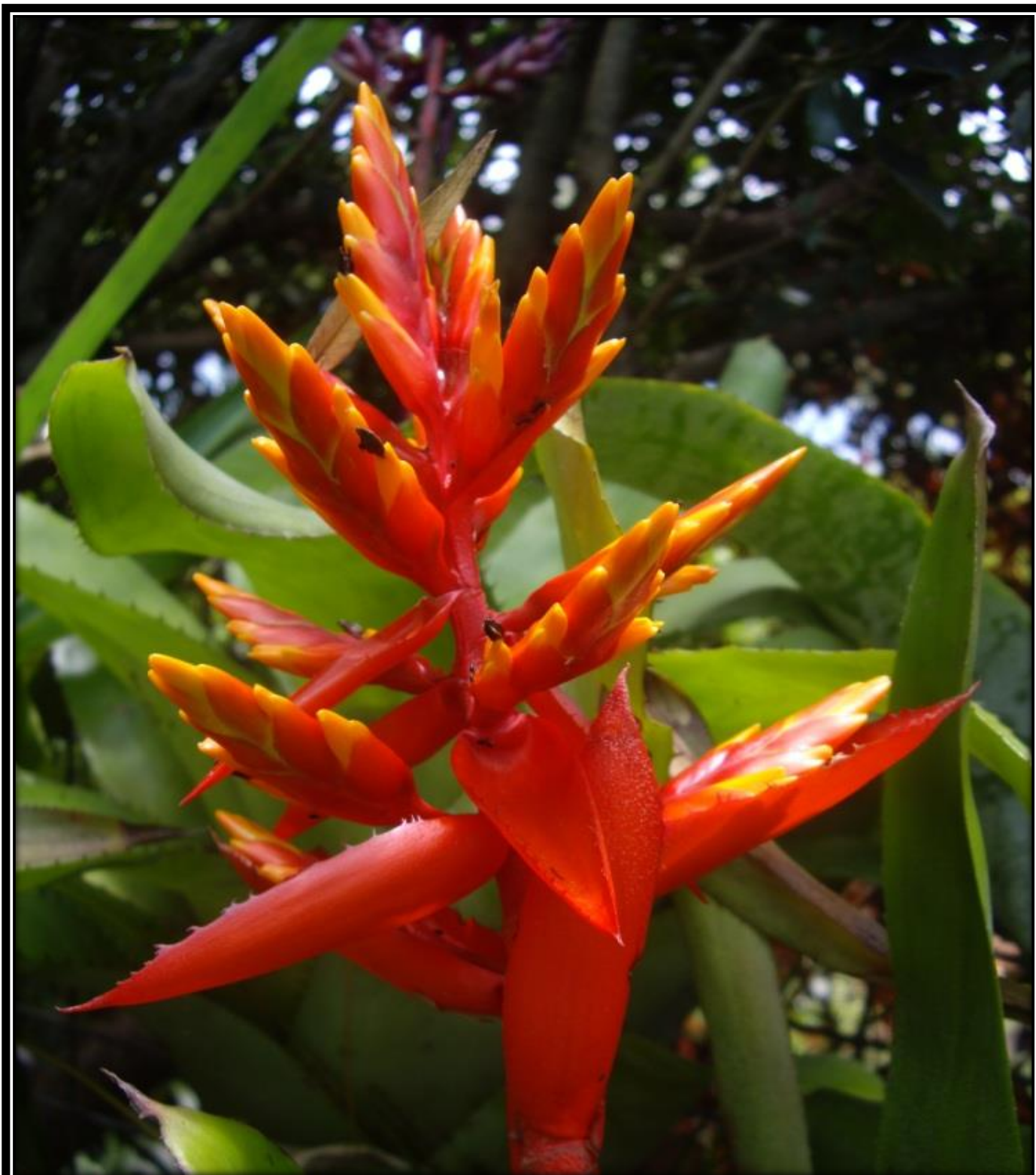


Bromeliaceae





The Bromeliad Society of Queensland Inc.

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HALL COORDINATOR	David Rees
RAFFLE COORDINATOR	Lesley Gibbs
EXHIBITION COORDINATOR	Amanda Meads

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: *Aechmea manzanaresiana*

By: John Olsen

Rear Cover: *Aechmea* 'Stephanie'

By: John Olsen

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CALENDAR OF EVENTS 2016

Monthly Meetings 7:30 PM at Uniting Church, Merthyr Road, New Farm

May Meeting	19 May
June Meeting	18 June
July Meeting	16 July
August Meeting	20 August
September Meeting	15 September
October meeting	20 October
November Meeting	17 November

Xmas Party 1 December Booroodabin Bowls Club, Newstead

Shows and Exhibitions

Exhibition	5 th – 14 th August
Spring Show	5-6 November at Table Tennis Centre

2015 President's Report

Barry Kable, AGM 18th February 2016

It's hard to believe another year has gone by so fast. A great year of good fellowship and lots of achievements, made possible by your hard working committee, and the members for helping make it happen. Here is a summary of our achievements for 2015

- 2 great shows Autumn & Spring.
- The Tillandsia day at Newmarket. Outstanding
- Our BSQ display at Bromsmatta, Sydney Conference.
- Working with Roma Street Parkland to relocate the Bromeliad Garden, which was filmed by the ABC's Gardening Australia, and then aired at a later date.
- The Ekka display showcasing our society to the wider community.
- Parks Alive at Roma Street Parkland again a great opportunity to show off our wonderful bromeliads, and speak to lots of people about them.
- A display in the Brisbane Arcade.
- The November general meeting was Bring a Friend Night, hopefully this gained some new memberships.
- To top the year off the Christmas Party, a great time was had by all.

In closing I would to thank those who are retiring from committee, it has been great working with you, and welcome to those who have volunteered their services for the coming year. It has been a productive year of activities and sharing information.

I thank you all for your contribution and look forward to your continuing support, this year and into 2017, our 50th Anniversary.

Editor's Notes

John Olsen

Our magazine is the only Australian society publication viewed seriously by the bromeliad taxonomists. Information on plant species identification and clarification of names are regular content thanks largely to contributor Derek Butcher. Other 2015 contributors were Bruce Dunstan, Bob Smyth, Greg Aizlewood, Narelle Aizlewood, Peter Paroz, Alan Phythian, Mal Cameron, Roy Pugh, Geoff Lawn, and Peter Tristram along with your editor.

It takes a lot of contributors to achieve publication of 4 issues with largely new material. This issue suffers from lack of new material and relies heavily on items gleaned from other publications.

Thanks goes to Roy Pugh, Maxim Wilson, Rob and Barbara Murray and who have assisted with editing and proof reading.

YOUR CONTRIBUTION IS NEEDED – ideas, notes, articles and photos all welcome



Autumn Show. Photos clockwise from Top left.

The display designed and executed by Bob Cross featured a bamboo hut and 5m palm. (This photo shows the scale of the venue); One corner of the display; Tillandsia wall after the first morning with some bare patches appearing; Champion table; Maxim Wilson receives his BSI International Bromeliad Judge certificate from Judging co-ordinator Narelle Aizlewood.

2016 Autumn Show

The Committee was challenged by the failure of the PCYC at Bray Park to honour the Society's formal booking for the Autumn Show which was of some months standing and featured in all our 2015 advertising for the Autumn Show. Through massive efforts on the part of President Barry Kable and assisted by Rob Murray and Pam Butler, an alternative venue was arranged at short notice and our show proceeded.

Reliance on social media for publicity proved to be an advantage in the face of the late change of venue. The roads and streets in the vicinity were well covered by our corflute signs which were increased in number for this show. Prior surveys of attendees showed flyers and street signs to be among our most effective advertising. At short notice our capacity to distribute flyers was limited to one major event the weekend prior.

The venue enabled plant displays, Competition, and sales area to fit very comfortably. BSQ thanks those who entered plants, mounted displays and offered plants for sale. The result for the Society was good and a big improvement on the disappointing autumn 2015 show.

The venue was Genesis Christian College Sports Facility which has an undercover area for 3 full sized basketball courts. That the Council election and referendum was on the Saturday of the show was another unknown factor possibly adversely affecting attendance. As it turned out the election appeared to generate additional attendees on the Saturday.

Competition Results

Champion

Tillandsia xerographica hybrid

Grown by... John Olsen

Reserve Champion (Arnold James Cup)

Vriesea 'Subzero'

Grown by... M & M Cameron

Best Pitcairnioideae

Deuterocohnia abtusa

Grown by....Rick Cairns

Best Species

Tillandsia streptophylla

Grown by... Ron Jell

Best Cryptanthus

Cryptanthus warasii

Grown by... Barbara McCune

Best Bromelioideae

Neoregelia 'Wild Rabbit'

Grown by... M & M Cameron

Best Tillandsioideae

Tillandsia tectorum

Grown by... Pam Butler

President's Award

Greg Aizlewood

Best Novice Grower

Rick Cairns

Most Successful non Commercial

Barbara McCune

Most Successful Commercial

True Grant

Merit Awards (Plants achieving a score of 95 and greater)

(Data here comes directly from the Show database so is not rendered in italics etc)

Competitor	Plant Name	Class	Description
Ron Jell	Tillandsia tectorum	1	Tillandsia
Pamela Butler	Tillandsia tectorum	1	Tillandsia
Pamela Butler	Tillandsia tectorum	1	Tillandsia
Ron Jell	Tillandsia ehlersiana	1	Tillandsia
John Olsen	Tillandsia xerographica hybrid	2	Tillandsia in flower or spike
Ron Jell	Tillandsia straminea	2	Tillandsia in flower or spike
John Olsen	Tillandsia Queen's Delight	2	Tillandsia in flower or spike
Greg Aizlewood	Tillandsia Love Knot	2	Tillandsia in flower or spike
Greg Aizlewood	Tillandsia Eric Knobloch	2	Tillandsia in flower or spike
True Grant	Vriesea chrysostachys	3	Vriesea in flower or spike < 600mm diam
True Grant	Vriesea Charlotte	3	Vriesea in flower or spike < 600mm diam
Nigel Thomson	Vriesea Pink Candyshop	4	Vriesea - decorative foliage < 600mm diam
Mal Cameron	Vriesea Niagara Falls	4	Vriesea - decorative foliage < 600mm diam
Mal Cameron	Vriesea Franklin Forrest f2	4	Vriesea - decorative foliage < 600mm diam
Mal Cameron	Vriesea Blondie	4	Vriesea - decorative foliage < 600mm diam
True Grant	Vriesea Byron Jewel	6	Vriesea - decorative foliage > 600mm diam
Narelle Aizlewood	Vriesea ospinae var. gruberi	6	Vriesea - decorative foliage > 600mm diam
Mal Cameron	Vriesea Dream Catcher	6	Vriesea - decorative foliage > 600mm diam
Barbara McCune	Cryptanthus warasii	10	Cryptanthus
True Grant	Cryptanthus Shimmer	10	Cryptanthus
True Grant	Cryptanthus Pomegranate	10	Cryptanthus
True Grant	Cryptanthus High Voltage	10	Cryptanthus
True Grant	Billbergia Strawberry Cream	11	Billbergia
True Grant	Billbergia Apocalypse	11	Billbergia
True Grant	Billbergia amoena x Glory Be	11	Billbergia
Barbara Murray	Aechmea flavorosea	12	Aechmea
True Grant	Aechmea Bo-Pink	12	Aechmea
True Grant	Neoregelia Stormy Forest	13	Neoregelia - 200mm max diam
Michelle Cameron	Neoregelia Moon Dust	13	Neoregelia - 200mm max diam
Michelle Cameron	Neoregelia Dynamo	13	Neoregelia - 200mm max diam
Michelle Cameron	Neoregelia Wild Rabbit	14	Neoregelia - 400mm max diam
True Grant	Neoregelia Fire Imp	14	Neoregelia - 400mm max diam
Barbara Murray	Neoregelia Blueberry Tiger	14	Neoregelia - 400mm max diam
True Grant	Neoregelia Margaret	15	Neoregelia > 400 diam
Barbara McCune	Dyckia Talbot Dark Moon	19	Hechtia or Dyckia
Rick Cairns	Deuterocohnia abstrusa	22	Other Pitcairnioideae
Maxim Wilson	Deuterocohnia	22	Other Pitcairnioideae
Mal Cameron	Vriesea Recognition x Megan	24	Members own hybrid - any genus
Mal Cameron	Vriesea Casablanca	24	Members own hybrid - any genus
Mal Cameron	Vriesea Black Flamingo	24	Members own hybrid - any genus
Peter Tristram	Tillandsia Cabaret	25	Specimen - 3 or more mature heads connected
Ron Jell	Tillandsia butzii	25	Specimen - 3 or more mature heads connected
Pamela Butler	Tillandsia tectorum	27	Any Genus - mounted - foliage.
John Olsen	Tillandsia gardneri	28	Bromeliad on a decorative mount.
True Grant	Billbergia Hallelujah	28	
Barbara McCune	Pretty in Pink	29	Miniature bromeliad display



Champion and Reserve Champions Autumn 2016 Show

Photos clockwise from Top Left:
Champion Plant –
T. xerographica Hybrid
(Possibly T 'Silver Queen');

Cr Matthew Burke presenting Champion
Trophy to John Olsen;

Cr Burke presenting Reserve Champion
Trophy to Mal Cameron;

Reserve Champion Plant –
Vriesea 'Subzero'



Best Tillandsioideae *Tillandsia tectorum*

Grown by... Pam Butler



Pitcairnioideae *Deuterocohnia abstrusa*

Grown by... Rick Cairns

Best

Tillandsia chiapensis and its Hybrids

John Olsen

Quoting Paul Isley, Tillandsia II – “An exquisite species, *Tillandsia chiapensis* (chee-ah-PEN-sis) is covered with frosty trichomes. The inflated inflorescence also has an indumentum of trichomes that help make the rose coloured floral bracts look like cotton candy. The tubular flowers are a deep astor violet. Relatively rare.”

T. chiapensis is a relatively slow grower and makes few offsets which together mean specimens aren't often seen at sales. It is however a plant well worth looking for. I generally grow it mounted and high in the greenhouse. Barry Kable had a potted plant on show some years back which had grown to nearly 3 times the size of my mounted plants. I obtained an offset and have grown it in a small mesh pot. Photos show the size comparison.

There are a limited number of *T. chiapensis* hybrids registered. The table below shows the registered hybrids. I am aware of a few unregistered hybrids including two occasionally seen locally *T. chiapensis* x *T. exserta*.

Table 1

***T. chiapensis* Registered Hybrids**

Cultivar name	Seed Parent	Pollen parent	Hybridiser(Date)
Albichi	albida	chiapensis	Isley
Bayonet	tricolor	chiapensis	Koide Hyatt(1991)
Chula	punctulata	chiapensis	Koide Hyatt(1989)
Clara Kouchalakos	chiapensis	fasciculata (Honduras)	Correale (1985)
Coconut Grove	chiapensis	capitata “red”	Correale
Dagger	chiapensis	tricolor	Koide Hyatt(1988)
Der Allerbeste	jalisco-montecola	chiapensis	Dimmitt/Isley
Dimmitt's Progeny	Xerographica roland gosselini	x chiapensis	Dimmitt/Koide Hyatt (1993)
Flaming Spears	concolor	chiapensis	Koide Hyatt(1988)
Half Century	mooreana	chiapensis	Takizawa (2002)
King Cobra	chiapensis	botteri	Correale (1985)
Madre	chiapensis	roland gosselini	Timm
Majestic	chiapensis	concolor “Red Spike”	Dimmitt
Majestic Rose	chiapensis	concolor	Dimmitt
Mary Z	chiapensis	roland gosselini	Isley
Mr Mal Mele	rothii	chiapensis	Isley
Ouma-Panna	chiapensis	streptophylla	Eloff (1997)
Padre	roland gosselini	chiapensis	Spivey(1990)
Pink Gem	chiapensis	matudae	Takizawa(2007)



Photos clockwise from Top Left:

T chiapensis (single spike) D Butcher;

T chiapensis (double spike) Bruce Dunstan;

Mounted and potted T chiapensis John Olsen;

T Silverado BD;

T Padre JO;

T Queen's Delight JO

Cultivar name	Seed Parent	Pollen parent	Hybridiser(Date)
Pink Sorbet	chiapensis	capitata (Chiapas, pink)	Koide Hyatt(1988)
Queen Cobra	chiapensis	botteri	Correale (1985)
Queen's Delight	carlsoniae	chiapensis	Koide Hyatt(1990)
Regal Rene	streptophylla	chiapensis	Dimmitt
Silver Spike	beutelspacheri	chiapensis	Koide Hyatt(1994)
Silver Trinket	ionantha	chiapensis	Arden (1984)
Silverado	chiapensis	xerographica	Arden (1984)
Steve	chiapensis	fasciculata "Magnificent"	Correale (1989)
Steve Pink	chiapensis	fasciculata "Magnificent"	Correale (1989)
Vicki Jane	chiapensis	flexuosa	Correale (2000)
White Night	mitlaensis	chiapensis	Koide Hyatt(1989)

Of this list it seems only 10 are currently in Australia. These are Dimmitt's Progeny, Madre, Majestic, Padre, Queen's Delight, Regal Rene, Silver Spike, Silver Trinket, Silverado, and Steve.

Cultural Note for Cryptanthus by Les Higgins 2015

From FNCBSG Newsletter

Glossary

Hermaphrodite — A flower with both stamens and pistils. Same as bisexual.

Androecium — The male part of the flower, consisting of stamens.

Staminate — A flower consisting of stamens only, no pistil — a male flower.

Andromonoecious — Plants having inflorescences of mixed bisexual and staminate flowers.

Gynoecium — From the Greek, meaning female parts.

Pistilate — A flower of female parts only.

Gynomonoecious — Plants having inflorescences of mixed bisexual and pistillate flowers.

My location and climate: This records my experience in growing *Cryptanthus* at a frost free location on the N.S.W. Far North Coast, altitude 20 metres. Growing temperature is +30°C and occasionally exceeds 40°C. Lowest ambient winter temperature is 8°C while inside the shade house 3°C is recorded.

Light / shade house: Xerophyte *Cryptanthus* (Cam plants, thick leaves containing large cells) e.g. *Crypt. fosterianus* grow outdoors in areas shaded from direct sunlight. The shade cloth colours of my *Cryptanthus* house attempt to replicate the illumination of a tropical day: Eastern side 50% white, north end 70% green, north-western side 50% green over 50% white

and south western side 50% red over 50% white. South wall (entry) is 50% black. Shade cloth colour influences plant growth and colour development. Beige is biased toward red pigmented leaves. Red stimulates green plants. Green is good for red/brown coloured leaves. Black reduces light intensity. White shade cloth is reflective and creates a more uniform illumination. In my shade house plants are positioned under the colour that gives them most advantage. Red/brown leaves are located to the north and green leaved plants are in the south-west.

Humidity: My shade house has a water retentive floor that creates a warm, humid environment. The plants are arranged to suit their environmental needs. Mesophytes (Non-cam, thin leaves with small cells) e.g. *Crypt. beuckeri* live on the floor. Extreme xerophytes e.g. *Crypt. warasii* (very thick leaves, large cells) are high up on the eastern side in maximum light and least humidity.

Pots: Cryptanthus are not deep rooted therefore shallow containers that are wider than deep are the most suitable. For me the best growth is in net pots and least growth is in glazed pots.

Potting Mix: No potting mix is perfect for every Cryptanthus in all environments. Air movement within the potting mix is essential to facilitate gaseous diffusion across the roots semi-permeable membrane (skin). My basic potting mix has a particle: air ratio of 3:1, a pH of around 7.0 and organic content tailored to suit each plant. Potting Mix for Mesophiles comprises $\frac{1}{2}$ - $\frac{3}{4}$ organics. Potting Mix for Xerophytes is about $\frac{1}{2}$ organics. Potting Mix for Extreme Xerophytes contains as little as $\frac{1}{3}$ organics.

Watering: More plants are killed by overwatering than by any other single cause. Xerophytes evolved to survive in water deficient habitats. During night time darkness the stomates of mesophytes are closed and water cannot be assimilated. My plants are in polystyrene boxes in which layers of newspapers soaked with polluted tank-water induce high humidity. This is a good technique to satisfy the moisture requirements of xerophytes. Most mornings the leaves are saturated with pure water from the night's condensation. Rain quickly creates an over wet situation and some of the xerophytes need shelter.

Nutrient: All plants require nutrients, but it is unwise to make comprehensive recommendations for fertilizing. Nutrient requirements vary depending on species, growth stage, potting mix, watering regime, light and temperature. Cryptanthus are terrestrial and therefore have feeding roots. Slow release nutrients are incorporated into my potting mix. As a generalization, potting mixes with high levels of organic matter (e.g. bark, coco-peat) always require more nitrogen and iron than potting mixes with high levels of inorganic matter (e.g. perlite, vermiculite, pumice). Nitrogen assists the microbial action within the organic substances. I make a nutrient solution by combining Potassium Nitrate, Calcium Nitrate and Molasses, (1/2 teaspoon of each per 10L water). A dilute spray of Iron Sulphate, Magnesium Nitrate (home-made) and a pinch of 'Complete Trace Elements' is infrequently applied. This makes a nutrient with the descending value of K, N, Ca, Mg, P and S with trace

elements. Molasses provides soluble carbohydrates that Cryptanthus use in preference to depleting their own carbohydrate stock. Plants are autotrophic (biosynthesising using basic inorganic elements). They take up nutrients by osmosis. The more dilute a nutrient solution the more readily it is absorbed into less dilutes. I use nutrition weekly and weakly during the growing season. K: N: Ca: Mg is adjusted for seasonal progression.

Vegetative propagation: Offshoots snapped-off when undersized are lethargic growers. I endeavour to let pups abscise naturally or become floppy before severance. When potting-up stoloniferous pups wrap the stolon around the inside of the pot. Prior feeding with phosphate (ammonium phosphate) improves flexibility and the possibility of breaking is reduced. Pups planted along the inside pot edge always develop roots quicker than pups planted in the centre of the pot. Satisfactorily rooted pups are repositioned into a central position.

Sexual propagation: Cryptanthus are andromoeious (two types of flowers) - staminate flowers (pollen-bearing anther and filament) and hermaphrodite flowers (stamen and pistil). Flowers emerging from the crown are predominately staminate. Hermaphrodite flowers become numerous lower down in the leaf rosette. Seed pods are appearing within the rosettes of my plants suggesting self-fertile flowers. If correct a Cryptanthus registered "Pollen Parent Unknown" is possibly pollinated courtesy of what? There is no observable insect that indiscriminately pollinates Cryptanthus. At a guess the pollinator could be slugs or ants both of which are abundant in my shade house.

Unhappy plants: 'Wobbly' plants warrant immediate investigation. Problems include: root and soil mealy bug, water-logging, earth worms and anaerobic potting mix. I detect soil problems by applying gentle pressure to the side of a plant. Good roots have adequate anchorage. Leaf edge and tip die-back often indicate that the nutrition is too concentrated. Never apply foliar nutrient to a dry plant. Excessive imbibing may result in the plant killing its growing tissue by attempting to store nutrient. Inadequate light causes leaf greening and etiolated leaves. Excess light can bleach leaves and possibly stunt a plants growth. My plants by all appearances receive far too much light and many become overall red. Sunburn can be the consequence of insufficient water, extreme light exposure, lack of magnesium or any combination. Cold sensitive, disease prone plants are predictable after excessive use of urea and /or ammonium. NH_4 squanders the plants carbohydrate store. The result is a soft bulky Cryptanthus. NH_4 has merit but should be used in moderation. In protracted periods of below 20°C Urea/Ammonia toxicity occurs. This becomes apparent as roots rot off. Cryptanthus leaves normally droop after flowering. For aesthetic reasons sup-ports can be used to maintain the leaves in a level position.

Pests and Protection: problem pests of Cryptanthus are soil, root and aerial mealy bugs. Slugs not only graze on leaves they also eat pollen. Extremely unlikely but unwelcome invaders are hard and soft scales and grasshoppers (more correctly Locusts). Ant activity indicates the presence of insect pests. Some problem pests are unlikely to survive following ant extermination. Ants establish out-posts in the pots that may include elaborate drainage

facilities. Ants are a serious pest of *Cryptanthus*. Diatomaceous Earth sprinkled over the potting mix kills all trespassing insects. In the potting mix DE prevents soil and root mealy bug becoming established. Two high LD₅₀ rated (comparatively safe for humans) insecticides registered for use in N.S.W. are the systemic Confidor® (active ingredient is imidacloprid) and Mavrik® (active ingredient is fluavallinate). The carrier for both pesticides will not damage the surface of a plant. Registered for use in Queensland is Crown®. A good slug and snail annihilator is the wettable powder Measurol 75® (it also kills mealy bug). Snail bait with iron chelates as the active ingredient is extremely effective. Pesticides should be applied according to the manufacturer's instructions. Apply pesticides on a rising temperature to facilitate quick drying. Pesticides used when temperatures are above 30°C can result in tissue damage, viral like symptoms and distortions. Local grasshoppers are most active at night. The best kill for grasshopper is spray late in the evening.

Diseases and Control: Pathogenic Bacteria have an unpleasant smell. Dead flowers can initiate Bacterial Soft Rot (crown rot). Remove dead flowers and as first control dry-out the infected area. Pathogenic bacteria in bromeliads are gram negative. Bleach is one of numerous controls recommended by bromeliad growers. Streptomycin or its veterinary equivalent is a certain but expensive killer. *Fungi* are comprised of several morphologically similar but unrelated groups. Fungal disease has a mushroom like smell. Toadstools are the fruiting bodies of a fungus that is almost certainly benign. Fungal disease e.g. *fusarium* has cell walls of chitin and is more closely related to animals than plants. This disease is a problem of high humidity combined with high temperatures. *Fusarium* hyphae growing within the plant cause dead areas to rapidly develop. Remove dead sections by cutting extravagantly into living tissue then keep the plant dry. Devastation continues unless the hyphae are absolutely eliminated. Fungicide is ineffective. Soil-dwelling organisms *Phytophthora* and *Pythium* have cell walls containing cellulose and greater affinity for algae than fungus. Related to water mould they are associated with wet conditions. Low level *Phytophthora* is also allelopathic (growth-inhibiting) to many plants including *Cryptanthus*.

There are organisms in both groups that cause tribulations such as damping off, crown rot, collar rot and leaf spots. To combat these problems use chemicals that have the highest LD₅₀ and formulated to control that specific disease. One anti-*Phytophthora* is Aust-Phoz registered for use on pineapple. Another is Yates Systemic Anti-Rot with the same active ingredient. This Cultural Note is just one of several techniques that successfully grow *Cryptanthus*. Other ideas include 75% shade and "watering as if a Tropical Rain-storm".



Photos by Glenn Bernoth clockwise from Top Left: C 'Pink Starlight', C bivittatus, C 'Eruption', C 'Black Mystic', C 'It', C 'Ti', C 'Silver Zone', C warassii



A selection of Cryptanthus photos which came to your Editor unlabelled. This is your chance to participate. Send the ID to editor@bromsqueensland.com.au (clockwise from top left)

In the QTR 4 issue of Bromeliaceae 2015, Greg Aizlewood provided some information on pest and their control but not all the material he assembled could fit that issue. Part 2 follows. Not all of us happily adopt “the chemical solution” to pests and weeds. Greg has assembled here some information on organic sprays and home remedies for your consideration. The information derives from 3 sources so has some overlap and all seem to favour garlic, onion, and chili ingredients.

Gardening Australia - Fact Sheet: Home-made Remedies

Presenter: Colin Campbell, 27/06/2009

When insect pests invade your plants you've got to get on to the problem right away. Colin prefers to use home-made remedies where possible because they're generally safer for the environment and more economical. However he advises, "Be careful of these solutions around children, as they should not be ingested. Don't store them in soft drink bottles and make sure you keep them out of reach of children.

Scale and Mealybug: Make an oil preparation that suffocates them by mixing four tablespoons of dishwashing liquid into one cup of vegetable oil Mix one van of that mixture to about twenty parts of water, put it in your sprayer and spray the affected plants.

Aphids, Caterpillars and Other Insects: Add two tablespoons of soap flakes to one litre of water and stir thoroughly until completely dissolved (this is quicker in warm water). There is no need to dilute this further, just spray it on as is.

Black Spot Fungicide: In Queensland, Black Spot's a major problem with roses, but this fungicide mixture works miracles. Add three teaspoons of bicarb soda to one litre of water. Don't get carried away with the bicarb soda because if you make it too strong, it'll cause all sorts of problems. Add a few drops of either dishwashing liquid, or fish emulsion to help the solution adhere to the leaf more effectively.

Fungicide: Mix one level teaspoon of bicarb soda into one litre of water. Add one litre of skim milk and a pinch of Condyl's Crystals which you can get from a produce agent (someone that supplies to horse owners). Shake thoroughly.

Grasshopper, Caterpillar and Possum Deterrent: Mix a cup of molasses into one litre of water and spray it over new foliage.

Nematodes: Add half a litre of molasses to two litres of water and spread over one and a half square metres of affected garden area.

All-round Insecticide: Chop four large onions, two cloves of garlic, and four hot chilies. Mix them together and cover with warm, soapy water and leave it to stand overnight. Strain off that liquid and add it to five litres of water to create an all-round insecticide.

Pesticide: Crush a whole bulb of garlic and cover with vegetable oil. After two days, strain off the liquid, add a couple of drops of dishwashing liquid and use one millilitre of concentrate to one litre of water.

Herbicide: Add a cup of common salt to a litre of vinegar. After it's dissolved, brush it directly onto weeds. Remember, it's not a selective weed killer. It'll kill anything it touches so be very careful how you use it.

Remedies Developed by the Henry Doubleday Research Association

Buttermilk spray: 1 tablespoon buttermilk mixed with 4i cup flour in 2 litres of water. This spray destroys adult spider mites and their eggs which are enveloped in the sticky mixture and suffocate.

Epsom salts spray: Dissolve 50g of Epsom salts (magnesium sulphate) with 4 litres of water. Spray on plants with leaves yellowing as if they have been attacked by a virus. Such plants are often deficient in magnesium which has been locked up by overuse of wood ashes, lime or phosphorus.

Fruit fly spray: 15 litres water in which 1kg of sugar has been dissolved; add 1 litre seawater (not water with added rock salt); add 1 litre of molasses; and add sufficient diatomaceous earth to make the mixture creamy. Spray several times when fruit fly is bad on fruit trees or tomatoes, also at bud and at flowering. Without diatomaceous earth the spray is good for aphids, curly leaf and codlin moth. It has also cured tomatoes of wilt.

Garlic spray: 85g chopped garlic bulbs and 2 teaspoons of kerosene. Soak for 48 hours, then add 600ml water and 7g pure soap (not detergent). Strain through gauze and store in a glass or plastic container. To spray, dilute to 1 part in 100 of water. Garlic spray kills aphids, cabbage white butterfly, caterpillars, mosquitoes, snails and wireworms. It also checks downy mildew and leaf spot in cucumbers and bean rust and blight. Garlic spray is available commercially.

General purpose spray: 1 onion, 1 hot pepper (or 1 tablespoon cayenne pepper), 1 garlic bulb. Chop or grind ingredients, steep overnight and strain. Dilute to 1 part in five of water. An all-purpose pest repellent and fungicide. Spray daily for heavy infestations.

Marigold spray: A spray made of the flowers of African marigold (*Tagetas erecta*) in the same way as pyrethrum spray is effective against bean beetles. That despised weed, Stinking Roger (*Tagetas minuta*) may be substituted.

Milk spray: Milk straight from the bottle or cow (or sour milk), diluted with nine parts of water. Checks virus diseases like tomato mosaic and kills red spider mites, caterpillars and tomato worms.

Onion spray: Grind onions alone or with chives and garlic or onion tops in a blender adding twice the amount of water, or simmer the ingredients in water for two hours. Spray several times for blight on potatoes and tomatoes, for apple scab, curly leaf of peach trees, powdery mildew, aphids and red spider mites.

Soapy water: Mix 30g grated bar soap or 2 tablespoons laundry soap flakes (not detergent) in 1 litre of water and leave standing until dissolved. Strain. Spray to chase away or kill aphids, maggots. Leafcutters, mealybugs, red spider mites and whitefly. Add a teaspoon of mineral oil or kerosene for big infestations. Add soap to other sprays to make sure they cling to leaves, especially the undersides.

Wormwood tea: Make a tea by pouring 1 litre of boiling water over a handful of wormwood leaves. Dilute to 1 part in five of water. The woolly grey leaves of wormwood (*Artemisia absinthium*) contain a toxic substance called absinthin. Spray to repel aphids, black flea beetles, flies, cabbage white butterflies and slugs. May be used as a bath to chase fleas from cats and dogs.

Cabbage grub dust: Mix 2 handfuls each of wood ashes and flour with half a cup of salt. Dust plants to kill all kinds of cabbage grubs.

Safe sprays from Earth Garden Magazine

There are a number of powerful, safe sprays, dusts and treatments derived from plant extracts on sale at garden centres and plant nurseries. These organic insecticides have little residual effect. They break down naturally and are not dangerous to humans, birds or warm-blooded animals. Read the labels carefully to make sure that no chemicals or other toxins have been added.

Bacillus thuringiensis, sold under the trade names of Dipel, Thuricide and BT. is a naturally occurring spore-forming bacterium in the form of a powder which may be made into a spray. It controls pests of the cabbage family. The bacterium paralyses the gut of feeding caterpillars in the larval stages - particularly cabbage moth, cabbage white butterfly, tomato hornworm and corn earworm. Spray evenly and thoroughly on both sides of leaves. *Bacillus thuringiensis* does not harm ladybirds, bees or parasitic wasps.

Rotenone or Denis is a powder of crushed roots of the derris plant containing rotenone which paralyses or kills fish and most sucking or chewing insects. Make up a spray of 60g of derris powder with 120g soft soap dissolved in 20 litres of water. *Warning:* keep derris away from fishponds and rivers.

Pyrethrum (Pyrethrin) is an extract (pyrethrex) derived from flowers and seeds of the *Pyrethrum chrysanthemum* (*Chrysanthemum coccineum*). It kills aphids, all kinds of caterpillars, leaf hoppers, mite, thrips and mosquitoes.

Quassia is the wood and bark of a Jamaican tree (*Pitrasmo quassioides*) in the form of chips and shavings. Agents in the bark kill thin-skinned insects such as aphids and caterpillars. To make a spray steep 100g of quassia chips overnight in 2 litres of water, or boil the same quantities for two hours. Dilute with five parts of water.

Sulphur. A natural mineral in powder form, is an old-time remedy for mildews and other funguses on cucumber and pumpkin leaves. However, it is lethal to many beneficial insects and may disturb soil micro-organisms. You may prefer to use Bordeaux mixture or Epsom salts spray.

Homemade sprays: Over many years by trial and error, gardeners have developed a potent range of safe alternatives to chemical sprays for use against insect pests and plant diseases. These 'home remedies' are simple to make and most have been tried with success by gardeners. Try them when you have problems and vary the ingredients according to your own observations and results.

First, assess the damage and level of infestation. Spraying could disrupt the natural balance between prey and victim. Some pests must be present to provide food for predators.



The proper way to make Bordeaux from Tomato Culture.
WW Tracy. New York 1910

Bordeaux mixture: 30g of copper sulphate, 30g of hydrated lime and 5 litres of water. Mix the lime and copper sulphate in separate containers. Stir and dissolve copper sulphate in hot water and leave overnight. Next day, mix the lime with the remaining cold water. Finally, mix the lime and copper sulphate together into a third container to make the Bordeaux mixture. Spray as a fungicide to treat wilt in tomatoes and potatoes and powdery mildew in cucurbits.

Bug juice spray: Squash and grind a couple of the offending insects in a container, then steep or boil in 2 cups of water. Strain through gauze or cheesecloth. Dilute to 1 part in five of water to spray. The ultimate aversion therapy! Use bug juice spray only if your plants *are* suffering from a pest outbreak. Spray both sides of the leaves as well as stems and runners. Repeat after rain. Bug juice stopped the ravages of the citrus stinkbug on our backyard orange tree for two seasons. Be careful: it is painful if these bugs squirt their juice in your eyes.



Best Bromelioideae Michelle Cameron – *Neoregelia* 'Wild Rabbit'



Best Cryptanthus Barbara McCune – *Cryptanthus warassii*

Well lots really! It is important that we have our plants correctly named and that we maintain labels. The official lists of bromeliad names are accessible on the internet. Plant names do change and it is disappointing to find that what you may have thought was a new plant for your collection turns out to be selling under a former name and the plant is indeed the same species as you already have under the more recent name – or vice versa. You can only “suck it in” and know you now have two of these.

For species, access <http://botu07.bio.uu.nl/bcg/taxonList.php>. This list is maintained by Eric Gouda and Derek Butcher. The site is searchable and has new names and recent changes.

For hybrids and cultivars access <http://registry.bsi.org/>. This list has Geoff Lawn as registrar and Geoff has from time to time given me photos and details of new listings which have appeared in this magazine. The site itself has a “What's New” list as follows:

Billbergia Hungry Hippo	Neoregelia Mystical
Billbergia Jumping Frog	Neoregelia Pantera
Billbergia Kolan Crusader	Neoregelia Pink Widow
Billbergia Kolan Dragon's Blood	Neoregelia Prickly Heat
Billbergia Kolan Frosty Morn	Neoregelia Rose Fantasy
Billbergia Rapture	Neoregelia Seabrook
Billbergia Roaring Tiger	Neoregelia Shaggy Waggy
Billbergia Totara Fleur Walker	Neoregelia Shark Fest
Billbergia Totara Story Teller	Neoregelia Tara Ruby-Lee
Billbergia Totara Telescope	Neoregelia Tara Tiddler
Dyckia Ata Rangi	Neoregelia Tiger Treat
Dyckia Matariki	Tillandsia Aunt Betty
Dyckia Te Ariki	Tillandsia Boom
Neoregelia Belair	Tillandsia BSJ
Neoregelia Bello's Wave	Tillandsia Copper Penny
Neoregelia Clemson Tiger	Tillandsia Hana
Neoregelia Dream Supreme	Tillandsia Herb Plover
Neoregelia Fat Cat	Tillandsia Peter's Rubra
Neoregelia Fire Bee	Tillandsia Pink Gem
Neoregelia Golden Globe	Vriesea Dream Catcher
Neoregelia Kimberley Thunder	Vriesea Jags Hunua Gloss
Neoregelia Life Treasure	Vriesea Lime Light
Neoregelia Madai's Maze	Vriesea Tulip
Neoregelia Mai Heart Burn	xDyckcohnia Monster Ball
Neoregelia Misfit	xNeomea Amazon Red



More Autumn Show photos
clockwise from Top L: V
'Tibet', *T hildae* ; *T rothii*;
Deuterocohnia brevifolia, V
'Blondie',



Photos

Right
Autumn Show Best
Species
T straminea Ron Jell
Photo Ron Jell.

Below L
T 'Crackerjack'
Below R
T jalisco-montecola
Photos Bruce Dunstan



What's in a Name (cont)

I have delved into the taxonList website and gleaned a few bits regarding naming. I understand Stearn's Botanical Latin is an authoritative text on these matters so maybe our Library needs a copy, but my current understanding follows. Those with further knowledge are invited to contribute notes which can be contained in later issues.

Almost all genera are named for specific individuals. Species names tend to reflect location, habitat (eg *saxicola* for a rock dweller), morphology (eg *recurvifolia* for recurved leaves, colour aspects eg *viridiflora* for green flowers), or individuals. The species name denotes a male individual with *i* or *ii* as the suffix. Names ending in hard consonants seem to get the "ii" treatment e.g. *T rauhii*, *T rothii*, *T colganii*. Those ending in er, vowels, y and soft consonants (C and G) seem to get the single *i* suffix. Eg *T bergeri*, *T gardneri*. Species named for females get the *ae* or *eae* suffix eg *T edithae*, *T dorotheae*, *T dorotheae*.

Species named for a couple or to commemorate a person have *iana* as the suffix. Eg *T ehlersiana*, *T kohresiana*.

In more recent time the suffix *ensis* has gained popularity to denote the locality from which the species originates eg *T machupicchuensis*, *T. marabascoensis*, and *T mazatlanensis*. The naming rules suggest that small little known localities should not be used except for rare plants. The rules are silent on how big a locality can be adopted. *Brasilensis* surely doesn't give much away as to the locality in which you should go looking or does it? Seemingly not to mean all over Brazil. For example *Guzmania brasiliensis* is found in Amazonia and into neighbouring Venezuela and Columbia.

Some individuals are recognised in the names of multiple species. Principal among these seems to be Mulford Foster and his wife Racine. *Fosteriana* appears as a species in 10 genera with *Orthophytum fosterianum* adding a different suffix in a further genus. In *Aechmea* we have *A. fosteriana* and also *A. mulfordii*. Harry Luther is also recognised in multiple genera and multiply within some genera with variations on his name being *lutherianus*, *halutheriana*, *harrylutheri*, *lutheri*, *harry-lutheri*, *lutheriana*.

Having introduced the naming issues the following articles all represent the corrections being made and which affect the correct names which should be on your plants.

Variegated Forms Named in Latin Under the ICBN by Derek Butcher

Over the years we have seen these sorts of names used as either variety or forma and there are some 18 on record, be they *variegata*, *striata*, or *lineata*.

Why the concern, you may ask?

Several hundred have been named as Cultivars under the ICNCP rules so why were these 18 not treated in the same fashion. To my mind the main reason was the fact that many botanists ignored the existence of the ICNCP rules.

What is also interesting is that although botanists have gone to the trouble to preserve herbarium specimens and formally describe these variants under the ICBN rules they mostly ignore this taxon when formally reviewing the species. To my mind all subspecies, varieties or formas should be dealt with at the same time. You must have noticed that where this anomaly has happened in recent years I have been involved in creating Cultivar names to cover this void. Yes, that taxon has died out in the wild but it is still living as a culton in cultivation.

Gone are the days of Latin names having a greater status. If an oddity is found in the wild that is not genetic you should not speak of a form or variety. A cultivar name must be considered by botanists to be equally valid.

Examples of where variegates have been ignored by Botanists in reviews include *Ananas bracteatus*, *Ananas comosus*, *Tillandsia utriculata*, *Tillandsia viridiflora* and *Vriesea atra*.

I intend to note any of these in any of the lists I maintain on the internet (i.e. Taxon List referenced above) with the following: "A mutation that should never have been described under ICBN rules"

Regrettably I would include *Guzmania monostachia* var. *variegata*, much beloved by Floridian growers, and which does not breed true from seed. But if someone can come up with an apt cultivar name this could be duly recorded.

Glossary

ICBN: International **C**ode of **B**otanical **N**omenclature. An agreement between botanists around the world to follow.

ICNCP: International **C**ode of **N**omenclature for **C**ultivated **P**lants. The rules and recommendations for naming plants in cultivation.

Taxon, a general term denoting a named group of any rank (e.g. variety, species, etc.)

Culton, as taxon but referring to cultivars.

Cultivar, plants raised in cultivation which differ sufficiently from their wild ancestors or, if taken into cultivation from the wild, are worthy enough of distinction from wild populations for horticultural purposes to merit special names.

Ae Comosus 'Makoyana'

Aechmea 'Makoyana' by Butcher March 2016

Photos following show the variegated *Aechmea* 'Makoyana'

We see the following in Smith & Downs (1979) and it is noted that this variegation occurred in cultivation.

Leaf-blades yellow-striped.

Type. Described from cultivation. n v. Distribution. Unknown."

Current interpretation is that it should be treated as a cultivar. This is confirmed in The World Checklist of Selected Plant Families. As such this Culton will appear in the Bromeliad Cultivar Register as *Aechmea* 'Makoyana'. Instead of writing *Aechmea comata* var *makoyana* on the label you now write *Aechmea* 'Makoyana' OR *Aechmea comata* 'Makoyana'



Aechmea comata var *makoyana* Photo by Matthias Asmuss

WATER QUALITY AND GROWTH of BROMELIADS

Ed McWilliams

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Water quality depends on dissolved or soluble salts. Water quality is very important to tank-forming bromeliads since they absorb much of their water through the trichomes on the inside of the tanks. Measurement of soluble salts is the most obvious way to evaluate water quality but many other factors must also be considered. The specific elements in the water and the ratio of the various elements are also important. Some of the most common elements found in water samples are: Calcium, Magnesium, Sodium, Sulphur, Chloride, Fluoride, Boron and Iron. Excess soluble salts can stunt plant growth and cause various types of leaf burn.

Water quality can vary greatly from one well to another in the same town and from season to season in surface water supplies. Water originating in lakes and rivers generally has the highest level of soluble salts during the dry season. } Water originating from underground sources, bores and wells, can be of more uniform composition during the year but may vary considerably with the depth of the water table. }

The critical values for most *Vriesea* spp., which have very low tolerance for soluble salts in irrigation water, are as follows: - total salts approximately 300 parts per million (ppm), chloride (Cl) 100 ppm, and sodium (Na) 100 ppm. Most *Aechmea* spp., *Billbergia* spp. and *Neoregelia* spp. exhibit low-medium tolerance and these plants have critical values of approximately 500 ppm for total salts, 160 ppm Cl and 120 ppm Na. Thick-leaved species such as *Aechmea nudicaulis*, *Cryptanthus maritimus*, *Neoregelia cruenta* and many species of *Tillandsia* exhibit medium or high tolerance to salinity; and these plants should tolerate water of approximately 750 ppm for total salts, 200 ppm Cl, and 150 ppm Na or higher.

Many factors interact with water quality to influence plant growth. For example, pH influences nutrient availability, particularly iron. How water is applied is also important. If plants are watered only by watering the media in which the plant is growing rather than placing water in the tanks, it is likely that water quality will be much less important. One of the reasons for this is that the roots in most bromeliads reduce the total amount of salt absorbed by the plant. Calcium is important in plants irrigated with saline water. The calcium has a beneficial effect on membrane integrity and a *low sodium to calcium ratio* is desirable in irrigation water. Some bromeliads may exhibit no leaf burn when watered with poor quality water but their growth rate will be reduced in comparison with control plants watered with good quality water.

Symptoms associated with poor quality water vary with the chemical composition of the water and to a lesser extent with bromeliad species. Leaf burn in NaCl (common salt)-treated *Vriesea* spp. develops initially on the leaf margin in the basal expanded portion of the leaf sheath. Symptoms will generally begin to develop after a week of exposure to poor quality water. Necrosis (death) moves inward from the leaf margin and by the end of three weeks

the base of the leaf may be so badly burned that the leaf will fall over. As is the case with other plants, thicker-leaved bromeliad species are much more resistant to leaf burn than thin-leaved species. Specific elements such as boron may cause distinctive symptoms to develop in bromeliads but little information is available on specific symptomology at this time.

Several recommendations can be made to bromeliad growers who have less than ideal irrigation water. Rain water, distilled water, or deionized water can be used to supplement existing water particularly during the hottest part of the year. Evaporation tends to concentrate the salts in bromeliad tanks and periodic flushing of the tanks with good quality water reduces salt build up in tanks. Salts can be leached from the root zone by flooding the media in pots until water is flushed out of the drainage hole of the pot. Calcium sulphate or other calcium sources can be added to irrigation water where water is low in calcium but high in other salts. Finally, thick-leaved, resistant bromeliads that tolerate poor quality water can be grown where the above listed recommendations are not practical.

{...} Text in these braces are reviewer's comments.

(This paper was presented to the 1982 World Bromeliad Conference. It has been edited to remove the table of data for various US municipal water supplies, and related comments. My thanks to Andrew Flower, NZ for locating a copy of the paper for me. *Peter Paroz*)

BSQ 50 Year Anniversary

Bromeliad Society of Queensland was formed on 26 Jan 1967. The Management Committee has been gathering ideas to mark the occasion for some time. The proposed activities are as follows:

Jubilee Lunch 4 Feb 2017. BSQ would invite former office bearers and members together with current members. A guest speaker (politician/other) and video documentary of "how we were" would be features.

Special 'GOLD' edition of Bromeliaceae. Probably A4 full colour. Golden themed cover and contents. Looking to a 50 page A4 book.

BSQ Video Record. Production of a video documenting the experiences over the years of long term members, early bromeliad culture, and how life with bromeliads has changed.

BSQ Jubilee Lunch at the 2017 Sunny Broms Australasian Conference part sponsored by BSQ.

New bromeliad hybrid "BSQ Golden Jubilee". This hybrid by Mal and Michelle Cameron has been registered and 6 plants are expected to be released in 2017.

YOU CAN ASSIST!

Send in photos with notes of past events, Send an amusing anecdote of some bromeliad matter, help organise the Jubilee lunch, volunteer to assist develop the GOLD magazine.

COMPETITION SCHEDULE 2016

January - MINI SHOW

- Class 1 – Aechmea species & hybrids
- Class 2 – Vriesea species & hybrids
- Class 3 – Dyckia species & hybrids
- Class 4 - any other flowering bromeliad species & hybrids

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

Plant of the month List for 2016

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

