have any pups removed if they are big enough. Leaves should be unmarked. If removing lower leaves, don't leave any 'bits of leaf' behind. Don't overdo this, it may be better to lose a point for a marked leaf, than ruin the conformity of the plant. It is acceptable to 'trim' damaged leaves, but this should be kept to a minimum, and NOT be obvious. Trimming should be done as close to competition judging as possible.

Inspect your plant for any 'other genera' which may be present e.g. *Tillandsia usneiodes* or seedlings which may have attached themselves to your plant. Remove them, no mater how 'nice' they might be.

The inflorescence should be fresh and undamaged, remove any spent blooms or bracts.

One last look, and if all is well, your plant is now ready for competition.

Both articles from: The Official Journal of The Bromeliad Society of Australia Inc.

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Up-date on our 'Frankeneliad', the various other genera pups that were spliced/ grafted into not just tied onto the bare trunk of a *Goudaea ospinae* var. *gruberi* are doing well. The Orthophytum spliced into the end of the cut trunk is showing signs of growth.

Michelle brought along for identification confirmation a *Neoregelia* 'Jaws' with very white margins being different to other 'Jaws' in her collection. We're best to refer to the word document 'Hybrids and Cultivars' that is held on the Bromeliad Cultivar Register (BCR) which explains the differences between the various cultivars of this grex. Michelle can then make an informed decision and adjust her labels accordingly. Of course, when in doubt bring your query plants along for the Group to discuss.

Hybrids and Cultivars

by Derek Butcher

Can everybody remember the magnificent *Neoregelia carcharodon albo marginata* that Peter Tristram had at the Brisbane Conference in 1993? Well, it isn't a species. My worry started in Gympie where Margaret Paterson had a variegated version and its reverted non-variegated version. Something had to be done to reduce the confusion.

This plant was one of Skotak's first crossings of *Neoregelia carolinae* and *carcharodon*. There were apparently 20 or so different clones released of which six came direct to Australia. All have variable offsets. Genny Vauhkonen has the widest range in her collection and she was given the job of deciding which were sufficiently different to warrant a name. The first cultivar is called 'Jaws' and thus assumes the GREX name (note, carcharodon means shark's teeth!) This one is the albomarginate form that retains white edges. Next is 'Grey Nurse' for the variegated form and 'Wobbegong' for the albomarginate form which retains a pinkish colouring on the edge throughout the year at least in Brisbane. The first two are from the batch that came direct to Australia. Others may possibly be named but at the moment do not show potential.

The last one has come to us via the U.S.A. All will take some time to multiply and thus become more available. All have the potential to lose their variegation and it is suggested that when this happens they be called 'Gummy' to save them being treated as species *Neoregelia carcharodon*.

OUR plants must not be confused with the *Neoregelia carolinae* x *carcharodon* x *carcharodon* x *carcharodon* which has been registered in the U.S.A. as *Neo*. 'Skotak's Rouge'.

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Discussing hybridising often opens more questions, some of which we answered last month e.g. 'Is Your Hybridizing Necessary' and 'Think Twice'. So you've thought about it but still have the urge to try and create something different or new. Remember those words '**different**' and '**new**'. One of the world's leading hybridizers did just that and gave us a range of Neoregelia hybrids with not only

variegation, albomargination and striation but he added zonation/cross banding. This was a combination not seen in our Neoergelia hybrids before, unfortunately we're seeing this pattern being repeated (not different not new) by many budding hybridizers by using one of those 'new' creations as a transmitter. A transmitter is a plant when used as a seed parent is known to pass on its variegation.

So remember to 'Think Twice', consider your goals of what you are looking for in your end result, be creative not a copier. This may not be achievable with the pollen readily available at the time your preferred seed parent is ready to accept pollen. So don't just be an opportunistic pollen dabber 'Think Twice' and maybe freeze pollen to use at a later date on a preferred seed parent plant.

Pollen Preservation

by Butcher 2003

Hartman and Kester - Plant propagation: principles and practice. 3rd ed. (Englewood Cliffs, Prentice hall., 1975) reveals: "Most kinds of pollen will remain viable for only a few days or weeks at warm temperatures, but many kinds can be preserved for several months to several years at low temperatures and relatively low humidity. Effective storage conditions are a combination of 10 to 50 percent relative humidity and a temperature of 0° to 10°C. Moisture content of the pollen can be controlled by storing over a desiccant, such as calcium chloride or sulphuric acid. Some pollen – that of grasses, for instance, is best stored at 90 – 100 per cent relative humidity.

Pollen can be effectively stored at about 18°C, as in a home freezer.

Ingredients for the Home Pollen Preserver:

1. Piece of paper, about 5cm square. (Writing paper will do)
2. Small glass bottle (Not plastic)
3. Absorbent material (silica gel crystals from your local pharmacy)

Method 'A'
Write name of pollen donor on paper.
Scrape the pollen onto paper, fold carefully.
Place in freezer section and hope you don't lose it.

Method 'B'
Write name of pollen donor on paper.
Scrape pollen onto paper, fold carefully.
Place in bottle with silica gel crystals, screw top on.
Put in the "butter" compartment of your refrigerator.

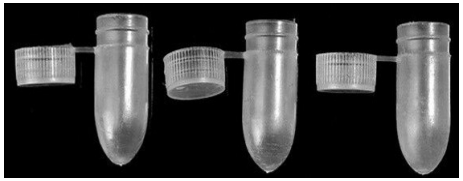
If crystals turn pink, remove and replace with blue ones. The pink crystals can be changed to blue by drying such as in an oven.

Continued page 6.

In either method ‘A’ or ‘B’, the stored pollen can be used without any "warm up" period.

Method ‘B’ is recommended mainly because:
1. You have a visual indication of whether mould/mildew has attacked the pollen rendering it useless.
2. It has been tried by Andrew Flower of Wellington N.Z., who pointed me in the right direction.

Now that you have gone to the trouble of preserving this pollen, what are you going to do with it? Dare I suggest that you try to preserve species, at least of the rarer kind, rather than just hybridize.



Flip lid transparent storage capsules.

Another question asked about hybridizing was: Do plants cross pollinate in their natural habitat ? Hybrids that occur in nature are referred to as natural hybrids.

Taken in part from: **Pollen Fertility in the Nidularioide Complex**
by Rosangela C. O. S. Souza & Elton M. C. Leme.

In the Bromeliaceae, natural hybridization seems to be rather rare, except in Tillandsia subgenus Tillandsia (Benzing, 1980). On the other hand, artificial hybridization in cultivated specimens is very common which means that the barriers to hybridization among species of the same genus or among species of different genera are very fragile or they may not exist at all.

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Species evolution and the potential for new taxa occur when, among other things, the barriers that hinder or enhance gene flow between populations are modified (Futuyma, 1997). During speciation processes, mechanisms of prezygotic reproductive isolation are perfected that hinder hybridization and the formation of the zygote. Mechanisms of postzygotic reproductive isolation are also developed that produce inviable, weak or sterile hybrids (Stace, 1980). Isolation mechanisms work to increase the efficiency of the reproductive process and to protect the integrity of the genetic system (Mayr, 1977), thus making possible the sympatric coexistence of species without loss of identity (Stebbins, 1982). Isolation may be incomplete, allowing populations of partially isolated species to interbreed in a hybridization zone (Futuyma, 1997).

Hybridization is regarded as a flaw in the prezygotic reproductive isolation mechanism that allows individuals of different genetic and taxonomic status to interbreed. Mayr (1977) defines it as a cross between individuals belonging to

Continued page 11.

Aechmea ’Shining Light’
1st Open
Michelle Hartwell

Neoregelia ’Lorena Lector’ striated
shown by Keryn Simpson

Sincoraea helenice
shown by Mitch Jones

Tillandsia brachycaulos 1st Tillandsioideae Gary McAteer

‘Autumn Madness’
1st Decorative
Mitch Jones

Photos by: Ross Little

‘Tea for Two in The Garden’
‘St Patrics Day’
shown by
Coral McAteer

Neoregelia ’Julia’
shown by Kayelene Guthrie

Neoregelia ’Russian Red’
shown by Jennifer Laurie

'On Ya Bike With Broms For Sale' shown by Keryn Simpson

Catopsis mooreana shown by Mitch Jones

Tillandsia bergeri shown by Gary McAteer

two different natural populations that make secondary contact. This author also states that hybrids differ from parental species not only in terms of morphology, but also in fertility and viability. Decrease in fertility, however, is not necessarily correlated with a reduction in viability. The hybrids may have a very robust phenotype, a state known as hybrid vigor (Mayr, op. cit.).

Hybrid inviability occurs when the first generation hybrid (i.e. F1 hybrids) dies before flower production. When it manages to surmount this phase, it may still be unable to compete under existing habitat conditions, that is, an adequate niche may be lacking, one that differs from the niches of the parental stock. The F1 hybrids usually have traits that are intermediate to those of the parental taxa, and this may create problems in adapting to the specific habitats of these taxa (Benzing, 1980).This lack of fitness may be associated with the ecological isolation mechanism of the parent species that occupy different niches within the same area. However, habitat alteration by natural disaster or by man's activities may create environments more suited to hybrid establishment.

F1 hybrid sterility may be total or partial. This sterility is usually the result of abnormal pairing or abnormal chromosome segregation at meiosis. However, the plant can always propagate vegetatively, thus producing numerous descendents (Mayr, 1942; Grant, 1981). Vegetative reproduction may be the main strategy adopted by a species in certain habitats (Freitas, 1997). The degree of fertility is normally proportional to the evolutionary proximity of the parental populations, even though populations of some sympatric, closely related species have developed sterility barriers (Benzing, 1980). Even a low fertility percentage might be highly significant in evolutionary terms and contribute to genetic variability (Anderson, 1953).

In the wild, hybrids among plants occur more frequently than hybrids among animals due to the natural immobility of plants. It is often necessary for pollen grains from one plant to be transferred to the next by means of mobile external agents (i.e. pollinators). Furthermore, natural selection among plants favours the existence of pronounced phenotypic plasticity and genetic variability which facilitates the hybridization process (Mayr, 1977). However, there may be subtle mechanisms that prevent hybridization from occurring, even when pollen transfer is successful (Benzing, 1980).

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Longer Live The Species Grower !

Open Popular Vote

1st	Michelle Hartwell	*Aechmea* 'Shining Light'
2nd	Mitch Jones	*Sincoraea helenice*
2nd	Keryn Simpson	*Neoregelia* 'Lorena Lector' striated
3rd	Jennifer Laurie	*Neoregelia* 'Russian Red'

Tillandsioideae

1st	Gary McAteer	*Tillandsia brachycaulos*
2nd	Keryn Simpson	*Tillandsia bergeri*
3rd	Mitch Jones	*Catopsis mooreana*

Decorative

1st	Mitch Jones	'Autumn Madness'

Judges Choice

1st	Keryn Simpson	*Neoregelia* 'Lorena Lector'

John's Decorative Object - judged by John Crawford

1st ————————

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 : 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.

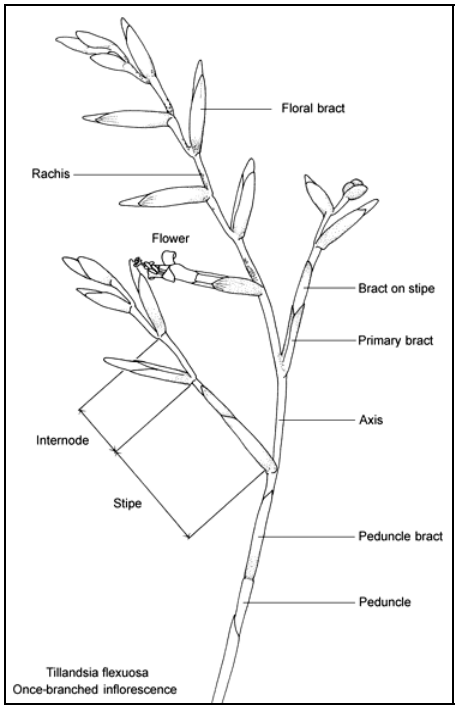
Where do I Find the Dates ?
www.bromeliad.org.au then click "Diary".
Check this site for regular updates of times, dates and addresses of meetings and shows in your area and around the country.

Bringing Bromeliaceae Back to Homeland Botany - Part 2

Uwe Scharf & Eric J. Gouda

Reprinted from: Journal of the Bromeliad Society 2008, Vol.58, No.3

An inflorescence consists of all parts of the plant that are genuinely connected with the sexual organs or fruits and developed for their presentation during anthesis (for pollination) and fructification (for distribution of the seeds). In contrast to a vegetative plan (bearing roots, stems, leaves, vegetative innovation zones only) a fertile plant bears an inflorescence, which comprises a sterile part (peduncle, flower stalk), branches within the inflorescence (if present), reduced leaf-like structures (bracts), and flowers or fruits – in addition to the vegetative parts.



Parts of a bromeliad inflorescence.
Drawing by E. J. Gouda

In bromeliads inflorescences are constructed of spikes (flowers sessile) or racemes (flowers on a stalk) or compound structures of them (panicle) or reduced to 1- flowered spikes.

The arrangement of the flowers along the axis (or rhachis) is usually spirostichous (spirally arranged) or distichous (two rows, opposite to each other). Rarely organs are arranged polystichously (in rows above each other, seen from the top), like in the leaves of *Tillandsia pentasticha* Rauh &Wülfingh or *T. tomekii* L. Hrom. This was confused frequently. Mostly spirostichous was meant when e.g. Smith & Downs wrote "polystichous".

A scape is the part of an inflorescence between a (more or less clearly visible) leaf rosette and the (clustered) flowers. The character of a scape is the absence of nodes and therefore, necessarily the absence of leaves and bracts.
Well known examples are:
Onion, garlic, leek and their relatives (*Allium*), the African Lily (*Agapanthus*), Snowdrops (*Galanthus*), Daffodills (*Narcissus*), Knight's Star (*Hippeastrum*, traded under the wrong name "Amaryllis"), and Hyacinth (*Hyacinthus*).

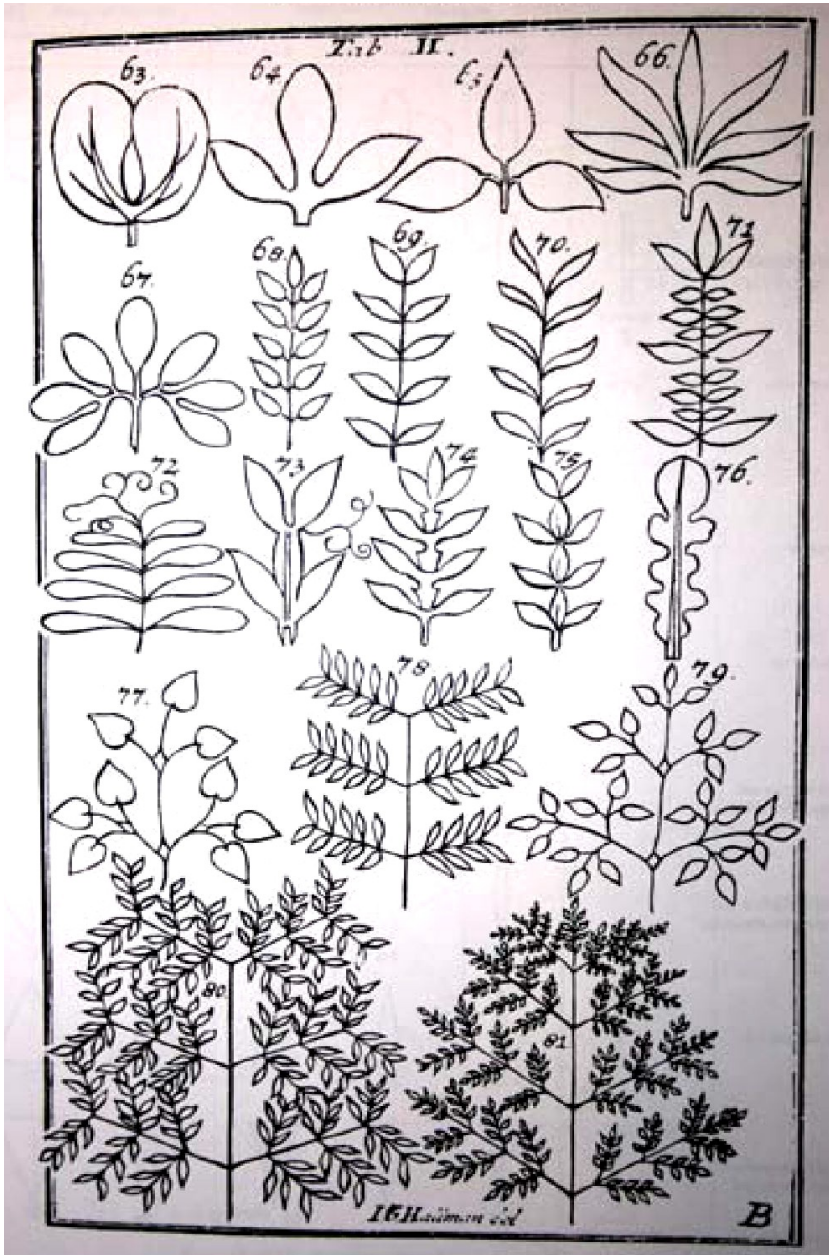


Figure 1. Types of compound leaves as illustrated in Linnaeus, Philosophia botanica (1751), from Stearn (2004: 309): 63. binatum, 64. ternatum foliolis sessilibus, 65. do. petiolatis, 66. digitatum, 67.pedatum, 68. pinnatum cum impari, 69. pinnatum abruptum, 70. do. alternatim, 71. do. interrupte, 72.do. cirrhosum, 73. do. conjugatum, 74. do. decursive, 75. do. articulate, 76. lyratum, 77. biternatum, duplicato-ternatum, 78. bipinnatum, (Sauvag.), duplicato-pinnatum, 79.triternatum, triplicato-ternatum, 80. tripinnatum (Sauvag.), sine impari, 81. do. cum impari.

Word combinations with *"...pinnate"* are terms used for the description of compound leaves. With pinnate (= feather-like, with feathers) a leaf-axis (rhachis or rachis) with leaflets at both sides is described, no matter, if this axis is terminated with a terminal leaflet or not.
Examples are:
Pinnate - False Acacia or Black Locust (*Robinia pseudoacacia*), Vetches (*Vicia* spp.).
Bipinnate - Male Fern (*Dryopteris filix-mas*).
Tripinnate - Lady Fern (*Athyrium filix-femina*).

A further use of pinnate is to describe venation patterns e.g. the leaf of the banana (Musa) or the Bird-of-Paradise Flower (*Strelitzia*) is pinnately veined.

The correct way to describe compound inflorescences is to count the order of the side branches. Bromeliad inflorescences are always a spike or a raceme (only main axis) or represent a compound inflorescence (panicle, with side branches).
Examples are:
Unbranched spike/raceme - *Vriesea splendens, Tillandsia xiphioides.*
Panicle with side branches 1st order - *Tillandsia grandis, T. oerstediana.*
Panicle with side branches up to 2nd order - *T. extensa, T. samaipatensis.*

The term "imbricate" includes that the described organs overlap each other clearly, other organs below these imbricate structures (e.g. the peduncle or rhachis) are completely covered and conclusions about their structure and look-alike are impossible without removing the imbricately arranged organs.
Examples are:
The floral bracts in the fertile part of the inflorescence in V*riesea splendens.*
The cataphylls along the stolons of *Aechmea distichantha.*

(Ed - cataphyll: an undeveloped leaf; a rudimentary leaf form as at the beginning of a growth, e.g. bracts on a stolon.)

Acknowledgements
The differing use of scientific terms in Bromeliaceae has been a problem for a number of years, but W. Till (WU) forced us to revise the situation and to publish the results. We thank him for his support. The preparation of this article involved numerous discussions and voluminous email exchanges with botanists working in various fields, whose opinions contributed substantially to the article. We are grateful to all those who took part.

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