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

Edition: September 2022

Agenda: General Discussion

Venue:

PineGrove Bromeliad Nursery 114 Pine Street Wardell 2477

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Study Group meets the third Thursday of each month

Next meeting October 20th 2022 at 11 a.m.

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Meeting 18th August 2022

The meeting was opened at approximately 11.00 am The 11 members present were welcomed. Three apologies were received.

General Business

After welcoming everybody to the meeting the Newsletter was handed out and we began to review it only to be disrupted with 'somebody's' birthday being acknowledged. Thank you all for your kind wishes and your wonderful rendition of "Happy Birthday".

Helen read out our financial statement, nothing great but we're holding our heads above water. John and Kayelene seconded the report which was passed.

Keeping our finances in a comfortable position is only due to our raffle, plant sales at meetings and donations. We offered a huge thanks to Coral and Gary for the tea, coffee and kitchen care products they so kindly donated this month.

Show, Tell and Ask!

Recently we've heard resistance to using the word 'pup' to describe a young Bromeliad. Where this term and others originated is printed on pages 12 to 15.

John Crawford's private collection of Bromeliads is for sale...

Due to health reasons, it is with much regret that John is selling his extensive bromeliad collection. This is a large collection with a wide range of genera that has been gathered over 20 years.

There is approximately 6,000 pots, equalling more than 20,000 plants made up of 1,690 different species from 38 genera and 15 bigenerics. There is also a number of species grown from wild collected seed collected by John many years ago.

John would like to sell the collection as a whole, not as individual plants. The buyer would need to pick them up from the Gold Coast Queensland as there are too many to post. Price is negotiable on inspection.

If you are genuinely interested e-mail John at: crawford.john.a@gmail.com

A word of warning for those out and about in the garden now that spring is upon us. As many of us in our region are living in rural areas we need to be mindful that the snakes are also out and about. Take care and enjoy your gardening.

The question was asked: What is the function of Bromeliad roots? The primary function of roots for epiphytic bromeliads (those growing in and attached to trees or other objects as a means of support only) is as hold fasts. It is believed they can also absorb nutrients through these roots. Not as a parasite. **Terrestrial**, ground dwelling species absorb nutrients through their root system just like any other terrestrial plants do.

Saxicolous plants (growing on rocks) roots may secrete malic and citric acids, likely from the fine hairs, that dissolve rock and release phosphates that the roots then absorb to get the nutrient phosphorus.

"Tank type Aechmea and Vriesea may have evolved a greater ability to take up and utilise amino acids and related organic sources of nitrogen (N) than have tankless, terrestrial Dyckia and Pitcairnia". (Benzing)

How does Osmocote work to feed our plants? - Osmocote is a nutrient prill, which contains all the fertiliser nutrients and is water-soluble. The prill, are coated with an alkyd-type biodegradable resin. The semi-permeable coating, which is made from linseed oil, allows some water to get through and start to dissolve the fertiliser inside. Once dissolved, the solution containing fertiliser will leave the prill through osmosis and enter the soil where the roots can absorb it. The rate the fertiliser is released depends on the thickness of the resin coating and the temperature. Use approximately one teaspoon full to a 140mm pot.

In our FNCBSG Newsletter August 2022 p.13, is a Glossary of terminologies. Geoff Lawn has advised that the definition of a cultivar is not really that clear-cut, being the idea that cultivars must have come from cultivation versus from habitat, as per the 1998 BSI Glossary definition. Over the last 20 years Bromeliad botanists have steered clear of describing wild grown variegates, so there is no other category than to name them as cultivars. *Aechmea magdalenae* 'Quadricolor' is a classic case where we cannot even be sure if it originated in the wild - no documentation and no known natural range. Think of the myriad of *Neoregelia ampullacea* forms from the wild - they meet the species description, but the foliage colours/markings invariably mean the distinctive clones get allocated cultivar names. It has been known since the 1970s that *Neoregelia punctatissima* is not in cultivation and even Elton Leme has been unable to find it. The plant that is in cultivation is a form of *Neoregelia ampullacea* and was given the name of *Neoregelia* 'Punctate'. It is understood that the punctatissima in formulae has been changed to *Neoregelia* 'Punctate Red'. After lunch Mitch Jones, "The Botanic Collector" gave a power point presentation explaining his background and how he grows his Alcantareas:

"The Botanic Collector" was borne to offer plants from my private collections of Alcantarea, Hohenbergia, xHohenmea, xeropythic bromeliads and Dracaena (Sansevieria) to my customers, Australia wide, from the comfort of their own homes via mail order. Ensuring a continuous variety of rare, new release and general plant lines that will fit any budget. All my collections are grown in the full elements of the sub-tropical climate of the Northern Rivers, New South Wales, Australia. I have had a passion for plants since I could walk. Growing Orchids, Nepenthes, and other interesting oddities from a young age in my hot houses on my parents property and from a tissue culture lab in my bedroom in Sydney, New South Wales.

Present:

I live in the Northern Rivers of NSW, which has many different microclimates where my addiction, love and passion for Alcantarea came to life. Living on five acres of steep terrain, I grow everything in the full elements of mother nature.

Why Alcantarea ?

I love this particular genus of bromeliad due to its grandeur, longevity, hardiness, their ability to grow and live in many different climates, conditions, and adaption to growing methods.

Glossary of some terminologies I use:

Adventitious Offset: Produced out of unusual or abnormal places, such as some roots or buds, or from stems or leaves.

Caudex: The woody base, stem, or trunk of an otherwise herbacious perennial. The caudex of an Alcantarea can be from 10cm to 2m long if growing in ample conditions, especially with the large growers or plants that have fallen over and growing on the ground, trying to reach light or stabilise due to weight of the tank.

Furfuraceous: Scurfy; covered with bran-like scales or powder.

Glaucous: Whitish substance that rubs off.

Grex: A group of species or hybrids: applied collectively to the offspring of a given cross; literally a flock or swarm. Generally identified by formula involving parents' names.

Hapaxanth: A plant that flowers or fruits but once with no offsetting.

Mucilagenous: Moist and viscid; sticky

Offset: A short lateral shoot that may produce another plant.

Plumose: With fine hairs; feather-like. Plumose-appendage applies to seeds of the sub family Tillandsioideae in which each seed has fine, long hairs - a coma.

Quilling: A condition in Bromeliads in which the centre leaves form a tight tube, the leaves adhering to each other by means of a glutinous substance. In the warm months ensure the tanks are full of water or water regularly to prevent quilling. Quilling does affect Alcantarea as they need the weight of the water for the new leaves to unfold.

Sport: An apparent mutation which has occurred on part of a plant such as a variegated offset or different colour, shape, or form.

Alcantarea in Australia:

Australia hosts the largest collections of Alcantarea hybrids and cultivars in the world, with approx. 350 plus different formulas in the making or in the process of being registered. Unfortunately, due to the longevity of Alcantarea, patience is required to be able to register an actual plant in comparison to other genus.



The following Alcantarea species are in Australia: *acuminatifolia - australiana burle-marxii - cerosa - delicata - distractila - duarteana - extensa - farneyi geniculata - glaziouana - heloisae - imperialis - intermedia - longibracteata nahoumii - nevaresii - occulta - odorata - patriae - regina - roberto-kautskyi simplicisticha* and *Alcantarea vinicolor*.

The cycle of Life:

Alcantarea are easy grown by seed, adventitious offsets or true offsets. It can take from 6 to 20 plus years for an Alcantarea to flower, produce seed and/or true offsets. Throughout the Alcantarea growing cycle the majority of them will send out adventitious offsets at the base of the plant when young or as they mature. Some Alcantarea are 100% hapaxanth and don't offset e.g. certain *Alcantarea imperialis* and known cultivars such as *Alcant.* 'Landsendt Blue Grey' which solely relies on seed for the next generations.



Spike

Flower spikes

emerge when

the plants reach

maturity, the

flowering season

is from

winter to spring.



The stigma

must have

pollen applied

by hand or

by nature

for it to be

fertilised.



Fertilised flowers

will become

firm and swollen

whilst

unfertilised

flowers

will wither.



Pods

Seed Seed

Pods form and is mature oo over po 8 to 15 a months. plun

is ready once the pods split and the plumose seed appears. Seed maturity normally takes between 8 to 15 months in my experience once the flower has been pollinated if hybridising or naturally. The seed pods will split, and plumose seed will appear. Some Alcantarea such as *Alcantarea extensa* will produce a mucilaginous gel or gum like substance on and around the flowers especially after it rains. This is a simple protective mechanism to stop foreign pollen or insects attacking the flowers.

Seed Cultivation:

1. Growing Alcantarea from seed is basic and simple, it just takes time and patience.

2. The best time in my experience to sow Alcantarea seed is in winter when the seed is readily available and the pods are splitting. This normally occurs from June through till September. This allows the seed to germinate and grow. Once the warm weather hits, the seedlings will grow fast if fed.

3. Mother Nature tells you pretty much when to sow them, when the pods are ripe it's time to sow. This principle applies to all seed growing practices no matter what family of plants they are.

4. Sowing hybrid seed you have pollinated in a controlled environment or from a self pollination of a hybrid occasionally can create some interesting results and new plants, these can not be called by the same name as the parent plant. A hybrid is a series of plants with different characteristics from a cross resulting from the union of a species or hybrid with another species or hybrid.

A grex (plural = grexes or greges) is a group of species or hybrids; applied collectively to the offspring of a given cross; literally a flock or swarm. (BSI Glossary)

My Method of Sowing Seed:

Use a clear container and coco pith :-

Put a layer of hydroponic grade coco pith in a sealable clear container, takeaway food containers are well suited.

How to sow the seed - Spread the seed across the top of the coco pith.

Spray, seal and light - Spray with full strength water soluble, high nitrogen, fertiliser, place lid on to seal the container, place container in a well-lit position.

Seeds will begin to sprout from one week to four weeks - The seed will swell and turn green if fertile and start producing its first leaf.





Transplanting - This can be done when the seedlings have 3 to 4 leaves, the lid can be removed and the clump of seedlings can be placed on top of a pot with a mix of coco pith, slow-release high nitrogen fertiliser, perlite, diatomaceous earth, vermiculite and zeolite.

Feed and keep moist - The seedlings must stay moist at all times and receive a weekly application of a full-strength high nitrogen fertiliser for them to grow rapidly to a decent size for individual potting within 8 months to 1 year.





At 14 to 15 months old this lot are ready to move to the next stage of up potting to 140 mm pots. A regular fertiliser regime certainly helps them along.

General Cultivation:

Alcantarea will take full sun and frosts in most areas of Australia if hardened to the environment. My preferred season is end of winter for acclimatising plants to grow through summer. Alcantarea will burn in the sun or in heavy frosts if they are not well fed, hydrated or been acclimatised.

Growing medium - Alcantarea will grow in all mediums successfully and even aquatically. They prefer well-draining mediums if pot cultured or any soil type if planted in the ground that is well mulched. Alcantarea will grow in general potting mix or bromeliad mix.

Feeding - Alcantareas are heavy feeders and love a good dose of 6-to-9- month slow release or a splash of water soluble balanced fertiliser during their growing season. The growing season starts from spring till mid-autumn.

Alcantarea look their best in the cool or cold months of the year. Especially the red, maroon or purple species and cultivars that have Alcantarea extensa, heloisae, imperialis or vinicolor in the formula.

There are two ways I have found for the Alcantarea to colour up easy.

1. Starvation if grown in the garden and only getting nutrients from the ground or nature's processes.

2. Feed heavily from end of winter to the end of January so that the Alcantarea has built up sufficient sugars levels to convert to Anthocyanins once the cool weather and light frosts arrive. In warmer weather the colour does tend to fade due to the heat.

Some Alcantarea display furfuraceous or glaucous characteristics which is a protective barrier such as Alc. odorata and extensa. It's predominantly seen in winter or in the hot months and acts like a natural sun screen.

Variegated Alcantarea: these are normally derived from a random seedling displaying the variegated traits, occasionally arising from tissue culture or rarely sporting from a normal plant where the meristem or growth point has been damaged.

These types of Alcantarea normally start displaying traits from approximately 1 year old as seedlings.

Reverted offsets of variegated Alcantarea are called 'novars' and generally never revert back into the variegated form of its parent.

Alcantarea 'Sydney', 'Helenice', 'Aurora' and Alc. glaziouana variegates are known for this to occur or to produce 'novar' offsets.



Striata



Variegated

Variegation

occurs as

width that

contrasts with

the normal leaf

colour

variation.

A form of variegation striped: Iongitudinal lines marked with in Alcantarea longitudinal lines. which can be any colour and any

This is common in Alcantarea imperialis and 'Silver Plum'.

Albo-marginated



Medio-picta



Tillandsia 'Marron' shown by Gary McAteer.

There are many forms of Till. capitata, many are named and sold simply by colour e.g. Orange, Yellow, Red etc.

Kayelene had on the Popular Vote table her Neoregelia 'DeRolf', a variegated cultivar of *Neoregelia johannis* which is an excellent landscape plant that can be grown in full or nearly full sun where its imposing size can be appreciated. Neoregelia johannis is native to the Brazilian coastal plain from just south of the city of Rio de Janeiro to northern Sao Paulo state. There it grows both as an epiphyte and as a terrestrial in restinga and Atlantic forests.

This variegated cultivar was erroneously sold as *Neo. johannis* De Rolf for many years until it was given the cultivar name of Neoregelia 'DeRolf'.

Buyer beware, the erroneous name is still being used, don't get caught buying



by name thinking you are acquiring two different plants when they are actually one and the same.

Not all sellers are up-to-date with naming corrections. Are you?



Neoregelia 'DeRolf'

Neoregelia johannis

Marginata



Vriesea 'Mountain Trifle' 1st Open and Judges Choice Jennifer Laurie



Tillandsia ortgiesiana 1st Tillandsioideae Helen Clewett



'Blue Heaven' 1st Decorative Helen Clewett



Neoregelia 'Eva' x 'Norman Bates' An unreg. Peter Tristram hybrid grown by Helen Clewett

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Neoregelia 'Maria' shown by John Crawford



'Technicolour Dreams' shown by Mitch Jones



Aechmea 'Perez' grown by Michelle Hartwell



Sincoraea species shown by Mitch Jones

Pups – A Bit of Lexicography

by Derek Butcher 2005

Just where did this expression start in Bromeliads? It means the offsets that occur at the base of the plant. After questioning Brom-L and Round Robin participants on the Internet in August 2005, Geoff Lawn of Perth suggested the answer could well lie in Brom Soc Bull.1952 where Mulford Foster, the then Editor wrote about Muriel Waterman. Anyone who has read about Muriel from her fellow Kiwis will realize she was a one eyed Bromeliad grower and rather eccentric too! Her diaries could well have been destined for the rubbish tip but for the action of Andrew Flower who saved them from a shed in a local Botanical Garden. These make interesting reading and suggest her main contacts were in England or the USA. She had very little contact with Aussies.

This is what appeared in the Bulletin with a drawing of pups by Mulford Foster: Our New Zealand Trustee in Brom. Soc. Bull. 2(4):1952.

Mrs. Muriel Waterman is our honorary trustee from New Zealand: there are few members who have worked so actively for new members in our struggling Society. So infectious is her enthusiasm that ten recruits have succumbed to her spell! And she doesn't just let it go at that; she buys the last ten copies of the bromeliad issue of the Missouri Botanical Bulletin (Sept. 1945) and sends them to the New Zealand members for Christmas with a neat reminder, that their renewal to the 1952 Bromeliad Bulletin is due. And, as if that were not enough she has paid for three subscriptions so that she can have two extra copies each month just to loan around (for bait we suspect!). This is the real bromel booster spirit. We believe that before long they will have enough members to form a local chapter of Bromel Boosters, Down Under.



Bromeliad Pups Mrs. Waterman is never in the doghouse but she is always finding "**pups**" on her bromeliads.

Her enthusiasm is classic! No one but a genuine plant lover could express herself so originally, so simply and effectively. She does not only converse about her plants but they speak to her. Mrs. Waterman lives several miles from Auckland. When a package of bromels arrived sometime ago she went into a whirl after receiving a telegram from the airport which stated; "Please uplift carton bromeliads from Pan American:" What happened after that is best described, in her own words: "Not being dressed for a trip into the city I rushed into a covering long coat and tore down the road adjusting clothes, hat and buttons as I flew, yelling to the busman who was almost out of earshot; to wait for me. Luckily; he happened to see me, or, I would have had to wait another hour, and it is an hour's ride to the airport. You can imagine with what animated suspension of anticipation I made that ride. It was a big thrill to behold my box of bromels being unpacked for inspection."

"When finished and back in the bus, I clasped the box to my bosom, practically `talking' to them all the way home. What an event on this side of the world! After rushing into the house, I hurried through tea, since it was 5:15, then hurriedly shut up twelve coops of baby bantams, (a ceremony I usually do more lovingly) told my husband not to call me for anything under the sun! Then proceeded with my precious cargo to the sanctum of my glasshouse where I fondly unpacked each prize from another world. As I carefully un-wrapped each plant I dipped it, head down, into one of two buckets of tepid water, (each a different depth); I allowed them to drain and then planted each treasure with its already prepared name label. Finally I sprinkled the lot with a child's watering can. Already they looked as if they had come from a greenhouse across the street instead of from half way round the world!"

Clearly Mulford Foster was impressed with the word 'Pups' and we know from reports from others that it was a word that Mulford frequently used. I feel sure it was because of his great influence on bromeliad growers for nearly 30 years that this expression is now so widespread. It is catchy and has less letters than offsets or offshoots, and never gets confused with cuttings! Why pups and not kittens or chickens will remain a mystery. There is also a suspicion that this term was used even earlier with Agaves and Aloes of Succulent plant interest. It should be noted that these too are monocotyledons like Bromeliaceae and offset similarly.

And now to the word 'keiki' that means child in Hawaiian. This word is used by plant growers in Hawaii for any offset to a plant whether Banana or Bromeliad! Interestingly it has been used to describe the offsetting seen in so many orchids for which Hawaii is famed, that occur high on the stem and not at the base. This has lead it to be associated with this sort of happening in Bromeliaceae, say *Tillandsia secunda* or even *T. dasyliriifolia* (see Ramirez in J. Brom. Soc. 54(3): 112-121. 2004).

Which one will prevail? Other offsetting in the inflorescence such as you find in *Orthophytum* and others, will get the name adventitious added to them if only to denote they are emerging in an unexpected place. Outside Hawaii, will 'keiki' apply just to these floral phenomena? Who knows?

Finally you would have noticed the use of the word 'bromel' by Mulford Foster which was a word he coined. Much to the disgust of both Racine and Mulford, Aussies further reduced it to broms! I would like to thank the various respondents from Brom-L and Round Robin that made this article possible.

Proliferating Pups by Herb Plever in Journ Brom Soc 55(6): 2005

An article by Derek Butcher on the lexicography of the word 'pup' triggered the idea for this article. It got me to thinking about how the bromeliad family reproduces asexually and vegetatively. Of course all bromeliads produce seeds, and there are some such as *Puya raimondii*, *Tillandsia complanata* and *T. deppeana* that will only reproduce by making seeds, but not vegetatively. When they are mature enough to flower, and sometimes before that, many plants will produce small new plantlets, which are commonly called offshoots or offsets. In the bromeliad world we call them 'pups'. In most bromeliads, pups appear at the base of the plant or grow out from the leaf axils; sometimes they grow on the inflorescence spikes at their tips or near the flowers, at the base of a spike, or at one of the internodes of the scape or stem of the inflorescence.

These pups are called viviparous or proliferating. Examples of species using this method of pupping (we now also use the term as a verb!), are *Orthophytum benzingii, Orth. gurkenii, Tillandsia aizoides, T. denudata* var. *vivipara,* some forms of *T. flexuosa, T. intermedia, T. latifolia,* some forms of *T. paucifolia, T. propagulifera, T. pyramidata, T. secunda,* and *T. somnians.*

This started me thinking about the different types of asexual reproduction and the purpose(s) they served as evolutionary strategies for survival. Natural selection is what makes life go round in our universe. It is clear that a plant requires more nutrients to be able to reproduce both by seed and vegetatively. When fewer nutrients are available the plant will either have fewer seeds and more pups or visa versa. The trade off is that if the seeds become sterile, the plant has an alternate vegetative mechanism for survival [see G.S. Baracho, JBS 50(1): 10-13. 2000].

Is there some additional benefit for plants that have evolved the ability to produce pups on their inflorescence? David Benzing, in his BROMELIACEAE: Profile of an Adaptive Radiation (Cambridge Univ. Press, 2000) notes at p.325: "........Tillandsia species that proliferate from the inflorescence often scramble over the ground, and sometimes grow into low shrubs, as does the facultative

epiphyte *T. flexuosa*, native to semi-arid coastal strand habitats in Venezuela ... two varieties of *Tillandsia latifolia* dominate vast expanses of treeless Peruvian coastal desert according to a somewhat different arrangement. *Tillandsia latifolia* var. *major* forms relatively large rosettes... scattered across loose sand. Proliferative inflorescences produced by its smaller relative, *T. latifolia* var *minor* bend forward under their own weight to produce successive rows of progeny oriented into the on-shore stream of life-sustaining, mist-laden sea air. *Tillandsia paleacea* marches up-wind in similar fashion." (Note: The minor form of *Tillandsia latifolia* no longer has variety status, but it now generally represents the type species, sometimes called var. *latifolia*).

For the survival of their species, these plants have adapted to life at the beach in the sand. But many saxicoles that grow on rocks, in crevices and gulches, etc., have made similar adaptations. In Dr. Benzing's book, he notes at page 325: "...Several members of *Orthophytum*... may rely on axillary inflorescences that regularly terminate as plantlets to colonize patches of soil on typically rocky substrates... elongate, initially upright shoots tend to bend or twist downward... for spreading clonal growth."

Benzing's book gives instances of the variability of bromeliad species and of how the same species display different characteristics in different environments. At p.323 he notes: "...Patterns vary within species. Recall that *Till. utriculata* is monocarpic (only flowers once in its life - Ed.) in Florida, but iteroparous (fruits in successive seasons - Ed.) in Mexico. *Tillandsia secunda* produces offshoots on inflorescences and from leaf axils in northern Ecuador, but further south in the same country relies exclusively on seeds." Dr. Lyman B. Smith's Monograph reports that *Till. secunda* grows terrestrially and on rocks and cliffs at high altitudes up to about 6000 feet (1830 m). Northern Ecuador is high mountainous and rocky while its south is somewhat lower, less rocky, and warmer, which favours the production and distribution of seeds.

Dr. Benzing further reports the interesting, related phenomenon that roots occasionally develop on inflorescences, especially *Tillandsia latifolia, Till. somnians* and *Till. secunda.* Unfortunately there has been a paucity of reporting on proliferating pups and there has been absolutely no mention in the BSI Bulletin or Journal of such interesting plants. *Tillandsia somnians* proliferates its pups at the internodes of the scape of the inflorescence instead of on its branches. It would be fascinating to find out why *Till. somnians* developed roots and meristem tissue at those internodes. Does the scape bend down or break upon drying to reach the ground or rocks below and thus provide a base for the new plants on the scape to grow and colonize? We need more habitat information about this plant.

Open Popular Vote

1st	Jennifer Laurie	<i>Vriesea</i> 'Mountain Trifle' unreg.
2nd	Helen Clewett	Neoregelia 'Eva' x 'Norman Bates' unreg.
3rd	Mitch Jones	Sincorea species
3rd	Michelle Hartwell	Aechmea 'Perez'
3rd	John Crawford	Neoregelia 'Maria'

Tillandsioideae

1st	Helen Clewett	Tillandsia ortgiesiana
2nd	Gary McAteer	<i>Tillandsia '</i> Marron'

Decorative

1st	Helen Clewett	'Blue Heaven
ISL	Helen Clewell	Blue Heaver

Judges Choice

1st	Jennifer Laurie	Vriesea 'Mountain Trifle'	unreg.

Web Links for Checking Correct Identification and Spelling ?

Bromeliad Cultivar Register (BCR): <u>http://registry.bsi.org/</u> Refer to this site for correct identification and spelling of your hybrid or cultivar.

> The new Bromeliad Species Database (BSD): <u>www.bsi.org</u> Refer to this resource for bromeliad species information.

New Bromeliad Taxon List: <u>https://bromeliad.nl/taxonlist/</u> Refer to this site for latest species name changes and correct spelling.

Bromeliads in Australia (BinA) <u>http://bromeliad.org.au/</u> 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.