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

Edition: July 2023

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 August 17th 2023 at 11 a.m.

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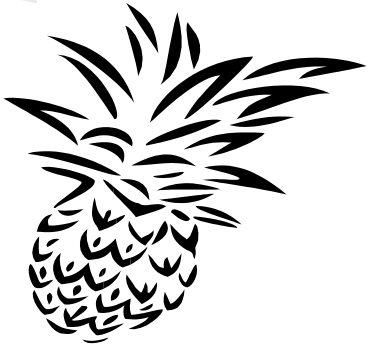


Meeting 15th June 2023

The meeting was opened at approximately 11.00 am
The 12 members and 2 visitors present were welcomed.
Two apologies were received.

General Business

Mail for the month was included into our library for members to borrow. We have a good stock of older Newsletters and Journals from other Groups and Societies that are jam packed full of helpful information. We highly recommend that our Group members make good use of this resource and the many coffee table books we hold in our library. To borrow books one must attend a minimum of three consecutive meetings and show proof of identity and give contact details.

A short review of last month's Newsletter was given, hopefully we answered all the queries from the previous month's discussions.

Included into **Web Links for Checking Correct Identification and Spelling ?** on page 16 this month is the URL for the Bromeliad Species Database (BSD).

Anyone can use the BSD, it has public pages - these features are:

- 100% up-to-date taxon list.
- synonym button for checking old names in black and linking to the new names, which is a very handy feature.
- the grey 'Show Synonyms' button on each genus page changes the menu.
- photo galleries (anyone can upload photos) - many common species still have no photos because they are pulled from existing Florapix galleries - this is where help is needed, more photos are required!
- view the thumbnails of ALL of Derek Butcher's files under the "Description & Resource Files" section for each species. (Also known as UD or Uncle Derek). In this section you will find photos, herbarium sheets, drawings, protologues, maps and botanical descriptions.

YES, you have to be a current Bromeliad Society International (BSI) member to be able to open the files and view photos in large size. This restriction is to encourage Bromeliad enthusiasts to join the BSI and be able to use this valuable resource to its greatest potential.

It's a bit clunky in places, but that's what we have to live with at this stage due to current "design rules". The BSD is a must use resource for any enthusiast of Bromeliad species alongside the Bromeliad Cultivar Register (BCR) for hybrids and species cultivars. The 'User Instructions' link on the main menu page is worth reading regarding the photo and file usage rules / uploading etc.

Show, Tell and Ask!

As our members collections are growing so is their need/ their want to be able to foliar spray fertilizer easily in our time poor lifestyles. Discussion was had about our different methods of delivering foliar fertilizer and pest spraying. We need to regularly spray our collections and this needs to be done time efficiently.

Pump up spray bottles are good for most situations ►

In-line venturi.

Hose end venturi sprayers work well.

Backpack / knapsack sprayers for strong backs, manual or electric with rechargeable batteries are available.

Electric spray unit on wheels with rechargeable battery saves time and effort.

An in-line fertigator injector can deliver a measured amount of fertilizer through your sprinkler system.

Bulk liquid containers (IBC tanks), add an electric or petrol pump connected to your shade house or garden sprinkler system.

Photos borrowed from the internet are indicative only.

Mitch reminded us to be careful when using composted green waste or recycling our old potting mixes as both can contain weed seeds and other contaminants e.g. bits of plastic, unwanted sharps and diseases. Both recycled materials can be treated by placing them into plastic bags and sitting them in the sun for heat treatment. Allow to cool before use. Keep potting mix storage areas covered to minimise wind blown weed seed invasion. If you have concerns about adding commercial potting soil to your bark mix, try adding coco-peat instead. Coco-peat is a natural fibre made out of coconut husks which is a 100% natural growing medium. Don't forget coco-peat retains moisture so be mindful of overwatering and creating a boggy mix. When making up a new mix, maintain a higher percentage of your bark mix than added coco-peat.

Our (PineGrove) potting mix storage area is 3 mts x 3 mts x 1 mtr high, we hold 6 cubic metres of our mix in it which we keep covered with shade cloth. Weed seed still gets through so we use a pre-emergent weed killer/herbicide which we add on top of the mix as we're potting plants, when required.

Mitch has taken using weed killer a step further. We are an experimental Group! Mitch has been experimenting with seed and herbicides. He tried soaking some Dyckia seed in the pre-emergent herbicide Rout just to see what would happen and hopefully instigate some variegation. Result: stunted growth. He hopes that after they flower their next generation may see some growth improvement or they'll be culled.

Over the last few years Mitch has been a very busy bee attempting to create many new hybrid combinations within Alcantarea.

Here is a snapshot of the result of last seasons pollinating.
He has many more pods to collect as they mature.

Luckily he has youth on his side!

He had a tray of some of his successes from previous seasons that he is hoping to develop further, especially the variegated one which is:

Alcantarea odorata x *duarteana* sown on the 28 - 7- 2021, one single seed only was viable from this cross and he was fortunate enough that it is showing some promising signs of holding its variegation.

Having such a large Alcantarea collection one can't control all pollinations so there are some opportunistic/open pollination seed collections made. One such collection was from an *Alc. odorata* which is a silver foliaged plant but gave rise to a seedling with red colouring. This is one to be saved from the cull pile and grown to maturity.

There was also an *Alc. extensa* x ('Arno' x *vinicolor*) in the tray showing some nice colour, sown 22 - 8 - 2021.

Alcantarea extensa x 'Faery Dust', another interesting cross, lets hope that some of the colour from the extensa passes onto the seedlings as they mature. *Alc*. 'Faery Dust' being another silver foliaged plant. Sown 24 - 6 - 2021.

Mitch has been maintaining a strong policy of being a responsible hybridizer by only keeping the seedlings that are distinctly different and culling the rest.

Understanding a Written Formula from a talk by Ross Little

When writing plant names there are some fairly basic rules to follow so that at a glance in a written article one knows if the plant being referred to is a species or a hybrid. Some basic rules to follow are:

1) genus begins with a capital letter and in italics e.g. Neoregelia

2) species name is in lower case and in italics e.g. carolinae

3) genus name for a hybrid as for (1) above

4) hybrid name, first letter capital, name in quotation marks, e.g. ‘Whirlwind’.

Some basic rules also apply when writing a hybrid formula:

1) seed / pod parent should always be written first.

2) pollen parent second.

When writing a hybrid formula these rules help to easily identify when a species or a hybrid has been used as a parent and which is the seed parent.

In the following formula we can see that some species and a hybrid/cultivar was used as parents, written as is, it is difficult to know what was crossed first:

Alcantarea extensa x ‘Arno’ x *vinicolor*

By adding some brackets we can now see what was crossed first. A seedling from that cross was grown to maturity, flowered and crossed onto *Alc. extensa*:

Alcantarea extensa x (‘Arno’ x *vinicolor*)

Nothogenus: Contrary to these rules is a bigeneric formula.
BSI Glossary: A nothogenus is a name at generic level for a hybrid between two or more species in different genera, customarily preceded by a multiplication sign (x).

Derek Butcher found in a plant sales listing in 2001 a bigeneric called a Dyckipu that fascinated him. It was an illegitimate name because the first syllables from both genera involved had been used whereas the first and last should be used. The correct nothogenus should have been XPuckia.

The basic rules for writing a hybrid formula of seed parent first, pollen parent second doesn’t necessarily apply for bigenerics. The name must roll of the tongue and sound nice. Hence xPuckia is easier to pronounce and sounds better than xDyckipu. That was a tongue in cheek naming I think, it could’ve been worse and got called a xDyckya, first and last syllables used but could be misinterpreted as a typo/misspelling of Dyckia, so not a good nothogenera I would think.

One of Mitch’s hybridizing aims is to create something different rather than creating some same ol’ same ol’s.

Move on hybridizers, think outside your box. We see too many people recreating somebody else’s success stories.

Not Mitch, he is trying to stretch the boundary with unusual creations. Here we see one of his x*Puckia*, a Dyckia x Puya hybrid.

Can’t wait to see an inflorescence on this one.

x*Puckia* by Mitch Jones
Dyckia unknown red X *Puya spathacea*

Forzzaea warasii (E. Pereira) Leme, S. Heller & Zizka, 2017.
Previously known as *Cryptanthus warasii* E. Pereira, 1978.
Type: BRAZIL. Minas Gerais: Diamantina, 25 August 1977, E. Waras s.n.

Forzzaea warasii is a semi-succulent xerophytic bromeliad that appeals to both succulent and bromeliad collectors as soon as they see it.

Forzzaea warasii grown by Mitch Jones

On August 25, 1977, Eddie Waras discovered *Forzzaea warasii* at Diamantina, Minas Gerais, Brazil.

Before flowering, the rosette of *Forzzaea warasii* is upright and flaring, the leaves gradually recurve until, after flowering, the plant flattens out and produces a few pups on stolons. It requires warm sunny days and cool nights, it can be grown in 120 - 150 mm pots in a cactus type free draining mix. Fertilize it regularly in spring and summer and be rewarded with a beautiful plant.

Neoregelia ‘Kahala Sunset’
1st Open and Judges Choice
Michelle Hartwell

Tillandsia stricta
1st Tillandsioideae
Gary McAteer

‘Just Love Tills’
1st Decorative Keryn Simpson

‘Prune in June’
by Debbie Smith

Aechmea recurvata
var. *benrathii*
grown by
Keryn Simpson

Neoregelia ‘Captain Moxley’
grown by Kayelene Guthrie

Tillandsia ehlersiana
grown by Mitch Jones

‘A June Wedding in the Park’
by Coral McAteer

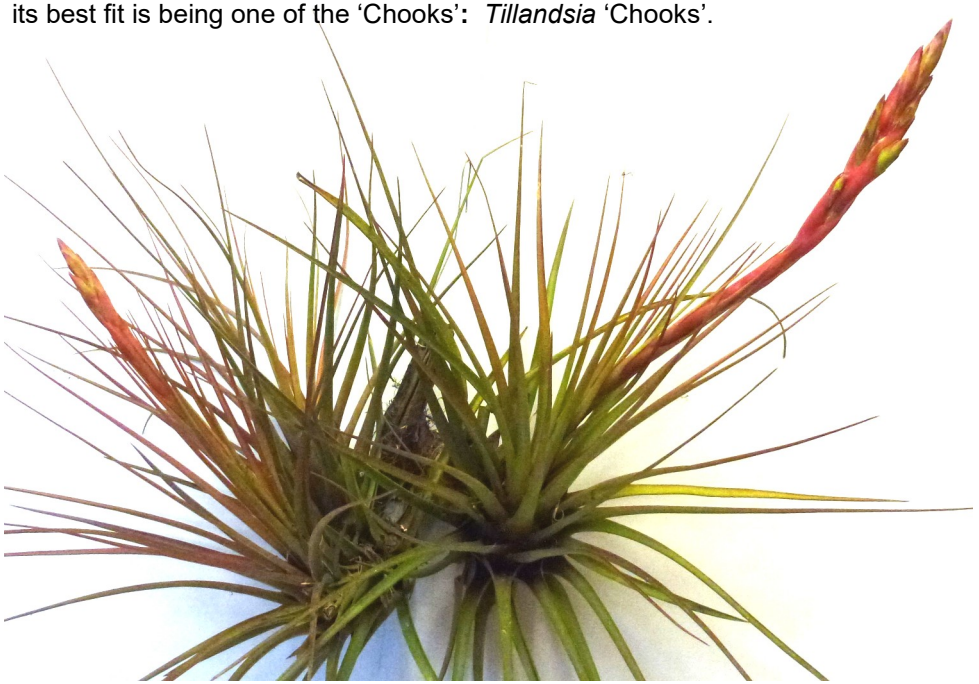
Tillandsia dura
grown by Helen Clewett

Keryn brought along a couple of plants for identification. One having fairly stiff, bronze toned green pointy leaves with a branched reddish pink inflorescence which brought to mind *Aechmea* 'Ares'. On checking the BCR this identification call was agreed upon as correct.

Aechmea 'Ares' is a Gulz (Hummel) cross between:

Ae. fulgens var. *discolor* and
Ae. distchantha var. *glaziovii.*

Keryn's next plant for identification had a few suggestions but we feel its best fit is being one of the 'Chooks'**:** *Tillandsia* 'Chooks'.



***Tillandsia* 'Chooks'** by Derek Butcher and Chris Larson Sept 2015.

Guatemala is the source of a large portion of the world trade in tillandsias. Many of the plants currently sold in large numbers by Guatemalan tillandsia suppliers were initiated in the days before many of the species were described. Taxonomy often doesn't keep up with the speed of the commencement of trade in plants. The state of tillandsia taxonomy is such that some of the suppliers of these tillandsias have traded them for many years under the closest species that they could find, and as a result they often have been still traded under that name, as if out of habit, because both the vendor and the purchaser knows what they will get and what to supply, if they order those names. In the late 1980s and early 1990s many of the species were described and most were sorted, but sometimes it takes longer, for example it has taken until this year for the plant the Guatemalans call either T. *capitata* 'Peach' (not to be confused with the T. 'Capitata Peach' from Mexico) or *T. sphaerocephala* to be described as *T. riohondoensis.* How long it will take the commercial trade to catch up with this change is anyone's guess.

One group of plants where taxonomy has not been keeping up is the group we associate with *T. tricolor*. This includes *T. tricolor* var *tricolor, T. tricolor* var *melanocrater* (now *T. melanocrater*) and *T. tricolor* var *picta* are the botanical varieties of *T. tricolor*, but recently there have been other related species newly described such as *T. welzii* and *T. crista-gallii*. Even though *T. crista-gallii* comes from Mexico, the type locality is almost on the Guatemalan border leading some to speculate that its habitat may cross over into Guatemala. *T. crista-gallii* as it is known locally in Mexico means cock's comb and we have started calling these errant forms 'Chook' where they have a similar compound inflorescence where the short branches bend outwards, the floral bracts are red with scattered scales and the flowers are blue tubular with stamens exserted .

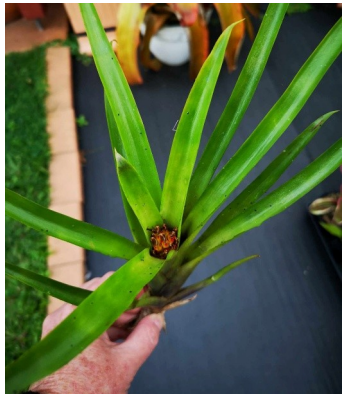
Here in Australia we see a range of forms of these T. tricolor-ish plants come into culture which have been close to the species *T. crista-gallii*, but we are un-sure of their provenance or their actual identity. Hence we have coined the term 'Chooks' to deal with them. In all probability the name 'Chooks' will remain an Australasian phenomenon but will be put in the BCR so that there is a record of this/these plants identity.

Exserted: projecting beyond a common point, protruding.
e.g. stamens protruding beyond (outside of) the petals.

Michelle brought along a plant she has had in her garden for many years without a name and thought it time to get it identified. It's *Aechmea* 'Peek-A-Boo' an oldie from around the 1970s with little information available about it other than it was from Hummel. It's a hardy little plant that forms clumps nicely in the garden and can cope with very bright light to full sun.

Aechmea
'Peek-A-Boo'

Photos by
Michelle Hartwell



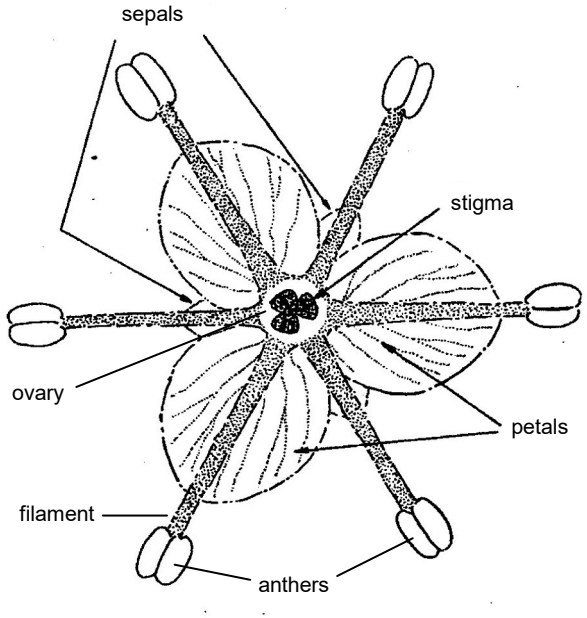
Flower Parts and The Reproductive Structure of Bromeliads

Taken from: Biology of the Bromeliads by David Benzing.

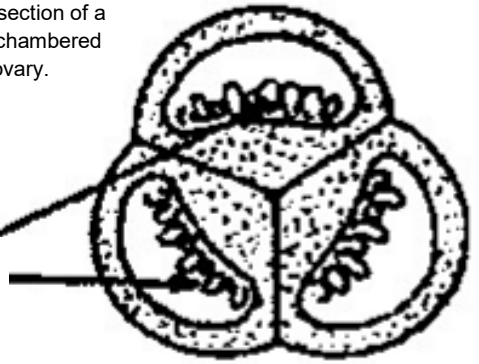
By floral standards, Bromeliaceae is neither primitive nor highly evolved. Its flowers are basically three-parted; except for a single pistil, the floral appendages are borne in threes or multiples of threes on a short receptacle.

The female apparatus is consistent with the general pattern since it contains a three-chambered ovary topped by a style with a three-lobed stigma.

Three lobed stigma



Cross section of a three-chambered ovary.



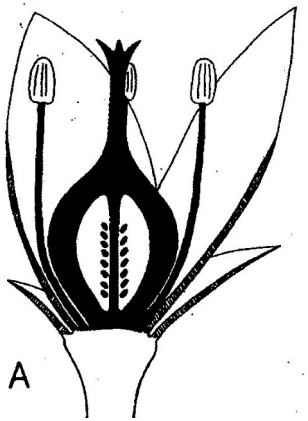
Three lobed stigma

Three petals always alternate with an equal number of smaller green sepals. The six (usually) stamens are positioned in two whirls of three each. Numerous variations are imposed on this basic monocotyledonous design. Those that concern the nature of the fruit have special taxonomic significance in the Bromeliaceae, and are used to differentiate its three subfamilies (now eight by DNA ed.) Less dramatic characteristics of several parts of the flower, as well as the organization of the inflorescence, have proven useful for distinguishing genera. Species, varieties and forms are demarcated by various aspects of both the vegetative and reproductive parts of the plant body.

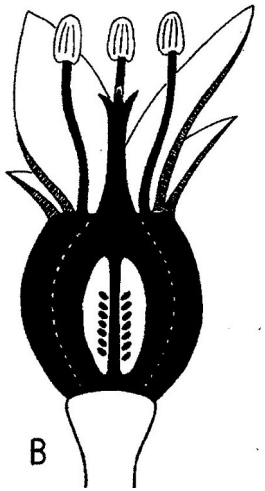
Floral specialisation has progressed to the point where the blossoms of some bromeliads have become unisexual. Both types of sexual appendages are still present in these cases, but one is vestigial (reduced to a remnant of a part). Sometimes the stamens are reduced to naked filaments, the pistils to vestigial bumps (e.g. some Catopsis), but each retains its proper place on the receptacle. The non-functional pistil may sometimes look almost normal (e.g. some Hechtia) but it produces no fertile ovules. Unisexuality is probably a more recent derived condition in this instance. Species whose individual members produce either competent male (**staminate**) or female (**pistillate**) flowers, but not both, are considered to be **dioecious**. When each flower is unisexual but both staminate and pistillate ones occur on every specimen, the population is **monoecious** ("in one house").

Individual flowers can be **complete** (containing all four functional parts) or **incomplete** (lacking one or more of the four kinds of appendages). They can be **perfect** (containing both functional stamens and pistils) or **imperfect** (lacking one of the functional sexual organs), as in the case of dioecious Hechtia and Catopsis. Thus an imperfect blossom isn't necessarily incomplete, but an incomplete one may be perfect if only petals and/or sepals are missing.

The sepals, petals and stamen filaments of Fosterella clearly arise from the receptacle as discrete organs below the base of the pistil. This makes the ovary **superior** in position (the primitive condition), and the flower as a whole is described as **hypogynous**.



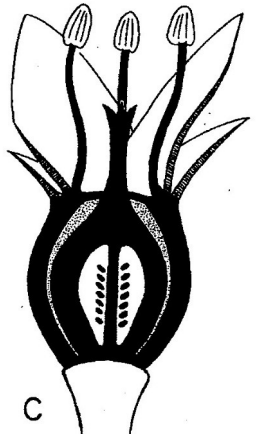
Ovary superior,
flower hypogynous.



Ovary inferior,
flower epigynous.

More advanced is the inferior ovary. Here the sepals, petals and stamens are **adnate** (unlike parts fused), they are joined with the ovary wall to its summit, where each becomes free. Flowers organized along this pattern are termed **epigynous** because their stamens and perianth members give the illusion of originating at the top of the ovary rather than from the receptacle farther below.

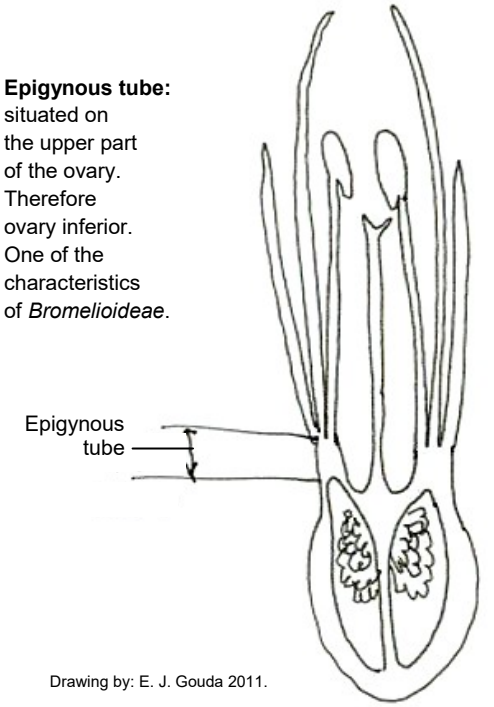
An ovary can also be **half inferior**, meaning the petals, sepals and stamen filaments are fused about half way up the ovary wall before spreading laterally. A special intermediate condition prevails in those flowers whose perianth members and stamen filaments are fused to form a **floral tube**, but remain unattached to the ovary. These species are described as having **perigynous** flowers.



Ovary superior,
flower perigynous.

Just why the ovaries of some bromeliads are half or fully inferior is not clear. Genera with ovaries in the basic superior position outnumber their more specialized relatives in both Pitcairnioideae and Tillandsioideae. Perhaps the extra layers of tissue around the inferior ovary chambers provide increased protection for the developing seeds against predators with a special feeding preference for these taxa. Massive amounts of gelatinous mucilage secreted within the congested inflorescences to levels above the flowers of *Aechmea aquilegia* may serve the same purpose. In Bromelioideae, the wall of the inferior ovary and associated floral parts do perform an indispensable role, becoming fleshy and often brightly coloured during ripening. By maturity, the seeds are contained in a berry fruit, an alluring food source for potential dispersal agents such as birds.

Epigynous tube: situated on the upper part of the ovary. Therefore ovary inferior. One of the characteristics of *Bromelioideae*.



Drawing by: E. J. Gouda 2011.

Adnate: joined, united with another part, as stamens with the corolla tube or an anther in its whole length with the filaments.
Calyx: the sepals of a flower, forming the outer most whorl that forms the protective layer around a flower.
Corolla: the inner circle of floral parts composed of petals.
Dioecious: the male and female flowers on different, individual plants.
Epigynous: situated on the upper part of the ovary - inferior.
Hypogynous: flower with petals and sepals attached under the ovary - superior.
Monoecious: the male and female parts are in the same flower.
Naked filament: a filament without an anther attached (the pollen-bearing part).
Perianth: the floral envelope taken as a whole, consisting of the calyx (sepals) and corolla (petals).
Perigynous: referring to flower parts borne or arising from around the ovary.
Pistillate: of a flower having pistils and no stamens; female.
Staminate: having stamens and no pistils; male.

Open Popular Vote

1st	Michelle Hartwell	*Neoregelia* 'Kahala Sunset'
2nd	Mitch Jones	x*Puckia* (*Dyckia* unknown red x *Puya spathacea*)
2nd	Kayelene Guthrie	*Neoregelia* 'Captain Moxley'
2nd	Keryn Simpson	*Aechmea recurvata* var*. benrathii*

Tillandsioideae

1st	Gary McAteer	*Tillandsia stricta*
2nd	Helen Clewett	*Tillandsia dura*
3rd	Mitch Jones	*Tillandsia ehlersiana*
3rd	Keryn Simpson	*Tillandsia '*Chook*'*

Decorative

1st	Keryn Simpson	"Just Love Tills"

Judges Choice

1st	Michelle Hartwell	*Neoregelia* 'Kahala Sunset'

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.