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

Edition: July 2021

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 19th August 2021 at 11 a.m.

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Life Members: Gary McAteer
Coral McAteer

Meeting 17th June 2021

The meeting was opened at approximately 11.00 am
The 15 members and one visitor present were welcomed.
One apology was received.

General Business

A warm welcome was offered to everybody followed by an introduction to our visitor on the day, Rick.

With several new members getting involved in the Popular Vote Competition it was time to mention some entry rules, the main point discussed was, a plant can be entered as often as one wishes until it wins the section, after which the plant may not be entered in the same section again, in the same year.
There is one exception: if the plant entered won in its 'non flowering state' it may be entered again only when in 'full flower', no other exception.

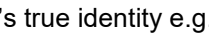
Show, Tell and Ask!

In FNCBSG NSW Newsletter May 2021, page 8, was a photo of a plant Helen entered into the Popular Vote competition that was named but unregistered. It was *Aechmea* 'Red Bird', ooops I was given the hurry up to fix this oversight before the bird flies the coop and is forgotten about again. The situation has been dealt with and our 'Red Bird' is no longer a free-ranger, it is registered now as several offsets have been shared around with other growers so not a one off. Where did the name come from you may ask? It was an opportunistc seed collection from *Aechmea chantinii* var. *fuchsii*, a large green plant with silver cross banding on both sides of the leaf that was cross pollinated by birds ?? with an unknown red leaf plant possibly *Aechmea manzanaresiana* or similar. So we get red plant crossed by bird = 'Red Bird'.

A question asked: how to pronounce Hylaeaicum ?
Hi lee ay eye cum (c as cat) - interpretation taken from Stearn's Botanical Latin.

Mitch brought along one of his home grown *Ananas* 'Golden Nugget' an unreg. *Ananas* 'Comosus' variety to show his success in growing one to fruiting stage. Mitch explained how he grows them by either cutting the top off with a sharp knife or as he did with this one simply twist the top off and place the cut/twisted off part in a jar of water until roots develop. Alternatively the cut/twisted off part can be set aside to dry for a day or two before potting up as per normal or plant directly into the garden bed in a full, all day sun location. The sweet smelling fruit was quickly whisked away and cut up for tasting, oh how sweet it was too.

When writing your labels please print carefully, we can't all read 'chicken scrawl', (an intransitive verb meaning: to write awkwardly or carelessly*!!*)
Poorly written labels often lead to misinterpretation of the spelling and confusing identifications until the plant flowers when identification becomes easier for most plants. Abbreviating names on labels is fine in your own collection but should be frowned upon when being carried forward onto plant sales labels where the name should be written in full and clearly. Very few people are computer illiterate these days so spell or up-to-date information checking on either the Bromeliad Cultivar Registry or The New Bromeliad Taxon List should be done if in doubt.

Be it deliberate or accidental, shortening of names on labels is not fair to buyers who may think they are buying something different to what they already have in their collection. A recent acquisition had the buyer a little excited at a 'new' find, only to be told it's true identity e.g. this typo T. Henduras  or is it a misrepresentation of *Tillandsia* 'Hondurensis', which it was. Keeping up-to-date with correct names/name changes should be the sellers responsibility, not to disappoint the buyers. We trust and rely on the more experienced growers to set an example, teaching bad habits is not what we should encourage or expect.
For new introductions into ones own collection "never trust the name on a label".

John had quite a box full of plants for **Show and Tell**, first up was the not often seen but beautiful *Aechmea carvalhoi* that grows epiphytically in the rainforests in the state of Bahia, Brazil, its red scape bracts draped below the pyramidal inflorescence of white sepals and violet petals makes it quite a showy plant.

The next few to come out of the box were Tillandsias, one John referred to as a super straight *Tillandsia usneoides* that he'd acquired recently and was a much larger form than we usually see.

The second was *Tillandsia ionantha* var*. vanhyningii Foster* & *Van Hyning,* found growing on vertical ledges of limestone over-hanging Rio Grijalva near Tuxtla Gutierrez, Chiapas, Mexico, 6 Apr 1957. This lovely little plant only grows to around 25 mm across in habitat, two to three times that size in cultivation. When we were travelling through Mexico in 2018 we saw this variety growing in masses clinging to the vertical lime-stone cliffs in Sumidero Canyon along the Rio Grijalva. There were great carpets of them clinging to the cliff walls well above the water line, unfortunately few were in flower but still a sight to see.

There is one species, four varieties and one forma of *Tillandsia ionantha* listed in The New Bromeliad Taxon List and currently over 100 cultivars listed on the BCR which will increase over time, so it's important to keep good records and your ionanthas labeled correctly. A photo of each plant is a good record method. Differentiating some from one another can be difficult even for the keen of eye.

Next from John was *Tillandsia somnians* with an inflorescence almost 1.5 mtrs tall with two viviparous pups growing along the stem. It is found growing in moist locations in narrow gullies between cliffs, at the head of Quebrada de Atacongo near Lurin, 600 m alt, Lima, Peru. It's distribution method is both by seed and those pups that grow along the stem/scape of the inflorescence. As the pups get too heavy to be supported by the slender elongated scape, it gradually leans over touching the ground where the pups establish themselves further away from their mother. These pups can also be cut from the scape and potted individually, if removed carefully and the scape left intact it could produce more pups from other nodes along the scape.

Our next plant from John's box of tricks was a clump of *Cryptanthus* 'It' that he wanted to show us how best to divide and repot it (no pun intended). John showed how with just a little jiggle to each side, the pups virtually fall off, if they don't then they are not quite ready, so leave them on mum for a little longer. When placed in a pot their leaves often try to push themselves up and out of the potting mix, this can be fixed using an elastic band or string over the plant and the pot to help hold the pup down into the potting mix. Other methods such as staking were suggested also, whatever you find works best for you in securing the plant will do, the main point is, a stable plant will establish roots quicker.

John still hadn't finished yet ... it was a pretty big box of tricks he had for us that the day. Out came some *Canistropsis billbergioides*, a species that wears a coat of many colours, fruit colours to be exact. With extracts from various sources we shall explain: *Canistropsis billbergioides* is the most variable species in the genus as regards leaf and primary bract colour. Virtually all of the different hues are found in separate populations, but there is no clear territorial population dominance over another. It's the different bract colour and hues that gave rise to the use of fruit colours for the cultivar names of which there are 15 in the BCR.

The distribution and habitat of *Canistropsis billbergioides* occurs in most of the states of Brazil where the genus *Canistropsis* is found, from Bahia to Santa Catarina, growing from sea level to altitudes of ca. 1,000 m. It is rare in Bahia and also in Parana, perhaps for lack of specific collecting activities. Its preferred habitat is the understory of the Atlantic forest, where it grows on rocks or attached to tree trunks and branches in the lower part of the forest.

Canistropsis means "resembling Canistrum" that is, the name of the genus Canistrum, from the Greek kanos = basket, is joined to the Greek suffix opsis meaning "like" or "manner of". The name Canistropsis therefore arose from its apparent similarity to the genus Canistrum. Canistropsis was resurrected by Elton Leme as a distinct genus in its own right from Nidularium and published in 1998 in his book titled Canistropsis, Bromeliads of the Atlantic Forest.

Canistropsis billbergioides

Nidularium billbergioides by Derek Butcher, Bromeletter 35(5), 12, 1997.

John Crawford showing some of the colours available.

Plants with this name have been popular for many years and come in various colours. They grow and flower at their best in northern N.S.W. and most places north. They are not particularly keen on growing further south but are hardy enough to grow and flower. So all Australians should be able to grow this species.

The name billbergioides means like a billbergia which seems strange when we envisage what we consider a billbergia should look like. However, it first made its appearance in the botanical world in 1830 under the name *Hohenbergia billbergioides.* At that time known bromeliads would have only numbered a few hundred which puts things in a different perspective.

We know there are many forms of this plant and the keen ones will know that in Smith & Downs page 1611 it was decided not to use the varietal names because "It does not seem possible to distinguish the colour variations in this species and to apply them to all the names involved".

'Citron'

Therefore names like var. *citrinum* or var. *purpureum* are incorrect unless you want to resurrect their status with good argument and write up a description in your best LATIN with herbarium specimen!

This does not stop us trying to do the impossible from a horticultural point of view. With the aid of Diana Hughes and Robert and Melissa Dilling of the northern N.S.W. coastal area we have come up with a solution. The Dillings have been growing this species from seed for many years. We will call each of the cultivars by the name of a fruit that is roughly or even suggests the colour of the primary bracts.

'Lemon'

For more precise colours we have referred to numbers in the colour chart in Isley's book "Tillandsias" or Grafs "Exotica", that way we would be consistent. Problems occur in nature where colour is not a "solid" colour but seems flushed with another colour. Therefore, whenever "flushed" appears in the description you'll know what to expect.

Another problem lies in leaf colour so you could have a plant with the same primary bract colour but different leaf colour. This is covered by a different fruit name! Some plants are variegated and in these cases a match can be made and then "variegated" added to the fruit name, e.g. ‘Citron’ variegated.

To start the ball rolling we have come up with eight names which are as follows:- Those added later have a *.

Apricot	Primary bract deep yellow orange #12	Leaf green
Blood Orange	Primary bract reddish orange #24	Leaf green
Citron	(was citrinum) Primary bracts yellow #3	Leaf green
Guava *	Primary bracts rose #38	Leaf green
Lemon	Primary bracts light yellow #2	Leaf green
Mandarin *	Primary bracts Mandarin Red #24	Leaf maroon #24
Mulberry	Primary bracts dark orange/mulberry #19	Leaf reddish both sides #28
Persimmon	Primary bracts orange #18	Leaf green
Plum *	Primary bracts apricot #11	Leaf green
Tamarillo	Primary bracts orange flushed mulberry #1	Leaf rusty both sides #21
Tutti Frutti	Primary bracts orange flushed mulberry #12	Leaf green

I feel sure I have seen *Nidularium billbergioides* with very dark primary bracts and sometimes very dark leaves where the colour is in the purple range, e.g. #47, so there must be others to add to the list and we have lots of fruit left!!

If you have any suggestions or plants to add to the list please contact me.


‘Guava’


‘Mandarin’


‘Persimmon’


‘Plum’


Tillandsia stricta
shown by Gary McAteer

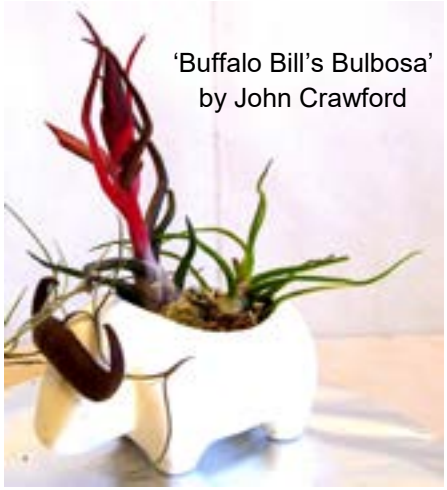

Tillandsia roseiflora
shown by Ross Little


Tillandsia ionantha
shown by Keryn Simpson


‘Pretty Garden’
by Keryn Simpson

‘Fire & Ice’
by Mitch Jones

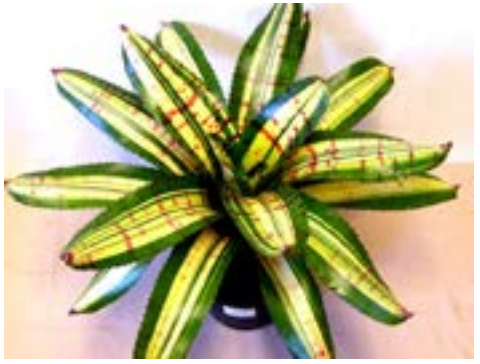
‘Buffalo Bill’s Bulbosa’
by John Crawford



Neoregelia ‘Hacksaw’
1st Open and Judges Choice
Jennifer Laurie

‘I Love Our Sunburnt Country’
1st Decorative Dave Boudier

Wallisia pretiosa
1st Tillandsioidea John Crawford



Neoregelia ‘Scarface’
shown by John Crawford

Aechmea brassicoides
shown by Mitch Jones

Neoregelia ‘Banshee’
shown by Keryn Simpson

Orthophytum ‘Warren Loose’
shown by Helen Clewett

Tillandsia ’Cotton Candy’
shown by Dave Boudier

Lutheria ‘Splenriet’
shown by Dave Boudier

Tillandsia araujei
shown by Helen Clewett

Photos by: Ross Little

Raising Alcantarea via Seed **Show and Tell** talk given by Mitch Jones

Raising Alcantarea, or other bromeliads for that fact, from seed is a simple process. The benefits of growing from seed are saving precious species from extinction due to loss of habitat and the preservation for future generations along with keeping genetics alive globally.

Further to the above seed raising allows one to create their own hybrids through experimentation.

Equipment:

- Takeaway container (recommend the large rectangle ones from Woolworths)
- Sowing medium (I prefer Cacti and Succulent mix, though you can use a good horticultural grade coco peat or seed raising mix.)
- Spray bottle with water
- Microwave
- Seed
- Label

Method:

1. Put seed raising medium in a takeaway food container and place lid on.

2. Microwave for 1 to 1.5 minutes to sterilise mix and kill unwanted weed seeds.

3. Allow sterilised medium to cool down.

4. Write a label for the seed that you are sowing and include the date on which it was sown for reference point.
This is necessary for hybrids if potentially registering in future.

5. Select a ripe seed pod that has split.

6. Extract seed.

Too green

Almost ripe

Ripe pod

Burst dry pod

Seed visible in pod

Seed from a pod

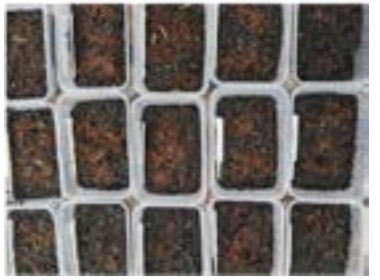
7. Remove lid from takeaway container.

8. Spread extracted seed over the sterilised medium.

9. Mist the seed and medium until moist.

11. Put label into container.

12. Seal lid and place in a warm sunny position.



Over time you will see the seed starting to germinate. Seasons and warmth can play a major factor in the rate of germination, but patience is a virtue. Once the seedlings have sprouted with sufficient leaves you can transplant them out further to allow growth and ease potting on once established.

Green dots are germinating seed

Transplanted seedlings

Happy growing

Cheers

Mitch.

Greigia the Genus Not Often Seen

compiled by Ross Little 2021

In 2015 we'd been travelling around Ecuador for over two weeks and coming to a leg of our travels we really wanted to experience. In doing some research prior to the trip we were told the Baeza to Papallacta road section through to Quito was not to be missed. Sadly for us heavy rains had caused a massive landslide that blocked the road. We were about 30 km short of Papallacta and unable to continue forward so had to do a massive detour around the area to get to Quito. The section we did get to travel on certainly lived up to all expectations.

At the end of our group tour we still had a few days to spare so we decided to do the Papallacta section from Quito back to where we had previously been stopped by the landslide. We took a detour along the way to the hot springs at Papallacta to enjoy a spa, yes it was OK, what I found was even better*!!* Always on the look-out for 'new to us' Bromeliads we saw an unusual plant with flowers submerged in the leaf axils. Having read José Manzaneres books I realised I was looking at a Greigia, how exciting - first live one I'd ever seen.

The genus Griegia comprises 36 species plus 4 varieties Gouda / Butcher 2021. Named by Eduard August von Regal in 1865, they are mainly found growing from Mexico through Central America into the high Andes of Colombia, Ecuador and into central Chile. They seem to have a preference for the wet, cool cloud forests and swampy grounds at elevations from sea level up to 3000 mtrs plus.

Greigia is the only genus that all its members have a lateral inflorescence, that is, remains hidden within the leaf axils, not produced from the central growing point.

Most Bromeliads flower from their centre and die after blooming, Greigias are lateral flowerers, they do not die after blooming, they continue to grow and flower year after year from the same plant. A terrestrial plant with a caulescent habit that maintains constant growth.

Greigia vulcanica photos Ross Little, Lesley Baylis

The Preparation and Observation of Tillandsia Trichomes Using the Scanning Electron Microscope

BSI Journal - 1979 V29(2)

Abstract: In this study, specimens from the genus *Tillandsia* and a few other genera of bromeliads were fixed and critical-point dried using standard techniques. The specimens were examined in the SEM for differences in trichome morphology. Most of the species examined had visible differences which could be used as criteria for keying out species.

Introduction: Bromeliads have long been known to possess very specialized water-absorbing trichomes. In this project several species from the genus Tillandsia were examined in the Scanning Electron Microscope (SEM) for differences in trichome morphology. A few specimens from other genera were also examined for comparison.

Materials and Methods: Leaves were taken from the specimens to be examined and placed in a petri dish containing glutaraldehyde. While the leaves were in the dish, small (3 x 3mm) sections were removed from them and placed in a carefully labelled specimen holder.

Tillandsia usneoides x200

The specimen holders containing the leaf sections were then immersed in glutaraldehyde for twenty hours for fixation. After this time the specimens were removed from the glutaraldehyde and placed in a solution of osmium tetroxide for one and a half hours. This further fixed the tissue and made it somewhat conductive by depositing heavy osmium metal in the cells.

The specimens were then rinsed three times in a buffer solution (pH 7.2) over a twenty-five minute period, and then run through a series of alcohol dilutions, from 35% to 100% ethyl alcohol, to remove water from the tissue.

The specimens remained in each alcohol dilution (35%, 50%, 70%, 85%, 95%, 100%) for five minutes. They were then rinsed three times in amyl acetate and soaked in the third rinse for thirty minutes.

Tillandsia ionantha x200

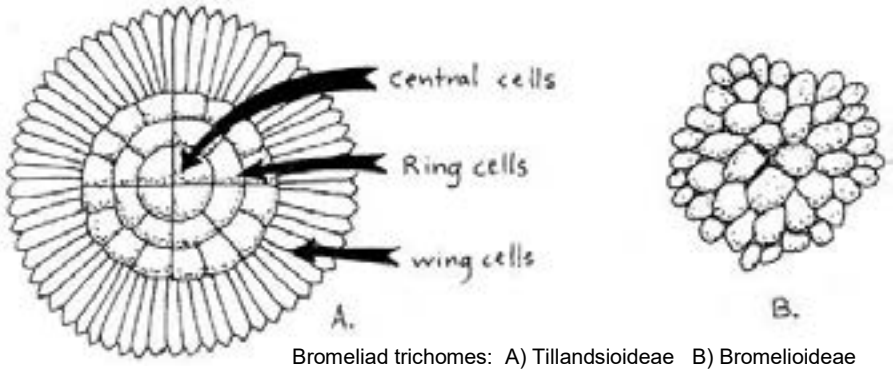
Following treatment with amyl acetate, the specimens, in their holders, were placed in a critical point drying apparatus in which the amyl acetate was replaced by liquid carbon dioxide under high pressure. After the amyl acetate was completely replaced, the temperature was raised to the point at which the transition from liquid to gaseous carbon dioxide took place without stress-forming phase boundaries.

At this point the carbon dioxide was vented from the chamber, and the specimens were ready to be glued onto stubs and gold-coated. The gold-coating was done in a vacuum, with the gold being evaporated onto the specimen using high voltage.

Observation of specimens: The specimens were then ready to be observed. The SEM showed surface morphology of the trichomes clearly. However, in some of the specimens, excessive charging on the edges of the scales was evident, so the accelerating voltage was reduced from twenty kilovolts to ten or fifteen kilovolts, depending on the nature of the specimen. The resulting loss in resolution did not affect this study due to the low magnifications used.

Two photos were taken of each specimen, at 200× and 400×, unless the size of the trichomes dictated to do otherwise.

Results: The examination of *Tillandsia* trichomes showed clearly that much variation between species does exist. There are, however, some basic similarities among all of the specimens in the subfamily Tillandsioideae. Of this subfamily, *Tillandsia* and *Catopsis* were examined in this study. There were invariably four central cells, surrounded by two concentric rings of cells, consisting of eight and sixteen cells respectively. These, in turn, were surrounded by the long, thin wing cells. Results from another study (Benzing, et al, 1978) showed the same basic morphology in other Tillandsioideae: *Tillandsia, Catopsis, Vriesea*, and *Guzmania.*



Bromeliad trichomes: A) Tillandsioideae B) Bromelioideae

A few specimens from the genus *Cryptanthus* were also examined. These belong to a different subfamily, the Bromelioideae, and had a much different morphology. They tended to have a more random distribution of rounded cells in the trichome, with the cells in the centre being largest, and gradually decreasing in size toward the edges. Benzing's study showed this same general morphology in other Bromelioideae: *Aechmea.*

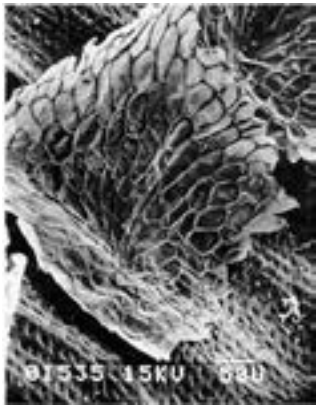
Discussion: The fact that the trichome cells in the Bromelioideae were rather randomly distributed would make classification of these more difficult than the Tillandsioideae. Criteria used in classification would be limited to such things as average cell size, average trichome size, and density of trichomes on adaxial and abaxial leaf surfaces.

The ordered structure of the trichomes in the Tillandsioideae makes variation among species more evident. Criteria for comparison would be whether the trichome is radially (*T. circinnata*) or bilaterally (*T. usneoides*-"Spanish moss") symmetrical. The area of the central cells versus the wing cells could also be measured. The number of wing cells per trichome would be a good criterion for aiding in keying-out species, as there is a wide range, from thirty two in *Catopsis floribunda* to approximately one hundred and fifty in *Tillandsia pruinosa.* One other major difference between species of *Tillandsia* was the degree to which the trichomes were raised above the surrounding tissue. In *T. lindenii* the scales were pressed right against the leaf and even appeared glued to the epidermal tissue. This was also the case with a few other species, but to a lesser extent. In most species, however, the scales were extremely ruffled and the wing cells extended well above the surrounding tissue.

Conclusion: Taxonomic identification using scale (trichome) morphology shows much promise, in light of the wide variation among species. Further research in this area would be very worthwhile, and would be a great aid in classifying these plants.

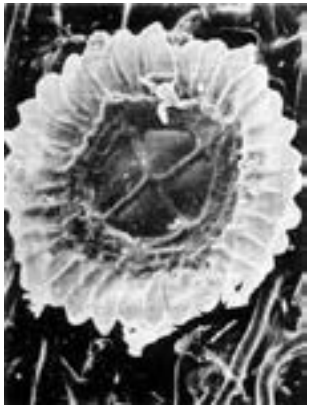
My thanks go to Dr Charles Krause, who trained me in scanning electron microscopy.
Uwe Heine - *Ohio Wesleyan University*

Literature Cited: Benzing D. H., Seemann J. and Renfrow A., 1978. "The Foliar Epidermis in Tillandsioideae (Bromeliaceae) and its Role in Habitat Selection." Journal of Botany, 65(3):359-365.



Cryptanthus beuckeri
Upper leaf surface x200

Tillandsia caput-medusae
x200



Catopsis floribunda
x800

Open Popular Vote

1st	Jennifer Laurie	*Neoregelia* 'Hacksaw'
2nd	John Crawford	*Neoregelia* 'Scarface'
3rd	Helen Clewett	*Orthophytum* 'Warren Loose'

Tillandsioideae

1st	John Crawford	*Wallisia pretiosa*
2nd	Gary McAteer	*Tillandsia stricta*
3rd	Helen Clewett	*Tillandsia araujei*
3rd	Keryn Simpson	*Tillandsia ionantha*

Decorative

1st	Dave Boudier	'I Love Our Sunburnt Country'
2nd	Keryn Simpson	'Pretty Garden'
3rd	Mitch Jones	'Fire & Ice'
3rd	John Crawford	'Buffalo Bill's Bulbosa'

Judges Choice

1st	Jennifer Laurie	*Neoregelia* 'Hacksaw'

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.