Bromeliaceae

VOLUME LI **Second Quarter 2017**

The Bromeliad Society of Queensland Inc.

P.O. Box 565, Fortitude Valley
Queensland, Australia 4006
www.bromsqueensland.com.au
Email: editor@bromsqueensland.com.au
president@bromsqueensland.com.au
publicity@bromsqueensland.com.au

Committee Details

PRESIDENT	Barry Kable (07) 3824 5931
VICE PRESIDENT	John Olsen (07) 3856 0265
TREASURER	John Olsen
SECRETARY	Denice Mclean
COMMITTEE	Pam Butler, Amanda Meads, Glenn Bernoth, Fred Thomson, Pat Barlow, Maxim Wilson, Bruce Dunstan.
MEMBERSHIP SECRETARY	Roy Pugh (07) 3263 5057
LIBRARIAN	Evelyn Rees
SHOW CONVENOR	John Williamson,
BROMELIACEAE EDITORS	John Olsen, Barbara Murray, Maxim Wilson
BSQ WEBMASTER	Rob Murray
ASSISTANT WEBMASTER	Peter Ball
FIELD DAY COORDINATORS	Ruth Kimber & Bev Mulcahy
SEED BANK COORDINATOR	Peter Ball
SUPPER STEWARDS	Selga Boothby & Sharon Born
PLANT SALES	Margaret Kraa & Lee Thornycroft
ASSISTANT SALES	Michelle Cameron
COMPETITION STEWARDS	Fred Thomson & Ron Jell
NEWSLETTER COORDINATOR	Maxim Wilson
ASSISTANT SHOW CONVENER	Pam Butler, Peter Ball
HALL COORDINATOR	David Rees
RAFFLE COORDINATOR	Lesley Gibbs
EXHIBITION COORDINATOR	Amanda Meads
HISTORIAN	Glenn Bernoth

MONTHLY MEETINGS of the Society are held on the 3rd Thursday of each month except for December, at the Uniting Hall, 52 Merthyr Road, New Farm, Brisbane, commencing 7:30 pm.
ANNUAL GENERAL MEETING is held immediately before the February General Meeting

Front Cover: *B brasiliensis* as *B kuhlmannii*	Butcher/Gouda
Rear Cover: *B brasiliensis* as *b leopoldii*	Belgique Horticole 21: 1-6.

The Bromeliad Society of Queensland Inc., gives permission to all Bromeliad Societies to reprint articles in their journals provided editor@bromsqueensland.com.au is advised and proper acknowledgement is given to the original author and Bromeliaceae. This permission does not apply to any other person or organisation without the prior permission of the author. *Opinions expressed in this publication are those of the individual contributor and may not necessarily reflect the opinions of the Bromeliad Society of Queensland or of the Editor. Authors are responsible for the accuracy of the information in their articles.*

CONTENTS

The Bromeliad Society of Queensland Inc.		2
Light: Its importance in bromeliad culture	by Grant Tychonenko	4
"What shade cloth to use?"	by Graeme Barclay	5
Genera Changes: Species: Orthophytum / Sincoraea March 2017.		7
Variegated Alcantareas	by Bruce Dunstan	8
Irreplaceable plant specimens destroyed		14
Aechmea nudicaulis	by Derek Butcher	15
Sunny Broms Conference		17
GOLDEN BROMS 2019		17
Is Billbergia brasiliensis a hybrid?	by Eric Gouda and Derek Butcher	22
Tillandsia tenuifolia	by Derek Butcher	28
Ronnbergia Alliance	by Aguirre-Santoro	29
Genus Wittmackia		30
CALENDAR OF EVENTS		34
Plant of the month List for 2017		34
COMPETITION SCHEDULE 2017		35

MIDHURST BROMELIAD NURSERY	M.J PATERSON
SPECIALIST GROWERS OF TILLANDSIA SEEDLINGS Hard grown to suit All Australian conditions Wholesale and Mail Order Only Write for a free price list of Tillandsia and other genera to: **MIDHURST BROMELIAD NURSERY** P.O. BOX 612, HURSTBRIDGE, VIC 3099 T: (03) 9718 2887 E : Midhurst@netspace.net.au	212 Sandy Creek Road, Gympie Q 4570 **A large range of Bromeliads for sale** especially our own hybrid Neoregelias, Tillandsias, Cryptanthus and Vrieseas Call in but please phone first T: (07)5482 3308 E: wm_paterson@bigpond.com Also available... Bromeliad Hybrids. "For My Own Satisfaction" Book 1: neos. Books available on line at www.bromeliad-hybrids.com

Light: Its importance in bromeliad culture

Grant Tychonenko

Reprinted from Central Coast Bromeliad Society newsletter and Illawarra 'Newslink' October 2014.

Some growers may claim that their bromeliads may grow well because of their personally blended potting mix, their strict fertilising regime, or even because of the love they give to their plants.

I have found that although the above contribute, they play nowhere near as major role in the optimum growth of a bromeliad as light does. One of the major reasons bromeliads need light is to produce the colour in the leaves. *Hechtia texensis*, if grown in shade, stays green throughout the year; however, if it is grown in full sun, it will take on a deep, blood-red colour. This usually applies to most neoregelia species as well. *Neoregelia cruenta*, if grown in full sun, will have shortish, fat leaves and great colouring as well; when it is grown in the shade it has long green leaves and less colour. Of course, it is up to the individual on how he or she would like to grow this plant.

The bromeliad species that have visible scales – such as *Orthophytum gurkenii* and *Dyckia marnier-lapostollei* –should be grown in bright light. If they are, then the scales will be much denser than if they are grown in shade, as some growers think they should be because of the fact that they are highly ornamental. To find out which bromeliads can be grown in full sun ask any members (because isn't that what the Society is all about?) or borrow books from our library (this is the reason why it's there – for research).

But books only generally tell us one place where a certain species grows in the wild. But this may not always be where they would grow to their full potential. The best way to find out is, if you have two plants of that species, to put one out in three-quarters sunlight and the other in shade, in amongst other plants (for shelter) and see which does best. If the plant in the three-quarters sun does best (say over a 6 to 12-month period) slowly increase the light level until it grows to its optimum level. This is something that not many growers do – experiment. Let's face it, it's the only way, if you can't find out from another grower or book.

Overall, I seem to think that light is the most important factor in the growth of bromeliads, due to the fact that in two light extremes a bromeliad can either be knocking on heaven's door or flourishing.

So, go on, get the light level for bromeliads just right – it could help you take out Grand Champion at the next show. You never know!

[Ed: Moving from Light to Shade – the following article discusses the control of light reaching your plants with shadecloth.]

"What shade cloth to use?"

by Graeme Barclay

Reprinted from Nov. 2010 New Zealand Bromeliad Journal

Last year I designed and constructed a new shade house, so I wanted to ensure I used the best cloth to allow me to grow well formed and colourful Neoregelias all year round. I found definitive information relating to shade cloth and bromeliads hard to find. I therefore embarked on an 'ask-a-thon', talking to fellow growers and conducting a survey on a bromeliad internet forum. Basically, it comes down to two main things– shade factor and cloth colour. However, common sense says there are also several other important considerations you need to be aware of when designing your shade house - more on that later.

STEP ONE: COLOUR

You need to select the best colour shade cloth to use for the types of bromeliads you are growing. There are several colours available from different sources. Here are the pros and cons from a technical point of view:

- Green = Produces low levels of 'PAR' (PAR = Photosynthetically Active Radiation), which is the portion of the sun's radiation spectrum that best promotes photosynthesis, thus plant growth. Reflects the green light (which is useless for plants in photosynthesis).
- Black = Neutral effect on light transmission. Restricts 'PAR' only by size of holes in mesh, as no light passes through the mesh strands. Absorbs heat and solar radiation but reduces polarised (glare) light off plants.
- White = Increases 'PAR' efficiency, and transmits the best balance of light colours. Optimises light diffusion and maximises yield by allowing the most light to reach the plants, for faster and bigger growth. Also reflects the most solar radiation. Can cause polarised light problems (glare) – although knitted types of cloth don't seem to do this as much as woven types.
- Red = Promotes good levels of 'PAR'. Reduces the blue, green and yellow light and increases the red and far red light spectrum. Use for accelerated growth, early ripening, greater foliage volume and accelerated photosynthesis. However, can cause some plants to look a 'different colour'.
- Blue = Restricts 'PAR' levels. Reduces the red and far red light and increases the blue spectrum. Slows plant development, giving a more compact plant. Slows photosynthesis, delays ripening. However, can cause some plants to look a 'different colour'.
- Sandstone/Beige = Allows good light transmission and 'PAR' levels and is best, especially where colour is required (eg: neos, billbergias etc.) as it enhances the 'reds'. Has a lesser polarised light problem than with white, but greater than black.

So, the best colour cloth for growing colourful broms appears to be Beige/White/Black – probably in that order. Experienced growers I spoke to agreed and almost all use one or more of these colours in their own shade houses.

STEP TWO: SHADE FACTOR

Next, look at what shade factor or 'UV percentage block-out' level is best for your situation. Basically, this comes down to the size of the holes in the shade cloth – a lower percentage means larger holes and more light. My research showed that as a 'rule of thumb' the most commonly used shade factors were 30% or 50% for neos and hardy type broms, while 50% or 70% is best for vrieseas and other softer leaf genera.

STEP THREE: ASPECT

The shade house location, aspect to the north-facing and midday sun in both summer and winter; roof shape; wall height; shelter from wind; the proximity to buildings, trees, walls and high fences – are all other important factors that you need to take into account when selecting what cloth to use.

The 'golden rule' is to ensure the shade house light level is not going to be adversely affected through the whole year by any of the environmental factors mentioned above. For example, if the shade house gets only morning sun and minimal midday and afternoon sun in winter – but, sun nearly all day long in summer, it may be advisable to use two layers of shade cloth in the summer, so you can remove one layer and allow as much light in as possible in winter. This would mean you need to select a lighter gauge cloth (say 30%) for two layers, rather than going for one heavy 50% -70% cloth.

Some other facts and tips:

- Always use knitted cloth, not woven. Knitted cloth won't rip and is very strong, UV stable and lasts for years.
- The higher the cloth is above the plants, the better the light diffusion (spread) and air flow will be – which is better for growing.
- Two layers of, say, 30% cloth does not equal a 60% shade factor – it is more like 40%-50%.
- Use heavy white cloth (80%-90%) to line the inside of shade house walls to reflect extra light onto plants if required, but do not restrict air flow too much (i.e. leave gaps top and bottom).
- Use different coloured and shade factor segments of cloth over different plants if you need to – e.g. seedlings versus mature plants. Experiment over four seasons to see what works for you and your location. Ensure you design for your conditions and plants.

Genera Changes: Species: Orthophytum / Sincoraea March 2017.

Reference: BSI Journal Vol.66(1) pp.6-19 (Jan-March, 2016).

From Geoff Lawn ... "Only these 11 *Orthophytum* species are reclassified as *Sincoraea* species--all are "sunburst" types with sessile inflorescences (no stem or peduncle), in contrast to the "pendunculate" (visible flower stem) of other species in the genus Orthophytum. A key to Sincoraea species is presented in the BSI Journal, botanical descriptions of all 11 species and their synonyms. Species changing to *Sincoraea* are *albopicta, amoena, burle-marxii, hatschbachii, heleniceae, humilis, mucugensis, navioides, ophiuroides, rafaelii, ulei.* Cultivar and bigenerics have changed as shown in the table below as compiled by Geoff Lawn, BSI Cultivar Registrar, March 2017.

Cultivar/Bigeneric	New genus	Old genus
Andromeda	x *Sincoregelia*	x *Neophytum*
Aurora	x *Sincoregelia*	x *Neophytum*
Blushing Bride	x *Sincoregelia*	x *Neophytum*
Burgundy Hill	x *Sincoregelia*	x *Neophytum*
Burgundy Thrill	x *Sincoregelia*	x *Neophytum*
Cosmic Blast	x *Sincoregelia*	x *Neophytum*
Ecstasy	x *Sincoregelia*	x *Neophytum*
Firecracker	x *Sincoregelia*	x *Neophytum*
Galactic Warrior	x *Sincoregelia*	x *Neophytum*
Gary Hendrix	x *Sincoregelia*	x *Neophytum*
George H Anderson	x *Sincoregelia*	x *Neophytum*
Lisanne Kiehl	x *Sincoregelia*	x *Neophytum*
Lymanii	x *Sincoregelia*	x *Neophytum*
Medalist	x *Sincoregelia*	x *Neophytum*
Mollie S	x *Sincoregelia*	x *Neophytum*
Ralph Davis	x *Sincoregelia*	x *Neophytum*
Rising Tide	x *Sincoregelia*	x *Neophytum*
Shiraz	x *Sincoregelia*	x *Neophytum*
Supernova	x *Sincoregelia*	x *Neophytum*
Andrea	*Sincoraea*	*Orthophytum*
Blaze	x *Sincorphytum*	*Orthophytum*
Blazing Bonsai	x *Sincortanthus*	x *Orthotanthus*
Rosita	x *Sincorglaziovia*	x *Orthoglaziovia*
Selby	x *Nidusincoraea*	x *Ortholarium*
Powderpuff	x *Sincoraechmea*	x *Orthomea*

Variegated Alcantareas

by Bruce Dunstan

(This is the text form of Bruce's presentation to the Sunny Broms Conference 2017)

Visiting other growers and seeing Variegates certainly got me interested in these plants. My first introduction was at Keith Golinski's nursery Bromagic. Keith had a seedling batch of *Alcantarea glaziouana* and one of the individuals was variegated. Keith was happy to sell me green plants but obviously was going to keep his stripy plant. My first variegated seedlings came as progeny from the green individuals that Keith sold me.

During the early 00's I was growing a lot of Alcantareas from seed. The company I worked for was producing large numbers of Alcantareas for landscape clients and also the start of mass production for Retail supply through major chain stores. When we were growing the seedlings through the varying sizes in our production process occasionally we would select out the striped plants and put them aside. Once we worked out that variegates were coming up occasionally I collected way more seed than what we would normally need and began sowing seed specifically for Variegates. This resulted in trays of green seedlings numbering in the thousands that looked like turf eventually being disposed of. Usually you can see if a plant has variegations by the 5th or 6th leaf, but some don't show their stripes until they are a bit older. Plants that look great at an early stage 3-4 leaves often don't have enough chlorophyll to maintain healthy growth as they mature and succumb. The more striping they have also slows their growth rates to the point that some of my better seedlings have taken years to get to a decent size even with the high rates of fertiliser I use to push them along.

At the time I thought the variegation may have been transmitted genetically from the parents, coming from a batch of seedlings that contained a variegated individual, but now I tend to think some species are more prone to variegation and *Alcantarea glaziouana* appears to me at least, to be a species that throws lots of variegated seedlings.

I was able to prove my theory on genetic variegations when I sowed every last seed I collected from a variegated *Alcantarea extensa* that I named for Bobby Powell. Bobby grew an *Alcantarea extensa* to maturity down at the Gold Coast and I was luckily given some of the seed by Arno King, who at this stage was feeding my interest in Alcantareas with seed and pups from his collection and seed from New Zealand. Of the 35 or so seedlings to germinate for me there was one striped seedling. It wasn't until it was 40mm tall and in its own tube did we notice its stripes. Needless to say this seedling was kept and potted on and grown as fast as we could get it to grow. It flowered in early 2007 and was self-pollinated which produced copious amounts of seed which were all diligently collected, sown and grown on to produce absolutely no variegated seedlings all green or grey as the case was. So there is no way to rapidly multiply the variegated plants by seed.

Alcantarea 'Bobby Gold' a vegetative sport from *Alcantarea* 'Bobby Powell'.

Seedlings under cultivation above, and right more seedlings potted up and beginning to produce adventitious roots.

Helenice and Oscar Ribero with one of their many variegated *Alcantarea imperialis*

Renowned Brazilian Bromeliad scientist Bruno Rezende Silva in red, the author and Mark Paul visiting the Morreria collection at Isla Grande, Brazil in 2006

The best collection of variegated Alcantareas I have seen was in Brazil at the farm of Oscar and Helenice Robeiro. I was lucky to travel to Brazil in 2006 with 5 plant buddies and stay with Bruno Rezende Silva. Bruno took us to Oscar and Helenice's farm up in the Organ Mountains and as we drove up we were able to see wild populations of *Alcantarea imperialis* and *geniculata*. Oscar has grown many thousands of *Alcantarea imperialis* seedlings from a wild collected seed batch and the variation within this seedling progeny is impressive.

Colours range from grey greens right through to dark reds or purples. There are also variations in the amount of waxy coating the top surfaces of the leaves also have. We were there during winter and this is when you see this character and the plants colours displayed best.

Oscar had more than 20 variegated *Alcantarea imperialis* plants that we saw on that day. There were green plants with white stripes, red plants with golden bands, albo marginates, and true variegates. I was blown away by them, having never seen anything like it before, plus I'm quite partial to variegated plants. I believe this wild open pollinated seed is more likely to give variegates. Working on Oscar's figures, it works out at 1 in 1000, which is quite acceptable for someone with plenty of production space and most importantly access to wild seed population. Alcantareas in cultivation when pollinated are really just reproducing themselves. In the wild population we saw in the Organ Mountains you could see a huge variation of colours. This was replicated at Oscar Ribero's farm with a huge variation in colours and amounts of waxy induments.

On the same trip we also saw collections of variegated Alcantareas at Tropiflora in Sarasota, at Morriera's collection at Isla Grande south of Rio de Janeiro. Bruno also had a variegated *Alc. glaziouana* in his garden, off which he cut most of its leaves to use in one of his sculptures. Variegated *Alcantarea glaziouana* are visible growing up on inselbergs along the coast in and around Rio de Janeiro. They become more noticeable in rainy or darker conditions when the stripes show up from the grey background of the surrounding foliage.

As I have begun to produce more of these plants, we have found better ways to produce and indeed multiply their numbers. Most Alcantareas can be encouraged to produce adventitious pups when they are young. Planting them very high to expose the plants bases where the pups can emerge along with high fertiliser rates are the best way to start, along with removing lower leaves to expose the dormant buds or developing pups.

The variegated plants tend to produce three types of pups, green white or yellow solidly variegated or plants with no chlorophyll and if you are lucky variegated little replicas of the parent plant. These are treated in the same way as other adventitious offsets and removed and potted on. I take the view it's better to remove them as soon as you can in the hope that the next leaf axil will produce another. As some of my seedlings grew they began to lose their stripes and become fully green again. These unstable plants obviously needed some work to maintain a good variegated leaf pattern. These were treated with a screwdriver in

the growing point to encourage the lateral buds to initiate. This propagation method has been very successful, as most pups that emerge from leaves with a stripe tend to produce a more regularly variegated plant, either Albo marginated or Variegated. You will also tend to end up with plenty of green pups as well. It requires a strong constitution and fortitude to attack your valuable plants with a screwdriver but attempts on green individuals can provide good practice. I also know of some people who just couldn't bring themselves to mutilate a healthy plant just for financial gain. My excuse is I am a horticulturalist and it's my job to produce what people crave in plants. This method of propagation also shows me just how tough and resilient Bromeliads are with some plants producing more than 50 pups.

Once we have a stable plant we are trying to get them to a flowering size as quickly as possible. This is best achieved by regular watering to both the top of the plant as well as the potting mix the plant is growing in. Alcantareas in containers can tend to shed water with the leaves directing water away from the media below them. I tend to water my bigger specimens once a week in and around the root zone. Regular applications of slow release fertiliser are also applied to ensure rapid growth. Come spring and once the emerging flower spike is up above the foliage it is then removed, as any future development is wasted reproduction potential. Pups appear as both adventitious and larger pups inside the mature plants rosette of leaves. It can take more than 12 months to successfully remove all of these pups without damaging them in the process.

Patience is a virtue but it's something I have little of and many is the time I have destroyed pups by not waiting. Taking them early can result in them not producing roots from their basal tissue and just sitting in pots and slowly declining until death, best to wait and ensure you give them every chance of success.

WILDFIRE GARDEN BROMELIAD NURSERY	**FOREST DRIVE NURSERY**
ALCANTAREAS FOLIAGE VRIESEAS NEOREGELIAS & OTHER GENERA VISITORS WELCOME BY APPOINTMENT Cheryl Basic 1560 Yandina-Coolum Rd, Yandina, 4561 Ph: 07 5472 8827 Mob: 0403 193 069 **wildfiregarden@westnet.com.au**	Specialising in species and varieties mostly from imported stock. **Tillandsias to Titillate even the most discerning fanciers.** **Beautiful Vrieseas (incl Silver species), Guzmanias, Aechmeas, Neoregelias, etc.** Visitors welcome but please phone first T: 02 66554130 E: ptristra@bigpond.net.au

Alcantarea imperialis variegated at Bromeliario Imperialis

Multiple pups emerging from a plant that has had its apical tip stabbed.

Irreplaceable plant specimens destroyed

By Kerry Staight (ABC News) [Ed: It seems it is not just bromeliad imports which have been affected by decisions seemingly lacking the proper scientific considerations.]

A review of Australia's quarantine procedures has been undertaken after historic and valuable plant specimens from France were destroyed by biosecurity officers. In March, a collection of rare flowering plants sent by the Museum of Natural History in Paris to Queensland's herbarium in Brisbane was incinerated.

Michelle Waycott, who chairs the Council of Heads of Australasian Herbaria, said the pressed plant specimens dated back to the mid-1800s."They were the first type specimens collected of a species," she said. "That would be the equivalent of material collected in the Flinders expedition, going and then destroying those - literally irreplaceable collections and of high historic and scientific value." Ms Waycott said it was the second similar incident in a matter of weeks.

It is understood a collection of lichen specimens from New Zealand's Allan Herbarium destined for the Australian National Herbarium in Canberra was also recently destroyed by biosecurity officers. "The New Zealand herbaria have now banned sending any specimens to Australia," Ms Waycott said. She said the French herbarium was also "very unhappy" with the loss of their collection.

It is common practice for herbaria around the world to swap material to help identify and understand plant species.
"We rely on sharing specimens from all over the world to be able to do our science, so it may have a major impact on our ability to do our research," Ms Waycott said. "The fact that it happened twice in the space of a couple of weeks and that they were two separate ports, two separate entry points has us very concerned."

The Federal Department of Agriculture and Water Resources, which controls Australian biosecurity, declined a request for an interview.

THE OLIVE BRANCH	BRISBANE BROMELIAD CENTRE
232 Canvey Road, Ferny Grove Q 4053 **Specialising in hybrid Vrieseas, Aechmeas, Variegated Neoregelias Skotak Hybrids, Aussie Dream and varieties, and other quality Bromeliads** **Phone (07) 3351 1203** VISITORS WELCOME BY APPOINTMENT	**34 Hauton Road, Morayfield Q 4506** **Aechmeas, Vrieseas, Guzmanias, Neoregelias, Nidularium & Tillandsias and rarer species and hybrids** **Phone BARBARA and LORRAINE** **(07)5433 0303** VISITORS by APPOINTMENT

Aechmea nudicaulis

by Derek Butcher

I was recently checking on old references for TAXON, the Bromeliaceae data base maintained by Eric Gouda when I stumbled across the following on page 1956 of Flora Neotropica (1979):

> Excluded Names and Taxa
>
> *Aechmea nudicaulis* var *capitata* Reitz, Sellowia 17: 42, pl. 1965. From the characters of the leaf this would appear to be a natural hybrid with some other species.
>
> *Aechmea nudicaulis* var *plurifolia* E. Pereira, Bradea 1: 161 .1972. From the characters of the leaf this would appear to be a natural hybrid with some other species.

Previously I had accepted these varieties without a query when compiling a key to the infraspecies and decided I needed to revise my thinking. Harry Luther did say I was wasting my time on such endeavours and I knew that in 1997 Tanya Wendt said as follows:

> ***Aechmea nudicaulis*** by T Wendt in Bot. Journal Linnaean Soc. 125:245-7. 1997
>
> The wide distribution and variation of *A. nudicaulis* has led to the description of many taxa representing different forms in different parts of its distribution range. Considering that *A. nudicaulis* is an easily recognizable species, and these forms are not clearly delimited, for now it seems more appropriate to broadly delineate it.

So, I checked as to how others saw this species. The World Check list recognizes *Aechmea nudicaulis* and varieties, *aequalis, cuspidata, and nordestina.* I then checked REFLORA to see how the Brazilians interpreted this species. This features 407 herbarium specimens of which some 350 represented *A. nudicaulis*. The remainder covered varieties *aequalis, aureorosea, cuspidata* and *nordestina*. There was one for Sucre 1791 which is the type for var. *plurifolia* but this had been amended to var. *cuspidata by* T Wendt on 31/07/1987 This indicated to me that there was doubt as to the status of var. *plurifolia*. Overall it showed a reluctance to try to identify at infra-specific level.

If we follow the Brazilians, the number of varieties will be reduced and if we accept these changes it will mean that several plants in cultivation with these obsolete varietal names PLUS variegates with just NN (nomen nudum) names will need to be registered.

These names follow:

- *capitata* with bicoloured petals now to be called 'Capitata'
- *cuspidata* forma *tabuleirensis* (variegated) now to be called 'Tabuleirensis'
- *flavomarginata* now to be called 'Flavomarginata'
- *plurifolia* now to be called 'Plurifolia'
- *simulans* does not seem to be in cultivation
- *capitata albomarginata* NN with bicoloured petals now to be called 'Capitata Albo'
- *nudicaulis striatifolia* NN now be called 'Striatifolia'

Sunny Broms Conference

Held over the last weekend in March, The Sunny Broms Conference, convened by the Sunshine Coast Bromeliad Society must be considered a real success on all fronts. The organising Committee assisted by society members are to be congratulated.

In this issue of Bromeliaceae, one of the conference presentations is included. This is our member, Bruce Dunstan's piece on production of variegated Alcantareas. We hope to include other presentation material in later editions.

A bromeliad conference has 5 important aspects with each participant giving different weight to aspects:

- Some immerse themselves in the social aspects of meeting old friends and making new ones sharing a common interest;
- Others seek new releases of bromeliads and new additions to their collections in the sales room and rare plant auction;
- Visits to local bromeliad collections/gardens and nurseries are enjoyed by attendees;
- The displays of best grown and presented plants in the competition are the realm of many; and last but central to a conference are
- Presentations by experts drawn from around the world to provide a mix of technical, eyecatching, entertaining, and informative presentations on bromeliad matters.

Sunny Broms did well across all aspects. Pages 18 and 19 include photos of champion plants, and our members enjoying aspects of the conference.

GOLDEN BROMS 2019 - NEXT AUSTRALASIAN CONFERENCE 17-20 October 2019

The 2019 Australasian Bromeliad Conference – Golden Broms – will be held in the convention centre at the **Sea World Resort** on the Spit in Queensland's Gold Coast.

There will be a diversity of speakers from Australia and overseas as well as a full day visit to gardens.

Growers will be presenting their latest plants for sale and there will be a competition judged under the Bromeliad Society International rules. Societies and growers will provide displays to round off the viewing of plants.

Incorporated into the Sea World Resort, we have negotiated a special rate for conference attendees for Seaworld access that will apply for a period three days either side of the conference providing an opportunity to enjoy the holiday atmosphere.

Convened by Gold Coast Succulent and Bromeliad Society. Visit the Conference website at www.goldenbroms.com for the latest information and Registration.


Road Show


The Events Centre, Caloundra
welcomes the
Sunny Broms
to the Sunshine Coast
The Events Centre, Caloundra
welcomes the
Sunny Broms
SUNNY BROMS


Vreisea BSQ Golden Jubilee
Launched at BSQ Anniversary Dinner February 2017

***Aechmea Nudicaulis* (cont from p 15)**

From the taxonomist point of view we now have a simplified key which follow

1.PRIMARY BRACTS	almost white	var. ***nordestina***
1a.	red	2
2.FLORAL BRACTS	kidney shaped and minute petals yellow	var. ***nudicaulis***
2a	triangular or elliptic, relatively conspicuous	3
3.PETALS	wholly yellow	4
3a	red with yellow tip, sepals and ovary red	var. ***aureorosea***
4.SCAPE BRACTS	smallish, evenly spread on scape	var. ***aequalis***
4a	clustered beneath inflorescence petals and sepals yellow	var. ***cuspidata***

From the growers point of view we are getting less and less access to plants from the wild and registered names of cultivated plants is booming. So, while it may be easy to identify an *Aechmea nudicaulis* in the broad sense, as commented on by Tanya, for plants found in the wild, it takes an astute eye for detail to link a plant to a cultivar name.

Before giving a form a different name remember that a Cultivar has been defined as follows

> **cultivar:** Produced in cultivation as opposed to one growing in habitat; – an assemblage of plants that has been selected for a particular attribute or combination of attributes and that is clearly distinct, uniform, and stable in these characteristics and that when propagated by appropriate means retains those characteristics.

Because of the volatility of this species, different quoted parentage does not necessarily mean there is a difference.

We know that so far there are 23 registered cultivar names

Big John
Blackie
Candy Cane
Chiriqui Grande
Cranberry Frost
Dee Butt (variegated)
Dragon's Blood
Frosty The Snowman
Good Bands
La Tigra
Lightning (variegated)
Mary Hyde (variegated)
Parati
Porto Limon
Rafa
Rubra (now Xavante)
Silver Bands
Silver Ghost
Silver Streak Nudicaulis
Telegraph Hill
White Lightning (variegated)
Xavante
Zebra

Is *Billbergia brasiliensis* a hybrid?

by Eric Gouda and Derek Butcher

Summary – Ever since this taxon was described in 1943 there have been difficulties in linking live material with this name. All the past references have been revisited, and others not previously quoted, investigated, and it has been concluded that this name should continue as a recognised species within the subgenus *Helicodea* with slight amendments to the description. *B. kuhlmannii, B. mohammadii* and *B. velascana* are treated as synonyms.

Have you ever been bothered by a problem that keeps coming back and just nags and nags? Well, here is one which has been partly laid to rest or fully laid to rest if you change your labels.

It all started in the 1970's when we South Australians got a plant from Victoria called *Billbergia kuhlmannii* and in those days we believed everything the Victorians said. It was a pretty plant with few leaves, broad white banded and forming a tight tube. It had blue flowers which mostly coiled up like a watchspring. It easily set seed and the seed pod was always 3 sided (trigonous) with many irregular longitudinal grooves (sulcate). A similar looking plant arrived from Queensland under the name of *Billbergia venezuelana* and another from N.S.W. as *B. brasiliensis*. We were swamped with names! In 1980 in the Brom. Soc. Inc. seed bank, there appeared *B. exotica*. Was this a hybrid with such a fancy name? It was listed in the 1979 International Checklist of Bromeliad Hybrids with no mention of parentage. In the latest 'Beadle' listing, we have *B.* 'Exotica' as a name given by Kent to a possible *B. vittata* cultivar. (This is confirmed in the Bromeliad Cultivar Registry 1998 but the description is so vague it could well be describing *B. brasiliensis.*) All the plants that grew up under our tender care seemed to be exactly the same as our blue flowered *B. kuhlmannii.* In March, 1984 the Brom. Soc. Inc. seed bank offered *B. alphonsi-johannis* which four years later under our tender care produced a blue flowered - yes , you've guessed it!

By this time I was becoming desperate and just had to confide in Bill Morris – an Australian who is one of the Bromeliad Society International Trustees. The only plant that tallied according to my interpretation was yet another name - *B. velascana.* This was the only one with blue flowers and a grooved trigonous seed pod. Bill did calm me down (or did it just to shut me up) by asking me if the ovaries on page 2033 of Flora Neotropica were from flowers just opened, post floral, or full of seed. How was I to know? Secondly what were the chances of South Australia having a rare *B. velascana* from Bolivia against the more common *B. brasiliensis* which comes, we think, from near Rio de Janeiro, which is where many of the first Bromeliad imports to Australia came from. This didn't seem very scientific to me, especially when Smith's writings had suggested the likelihood that *B. brasiliensis* was a hybrid. If he meant an F1 hybrid, then seedlings from this should bear some relationship to either of the original parents (viz. the grandparents). However, our experience showed that self pollination produced regularity in progeny. So I forgot about the problem!

At a South Australian Society meeting in November 1991, a member came up with plant in hand and wanted to know its name. Yes, it was our blue flowered *Billbergia* and I quietly

went to a corner to bang my head there. 'WRITE TO LUTHER' kept drumming in my head. So I sent a slide, but even from that meagre picking Harry was fairly sure we had *B. brasiliensis*. I now know that the ovary becomes sulcate as it matures, and that the lower ovaries can be trigonous before and at flowering. Neither of these facts are on page 2007 of Flora Neotropica. By the way, *B. velascana* has gone by the wayside and *B. kuhlmannii* has a tubular ovary and is so rare that it is not even in the Marie Selby collection. So if you have a *Billbergia* with few, white-banded stiff leaves, a blue flower which invariably winds up like a watchspring, and a three sided sulcate ovary which becomes almost globular when ripe, then you have *Billbergia brasiliensis*.

In Europe in 2006 Eric Gouda was having similar identification problems and we decided to do something about it! We know that Lyman Smith tried to link plants from horticulture with plants collected in the wild even though they appeared to be of man-made hybrid origin. When Lyman Smith coined the name *Billbergia brasiliensis* in Arq. Bot. D Paulo II. 1: 105. 1943 he commented that the taxon could well be a hybrid because of the inconsistency of the coiling of the petals (Fig 1). This naming was necessary because there were two taxa with the name *Billbergia leopoldi*. He could not follow Linden and Houllet because they created a naming conflict with their transfer of *Helicodea leopoldi* in 1869 to *Billbergia leopoldi* which had already been used by Koch in 1857.

Let us look at a bit of history that prompted Lyman Smith to treat this as a possible natural hybrid. No further collections are reported in Flora Neotropica (1979) and we would suggest that the inconsistent petal coil would not have been evident in the herbarium specimen Glaziou 16421 held at Kew.

- In 1856 Koch wrote about a *Billbergia leopoldi* which was eventually treated as a synonym of *B. vittata*. This takes this taxon out of the discussion. In any event the herbarium material held in Berlin was destroyed by fire in WWII.
- In 1862 icon 67 at Kew was painted by M Severyns for Morren
- In 1864 Lemaire wrote about *Helicodea leopoldi* Hort. Versch. that had been collected by De Vos in Santa Catarina in 1847.There is also an illustration which shows the fruit of this taxon . It is triangular in cross section (Fig 2). **Note** that Reitz (1983) reports this plant has not been sighted in this area.
- In 1866 icon 289 at Kew was painted in 1866 for Morren and is annotated *B. brasiliensis* by Dave Philcox who was collaborating with Lyman Smith at the time.
- In 1869 Houllet discussed the growing of *B. leopoldi* in apartments and was clearly referring to the plant we now know as *B. vittata*. Smith's reference is in error.
- In 1871 Belgique Horticole 21: 1-6. (Fig 3) Morren again had a painting done. Paul Wilkin from Kew advises that all three paintings are different but petals are rolled back to the same degree in all 3! We know that horticulturally 'Helicodea' are not always consistent with the extent of the coiling especially as the inflorescence ages. E. Morren described the following, 'Ovario cylindracea-trigono, costato, farinoso. Baccis 9-12 costatis, subrotundis, parum carnosis, trilocularibus, rimis longitudinalibus irregularibus loculicido dehiscentibus.' We intend to emend the description in Flora Neotropica to include this data.

Fig. 1 Inconsistency of petal coiling

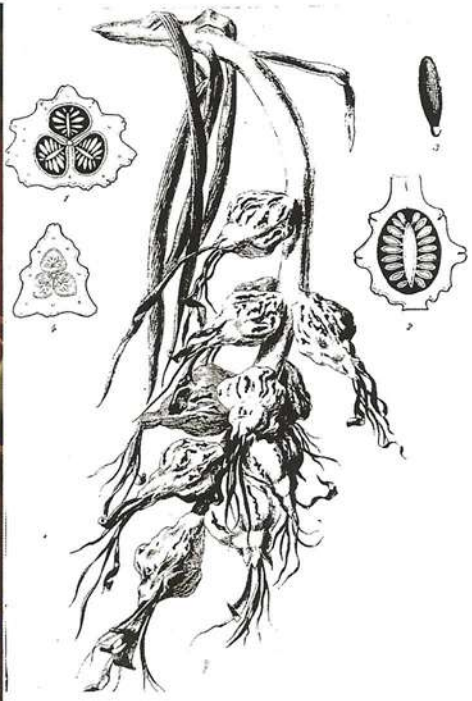

Fig 2 Fruit triangular in cross section

Fig 3 Painting in Belgique Horticole 21: 1-6. 1871

Fig 4 *Billbergia kuhlmannii* in Brazil

If we now refer to Flora Neotropica page 2035 we read that Witte in Cat. Bromel Lugd. – Bat.11. 1894 treats *B. leopoldii* as a hybrid and quotes the parentage of *decora* x *saundersii*. However, on referring to the actual publication in 1894 we find the following:

52. **Leopoldii** Ed. Morr. (Brasil)
    Belg. Hort. 1871, pag.1, tab. 1-4
    Helicodea Leopoldii Lem.
    Billbergia ianthina Hort.
    Billbergia nuptialis Hort. Mak.

Smith was in error in quoting this as a hybrid. Also, where did Lyman Smith get the alleged parentage? The notation that this is not the *B. leopoldi* of Morren, 1871 is also confusing because this painting is actually referred to by Witte. We have already proved that Morren 1871 and Morren 1866 paintings have similar traits which makes it hard to believe Smith did not accept these paintings as representing the same species. Is there something that Smith knew 85 years later that Witte was not aware of? We find it hard to believe that there was yet another plant only this time called 'x Leopoldi'.

For many years now, plants have been identified as *B. brasiliensis* in the USA and Australia, and *B. kuhlmannii* in Brazil and Europe, and all breed true from self-set seed. All 3 petals coil as expected with sub-genus *Helicodea*. This indicates that instead of being a hybrid they are a species. However, they have an ovary that is triangular in cross section which differs from Smith's description which states subterete.

In investigating the possibility of this being a man made hybrid there is little material to refer to, other than the works of Duval. It seems that active hybridising did not start in this genus until the 1880's and we are talking about a plant described some 20 years before. The chances of it being a man-made hybrid are remote.

Let us now look at the protologue of *B. kuhlmannii.* Smith did his differential diagnosis against *B. rubicunda* - another species with peculiar petal coiling habits and also said to be of hybrid origin. He said, 'The species seems similar to *Billbergia rubicunda* Mez, but very different by the dense scaled inflorescence, the short epigynous tube, and blue petals.' Interestingly *B. brasiliensis* has a dense scaled inflorescence, a short epigynous tube and blue petals! Could *B. kuhlmannii* also have a tendency to irregular petal coiling habits? In the *Billbergia* key in Flora Neotropica pp. 1977-8 we see *B. brasiliensis* distinguished from *B. kuhlmannii* by having a non-sulcate wholly white farinose ovary which does not agree with the illustrations.

Recent collections of a similar plant in Brazil are being identified as *B. kuhlmannii* which is supposed to have ellipsoid ovaries but are triangular in cross section in the live collections! (Fig 4). Add to this the fact that *Billbergia mohammadii* Vasquez & Ibisch, Die Brom. 1: 11-13. 2000 was considered synonymous with *B. kuhlmannii* in the Bromeliad Binomial List by Harry Luther in April 2002. Admittedly, no reason was given for this action. *B. mohammadii* does have an ovate ovary that is triangular in cross section.

When describing the new species *B. mohammadii,* Vasquez & Ibisch compared their plant with the rarely encountered *B. velascana* Cardenas (Brom. Soc. Bull. vii. 35) which had been collected in an adjacent area in Bolivia in 1955. *B. velascana* is an enigma because only one collection was made and no further collections have been reported. In fact, when Vasquez & Ibisch described their new species, comparison was made with the protologue data of *B. velascana* with no comment about having seen live specimens of this species which is what we always expect with their in-depth reporting. Allowing for variables you would expect from a description based on more than one collection, the only thing that seems to have some significance is the length of the epigynous tube which is quoted at 12mm long. This seems an odd amount because the ovary is also quoted as 12mm. This figure was changed without comment to 'short' in Flora Neotropica. This is within the 'short but distinct' quoted for *B. brasiliensis* by Lyman Smith. It is clear, at this moment, that *B. velascana* cannot be distinguished from *B. brasiliensis* and should be treated as a synonym too.

Something must be done with *B. brasiliensis, B. kuhlmannii, B. mohammadii,* and *B. velascana* and a decision made as to a correct name. We maintain this is *B. brasiliensis* (Fig 5) because it predates all others. If the description of *B. brasiliensis* is amended to delete reference to the contorted petals and to add the fact that the ovary is triangular in cross-section and that the fruit is subrotund with 9-12 ribs, all these species will fit comfortably.

Finally, we did notice that Smith in Flora Neotropica Monograph 14, Part 3, Bromelioideae, 1979 refers to *B. leopoldi* Lem. as the 7th synonym of *B. zebrina* on page 2026. This is incorrect because in 1864, although reference was made to both plants there was no suggestion that they were the same taxon.

References

1864 *Helicodea leopoldi* Verschaffelt Hortus ex Lemaire, Ill. Hort. 11: sub *pl.* 421. .
1869 *Billbergia leopoldi* Linden ex Houllet, Revue Hort. 41: 87, *fig.* 21.
1871 Morren E. in Belgique Horticole 21: 1-6.
1894 Witte in Cat. Bromel Lugd. –Bat.11.
1943 Smith L. B. in Arq. Bot. D Paulo II. 1: 105.
1957 Cardenas M, *B. velascana* in Brom. Soc. Bull. 7(3): 35.
1979 L B Smith & R J Downs in Flora Neotropica Monograph 14, Part 3, Bromelioideae
1983 Reitz R. in Bromeliaceas E A Malaria – Bromelia Endemica, p486
1990 Leon Duval in The Bromeliads, edited by Rothenberg & Read, Big Bridge Press, Pacifica, Cal., USA
2000 Vasquez & Ibisch, in Die Brom. 1: 11-13.
2002 Luther H. Bromeliad Binomials p12. 2002

Acknowledgements

We would like to thank Jason Grant of Neuchatel University in Switzerland, and Paul Wilkin of Kew for providing us with historical data and advice.

Above: T. tenuifolia var glaucifolia
Below: T tenuifolia var nigrifolia

Fig 5 ***Billbergia brasiliensis***

Tillandsia tenuifolia

by Derek Butcher

Dare I say that this is a complicated species. In fact, my file on this species now totals 21 pages of moves, countermoves and synonyms without a mention of DNA research. The latest Die Bromelie 1: 2017 has an article by Eric Gouda on this species and introduces us to two varieties. Details follow.

> ***Tillandsia tenuifolia* var. *glaucifolia*** Gouda, var. nov. Die Brom 1: 19-23. 2017
> This variety differs from the type variety in having a less robust habit, with slender and less stiff leaves that are often bluish-green, drying brown (vs. bright yellowish-green, drying ochreous), petals often white or pale blue to dark blue (vs. always white).
>
> **Type.** Bolivia, Prov. Santa Cruz, Samaipata. L. Dijkgraaf s.n., cultivated and flowered at the Botanic Gardens of the University of Utrecht with accession number 2001GR01050 (holotype L, isotype LPB). Additional material studied: **Brazil**, Parana, Vila Velha (near Ponta Grossa), epiphyte in a canyon about 30 m deep. Feb. 1991. A. L. Copijn EG#40, cultivated at the Botanic Gardens of the University of Utrecht with accession number 1996GR01299 (L); **Argentina,** Prov. Misiones, near Androsito. 15-11-1994. A.L. Copijn EG#96., cultivated at the Botanic Gardens of the University of Utrecht with accession number 2003GR01723 (L).
>
> ***Tillandsia tenuifolia* var. *nigrifolia*** Gouda, var. nov. Die Brom 1: 19-23. 2017
> This variety differs from the type variety and other varieties in having leaves colouring deep purple-red to nearly black when exposed to direct sun light (vs. green and not colouring), having salmon coloured floral bracts, paler to yellowish toward the base (vs. uniformly bright pink, green or reddish floral bracts).
>
> **Type.** Brazil, Estado Piaui, s.d., C. Pfister s. n., cultivated and flowered at the Botanic Gardens of the University of Utrecht with accession number 2008GR01388 (L).

[Ed: These 2 varieties add to the five varieties also listed on the Bromeliad Taxon List viz. varieties *disticha, dungsiana, saxicola, tenuifolia, vaginata.*]

You may already be growing these varieties, after all there are already 11 registered cultivars considered to be infraspecific to *T. tenuifolia* , namely,
'Amethyst', 'Bonsall Beauty', 'Emerald Forest', 'Green Goddess', 'Hoya Gorda', 'Minima Tenuifolia', 'Pink Cascade', 'Silver Comb', 'Strobiliform', 'Toripe', and 'Yacuiba'.

Some originated at Rainforest Flora and one called 'Amethyst' reminded me so much of var. *nigrifolia,* but I leave any decision of changing names on labels or just noting labels up to you.

Ronnbergia Alliance

by Aguirre-Santoro

Current Names by Derek Butcher

SPECIES	OLD GENUS	NEW GENUS
aciculosa	*Aechmea*	*Ronnbergia*
allenii	*Aechmea*	*Ronnbergia*
altocaririensis	*Aechmea*	*Wittmackia*
amorimii	*Aechmea*	*Wittmackia*
andersoniana	*Aechmea*	*Wittmackia*
bicolor	*Aechmea*	*Wittmackia*
burlemarxii	*Aechmea*	*Wittmackia*
canaliculata	*Aechmea*	*Wittmackia*
drakeana	*Aechmea*	*Ronnbergia*
fraseri	*Aechmea*	*Ronnbergia*
froesii	*Aechmea*	*Wittmackia*
germinyana	*Aechmea*	*Ronnbergia*
gregaria	*Aechmea*	*Wittmackia*
incompta	*Aechmea*	*Wittmackia*
involucrata	*Aechmea*	*Ronnbergia*
ituberaensis	*Aechmea*	*Wittmackia*
laevigata	*Aechmea*	*Wittmackia*
limae	*Aechmea*	*Wittmackia*
lingulata	*Aechmea*	*Wittmackia*
lingulatoides	*Aechmea*	*Wittmackia*
linharesiorum	*Aechmea*	*Wittmackia*
maranguapensis	*Aechmea*	*Wittmackia*
patentissima	*Aechmea*	*Wittmackia*
pendulispica	*Aechmea*	*Wittmackia*
pernambucentris	*Aechmea*	*Wittmackia*
subpetiolata	*Aechmea*	*Ronnbergia*
sulbahianensis	*Aechmea*	*Wittmackia*
tentaculifera	*Aechmea*	*Wittmackia*
tonduzii	*Aechmea*	*Ronnbergia*
turbinocalyx	*Aechmea*	*Wittmackia*
veitchii	*Aechmea*	*Ronnbergia*
viridispica	*Aechmea*	*Ronnbergia*
viridostigma	*Aechmea*	*Wittmackia*
weberbaueri	*Aechmea*	*Ronnbergia*
wuelfinghoffii	*Aechmea*	*Ronnbergia*
abbreviata	*Hohenbergia*	*Wittmackia*
antillana	*Hohenbergia*	*Wittmackia*
brittoniana now *distans*	*Hohenbergia*	*Wittmackia*
caymanensis	*Hohenbergia*	*Wittmackia*

distans	*Hohenbergia*	*Wittmackia*
eriostachya	*Hohenbergia*	*Wittmackia*
fawcettii	*Hohenbergia*	*Wittmackia*
gnetacea now *polycephala*	*Hohenbergia*	*Wittmackia*
inermis	*Hohenbergia*	*Wittmackia*
jamaicana	*Hohenbergia*	*Witmackia*
laessei	*Hohenbergia*	*Wittmackia*
mesoamericana	*Hohenbergia*	*Wittmackia*
negrilensis	*Hohenbergia*	*Wittmackia*
penduliflora	*Hohenbergia*	*Wittmackia*
polycephala	*Hohenbergia*	*Wittmackia*
portoricensis	*Hohenbergia*	*Wittmackia*
proctorii now *urbaniana*	*Hohenbergia*	*Wittmackia*
rohan-estyi	*Hohenbergia*	*Wittmackia*
spinulosa	*Hohenbergia*	*Wittmackia*
urbaniana	*Hohenbergia*	*Wittmackia*
brasiliensis	*Ronnbergia*	*Wittmackia*
campanulata	*Ronnbergia*	*Ronnbergia*
carvalhoi	*Ronnbergia*	*Wittmackia*
columbiana	*Ronnbergia*	*Ronnbegia*
deleonii	*Ronnbergia*	*Ronnbergia*
explodens	*Ronnbergia*	*Ronnbergia*
hathewayi	*Ronnbergia*	*Ronnbergia*
killipiana	*Ronnbergia*	*Ronnbergia*
maidifolia	*Ronnbergia*	*Ronnbergia*
morreniana	*Ronnbergia*	*Ronnbergia*
neoregelioides	*Ronnbergia*	*Wittmackia*
nidularioides	*Ronnbergia*	*Ronnbergia*
petersii	*Ronnbergia*	*Ronnbergia*
silvana	*Ronnbergia*	*Wittmackia*

Genus Wittmackia Mez, in Mart., Fl. Bras. 3(3): 274. 1897.- See J Aguirre-Santoro, Plant Syst. Evol. DOI 10.1007/s00606-017-1394-y 2017

LECTOTYPE *Bromelia lingulata* L., Sp. Pl. 1:285.1153, designated by L.B. Smith (in Index Nominum Genericorum Card No. 03491, 16 Jul 1957).

= *Hohenbergia* subg. *Wittmackiopsis* Mez, in C. DC., Monogr. Phan. 9: 132. 1896.-LECTOTYPE: *Pitcairnia penduliflora* A.Rich., in Sagra, Hist. Fis. Cuba, Bot. 11: 262. 1850, designated by L.B. Smith (in Smith and Downs 1979).

Plants terrestrial, rupicolous or epiphytic, cespitose or solitary, stoloniferous or acaulescent; rosette broad, forming phytotelmata.

Leaves distinctly differentiated into sheath and blade; sheaths elliptic, oblong or ovate, green, pale brown, or irregularly purplish, lepidote on both sides, entire or serrate toward the apex; blades linear to lingulate, occasionally narrowed toward the base (e.g., W. canaliculata), green, occasionally vinaceous (e.g., *W. brasiliensis*), lepidote on both sides but more densely on the abaxial side, channeled or without a median channel, margins entire to strongly serrate, apex attenuate to rounded, apiculate to mucronate.

Inflorescence visible or partially concealed by the rosette, erect to pendulous; peduncle green, dull purple or whitish, glabrescent to densely floccose; bracts of the peduncle marcescent, membranaceous, green, dull purple, or pale brown, glabrous to densely floccose, shorter to longer than the internodes, erect to ascending, linear-lanceolate, lanceolate or oblanceolate, margins entire to serrate, apex attenuate to acute, apiculate or mucronate; inflorescence simple to 2-divided, rarely 3-divided (e.g., *W. rohan-estyi*), 4-70 cm long, rachis visible or concealed by the bracts, flowers or branches, sparsely lepidote to densely floccose.

Primary bracts gradually to abruptly diminishing in size toward the apex of the inflorescence, diverging from the rachis to divaricate, marcescent, membranaceous, shorter to longer than the branches, ovate to linear-lanceolate, green, cream, dull purple, or pale brown, occasionally bright red (*W. tentaculifera*), lepidote to floccose, entire to serrulate, apex attenuate to acute.

Spikes globose-strobilate to long-cylindrical; sessile or stipitate, the stipe exposed or concealed by bracts, 0.5-15 cm long, terete to slightly flattened, glabrous to floccose; rachis of the spike straight, exposed or concealed by the flowers or floral bracts.

Floral bracts gradually to abruptly diminishing in size toward the inflorescence apex, shorter than the ovaries to surpassing the sepals, symmetric, persistent, polystichous, laxly arranged to densely imbricate, erect to divaricate, linear, triangular, lanceolate, ovate, or orbicular, membranaceous to strongly coriaceous, green, cream, yellow, orange, vinaceous, occasionally bright red (*W. tentaculifera*), margins entire to semrlate, apex attenuate to retuse, apiculate, caudate, or mucronate.

Flowers sessile, laxly arranged to densely congested, three to about 100 per spike, erect to divaricate.

Calyx conical to dorsiventrally compressed, convolute, occasionally turbinate-convolute (*W. turbinocalyx*); sepals basally connate, strongly asymmetric, forming a membranous lateral wing that overlaps the adjacent sepal, white, cream, green, yellow, purple, lilac, pink, or bright red, glabrous to densely floccose, occasionally brown-tomentose-lepidote (*W. eriostachya* and *W. polycephala*), coriaceous, unarmed to strongly mucronate.

Corolla tubular, spreading apically, occasionally suberect {e.g., *W. bicolor*), projecting 2-8 mm beyond the calyx; petals free, elliptic or subspathulate, white, green, apex acute to obtuse, petal appendages absent or present, when present lobulate, arising above 2 mm or more from the petal base.

Stamens included; filaments flattened, subconstricted at the insertion point of the anther; anthers rectangular, apiculate to mucronate.

Ovary ovoid-compressed, ellipsoidal, cylindrical, obovoid, or clavate, white, cream, green, yellow, orange, pink, purple, or bright red, glabrous to densely floccose; placentation apically axile, ovules >30 per ovary, unappendaged.

Stigma conduplicate-spiral, papillose.

Fruit ovoid, ovoid-compressed, ellipsoidal, cylindrical, obovoid, or clavate, yellow, red, blue, or black, the sepals persistent and sometimes becoming basally fleshy.

Species composition and geographic distribution;
Wittmackia includes 44 species. Aguirre-Santoro et al. (2016) sampled 41 of these 44 species in their phylogenetic study. The species of *Wittmackia* are mainly distributed in two centers of diversity. The first area is located in the central corridor of the Brazilian Atlantic Forest in south-eastern Bahia state, with a few species occurring north from Ceara to Sergipe states. The second center of diversity corresponds to Jamaica in addition to a small group of species occurring in the remaining Greater Antilles (except Hispaniola), their adjacent islands west of the Caribbean, and the Yucatan Peninsula. *Wittmackia lingulata* is the only widespread species in the group, occurring along the tropical Atlantic coast, Panama and the Caribbean, except for the major islands of the Greater Antilles. The species of *Wittmackia* inhabit a wide variety of environments from hygrophilous mountainous forests to dry habitats in semi-deciduous forests and tropical dry forest. Most species of *Wittmackia* occur in lowlands to medium-low elevations of about 600-800 m a. s. l. However, species such as *W. fawcetii* and *W. eriostachya* can occur at 1600 m a. s. l. in the Blue Mountains of Jamaica.

Taxonomic notes: *Wittmackia* is the oldest generic name available within the Atlantic clade of the *Ronnbergia* Alliance as it includes Its type species, *W. lingulata*. *Wittmackia* has been a synonym of *Aechmea* for some 60 years, since Smith (1956) considered that the lax spikes and mucronate sepals of the species were sufficient characters to place them in *Aechmea*. However, it is currently known that *Aechmea* is an artificial, polyphyletic genus that requires major restructuring. For this reason, and based on the phylogenetic evidence presented by Aguirre-Santoro et al. (2016), here I resurrect and recircumscribe *Wittmackia*. The lack of ovule appendages is the most remarkable similarity between the original diagnosis of *Wittmackia* and the new circumscription proposed here. However, our new delimitation rejects the usage of the absence of petal appendages to separate this genus from others, as this is a character that evolved several times within the *Ronnbergia* Alliance (Aguirre-Santoro et al. 2016).

There is a morphological gap within *Wittmackia* between the Caribbean-endemic species and the remaining species. The former exhibit strongly compressed flowers grouped in strobilate spikes, whereas the latter have lax to subconjested spikes and flowers not compressed. Aguirre-Santoro et al. (2016) discussed that this morphological gap is derived from the evolutionary event that separated the Caribbean-endemic species from their Brazilian-centered relatives. Despite this clear morphological differentiation and the evidence of monophyly for the Caribbean-endemic species, an infrageneric classification for *Wittmackia* is not proposed here. This decision is based on the results by Aguirre-Santoro et al. (2016), which did not provide evidence for the monophyly of the Brazilian-centered species including *W. lingulata*). These results, however, did not reject the hypothesis that they form a monophyletic group, which leaves open the possibility of a future infrageneric classification of *Wittmackia* when more robust phylogenetic studies become available.

All the species of *Hohenbergia* transferred here to *Wittmackia* made part of the Caribbean-endemic *Hohenbergia* subg. *Wittmackiopsis*. The species of *Hohenbergia* subg. *Hohenbergia*, including the type species of the genus (*H. stellata*), seem to be nested in distant clades across the Core Bromelioideae, outside the *Ronnbergia* Alliance Sass and Specht 2010; Silvestro et al. 2014; Evans et al. 2015; Heller et al. 2015; Aguirre-Santoro et al. 2016). Although *Hohenbergia* subg. *Hohenbergia* has been poorly sampled in phylogenetic studies, the possibility to find species of this subgenus within *Wittmackia* is low, as all its species exhibit long chalazal ovule appendages, a character that does not occur within the *Ronnbergia* Alliance. Moreover, most species within *Hohenbergia* subg. *Hohenbergia* exhibit other characters not commonly observed within the here-proposed circumscription of *Wittmackia*, such as 3-divided inflorescences and red, blue to dark purple petals.

Although the species-rich and highly polyphyletic genus *Aechmea* was not comprehensively sampled by Aguirre-Santoro et al. (2016) or any other phylogenetic study, the taxonomic transferences of *Aechmea* presented here will not have a significant impact on future taxonomic reconfigurations of this genus. The *Aechmea* species transferred here into *Wittmackia* are very dissimilar in floral morphology and geographic distribution to the type species of *Aechmea* (*A. paniculata*) and its morphologically related species (e.g., *A. mertensii, A. setigera* and *A. longicuspis*). Furthermore, these morphologically similar relatives of *A. paniculata* have been placed in molecular-based phylogenies in a distant clade outside the *Ronnbergia* Alliance.

CALENDAR OF EVENTS

Monthly Meetings commence with plant sales from 6:45pm;
Information/Practical sessions at 7pm on odd numbered months;
presentations then commence at 7:30 PM.
AGM is held prior to Feb meeting.

Meetings are held at Uniting Church, Merthyr Road, New Farm on third Thursday each month except December.

June	15 June
July	20 July
August	17 August
September	21 September
October	19 October
November	16 November
2018	
January	18 January
February (inc AGM)	15 February

Other Events

Tillandsia Full Day Workshop	21 May at Newmarket State School
Tillandsia Study group	16th July, 10th Sept, 19th Nov, contact Pam Butler re venues
Spring Show	11-12 November at Table Tennis Centre, Windsor
Xmas Party	7 December – venue tba

Plant of the month List for 2017

May	Alcantarea
June	Vriesea
July	Intergenerics
August	Rare Genera
September	Billbergia
October	Guzmania
November	Neoregelia, Nidularium

COMPETITION SCHEDULE 2017

Feb & Mar POPULAR VOTE – any genus species & hybrids + novelty bromeliad display

April -MINI SHOW

Class 1 – Bromelioideae not listed elsewhere in Schedule, species & Hybrids (Acanthostachys, Ananas, Androlepis, Araeococcus, Bromelia, Canistropsis, Canistrum, Edmundoa, Fascicularia, Hohenbergia, Hohenbergiopsis, Neoglaziovia, Nidularium, Ochagavia, Orthophytum, Portea, Quesnelia, Ursulaea, Wittrockia)
Class 2 – Guzmania species & hybrids
Class 3 – Pitcairnia species & hybrids
Class 4 - any other flowering bromeliad species & hybrids

May & June POPULAR VOTE – any genus species & hybrids + novelty bromeliad display

July - MINI SHOW

Class 1 – Billbergia
Class 2 – Tillandsioideae not listed elsewhere in Schedule, species & hybrids (Alcantarea, Catopsis, Mezobromelia, Racinaea, Werauhia)
Class 3 – Neoregelia up to 200mm diameter when mature, species & hybrids
Class 4 - any other flowering bromeliad species & hybrids

Aug & Sept POPULAR VOTE – any genus species & hybrids + novelty bromeliad display

October - MINI SHOW

Class 1 – Neoregelia over 200mm diameter when mature, species & hybrids
Class 2 – Tillandsia species & hybrids
Class 3 – Pitcairnioideae not listed elsewhere in Schedule, species & hybrids (Brocchinioideae, Lindmanioideae, Hechtia), Puya), Navioideae, Deuterocohnia, Encholirium, Fosterella)
Class 4 - any other flowering bromeliad species & hybrids

November - POPULAR VOTE– any genus species & hybrids + novelty bromeliad display