ILLAWARRA BROMELIAD SOCIETY INCORPORATED

NEWSLINK

October 2018

Illawarra Bromeliad Society 2018 Spring Show
(Photographs by Edwina Caruana)

- Articles appearing in this issue of *NEWSLINK* are for information purposes only and are not necessarily endorsed by the Committee or the Illawarra Bromeliad Society.
- The Society is, by the holding of meetings, displays and competitions, to provide a forum for the people of the Illawarra region who are interested in the culture and collection of bromeliads.
- Under the provision of the Privacy Act use of names and references to private details, such as illness, holidays, birthdays, and items of a similar nature, may only be published with the written permission of the person concerned.

ILLAWARRA BROMELIAD SOCIETY INCORPORATED

PRESIDENT	BARBARA JONES-BEVERSTOCK*	(02) 4272 4110
1st VICE-PRESIDENT	JUNE CASEY*	04 0398 5090
TREASURER	SUZANNE BURROWS*	(02) 4261 6871
ASSISTANT TREASURER	JUNE CASEY	04 0398 5090
SECRETARY	ANN KENNON*	(02) 4262 7614
ASSISTANT SECRETARY		
MINUTE SECRETARY	RHONDA GRANT*	
SHOW SECRETARY/EDITOR	EILEEN KILLINGLEY*	(02) 9544 4726
ASSISTANT SHOW SECRETARY	ANNE MOBBS*	
SHOW-CO-ORDINATOR	JOHN TOOLAN	(02) 4261 1773
LIBRARIAN	MICHAEL DRURY	(02 4285 1552
ASSISTANT LIBRARIAN	BRIAN SMITH	
PUBLICITY OFFICER		(02) 4285 1552
COMPETITIONS OFFICER	SHARYN BARALDI	(02) 4296 2166
ASSISTANT COMPETITIONS OFFICERS	BELINDA DRURY	
	RHONDA PATTERSON	
PLANT SALES OFFICER	MONICA De CLOUETT	(02) 4267 3449
ASSISTANT PLANT SALES OFFICERS	BETH CLAGUE	(02) 4261 6537
	YVONNE PERINOTTI	
GENERAL SALES OFFICER	LORRAINE MIRANDE	04 3842 3568
ASSISTANT GENERAL SALES OFFICERS	DENIECE CRUTCHLEY*	
	ANNE MOBBS	(02) 4229 7703
WELFARE OFFICERS	JUNE SMITH – NORTHERN AREA	(02) 4284 1679
	ISABELLA CHAMBERS – SOUTHERN AREA	04 2701 7656
WELCOME DESK/RAFFLES	SUZANNE BURROWS	
	JUNE CASEY	
REFRESHMENTS OFFICER	SANDRA CARNIE*	04 1456 5173
ASSISTANT REFRESHMENTS OFFICER	JULIE STRINGER	
REFRESHMENTS OFFICER – ANNUAL SHOW	JUNE CASEY	04 0398 5090
PROGRAM OFFICER	NOEL KENNON	(02) 4262 7614
ASSISTANT PROGRAM OFFICER	BOB STEPHENS	(02) 4256 1471
PROPERTY OFFICER	JOHN TOOLAN	(02) 4261 1773
ASSISTANT PROPERTY OFFICER	BOB STEPHENS	(02) 4256 1471
AUDIO AND VISUAL OFFICER	LES THAIN	(02) 4257 6424
LIFE MEMBERS	MARGARET BARTLEY	
	ELIZABETH AND GRAHAM BEVAN	
	SYLVIA AND TED CLARE	
	VAL DIXON	
	EILEEN KILLINGLEY	
*COMMITTEE MEMBERS	NINA AND JARKA REHAK	
	PHILLIP ROBINSON	
	NEVILLE WOOD	

CORRESPONDENCE TO BE ADDRESSED TO: The Secretary
Illawarra Bromeliad Society Inc.
P.O. Box 439, DAPTO 2530
Email: bromsillawarra@gmail.com

BANK DETAILS FOR FEE PAYMENT, ETC: **Illawarra Credit Union; BSB No. 802249; Account No. 249 039 602**

MEETINGS - The Society meets at 12.00 noon on the first Saturday of each month (except January and December) in the Laurel Room* at the Ribbonwood Centre, DAPTO. *Scribbly Gum room for November meetings only.
MEMBERSHIP SUBSCRIPTIONS - Due 30th June each year: $15 single/$25 family.
NEWSLINK ISSUED QUARTERLY - January, April, July, and October and at http://www.bromeliad.org.au

VISITORS ARE ALWAYS WELCOME

NEWS IN BRIEF . . .

NEW MEMBERS: A very warm welcome to our new members, Monika Rose and Glenn Martin, who joined at our July meeting and Margaret Stephens who signed up at our recent Show We wish you a long and happy association with our Society.

GARDEN VISITS – Saturday, 20th OCTOBER: We will start at the garden of Elizabeth and Graham Bevan's home at 10.00 am - 25 Tallawong Crescent, Dapto (4261 1173) – where we will have morning tea. At about 11.15 am we will depart for Beth and Jim Clague's at 10 Brindabella Drive, Horsley (4261 6537). An hour or so later we will move on to Beverley and Laurie Irvine's at 12 Helena Place, Albion Park (4257 9338) where we will enjoy our lunch – Please bring your own. We ask that you please bring a folding chair as well as cake or slice to share for morning tea and lunch. The visits should finish at about 2.00 pm. Detailed information about the visits will be available at the October meeting and Rhonda has included in her mail-out directions for getting from garden to garden.

GENERAL MEETING – 3rd NOVEMBER – SCRIBBLY GUM ROOM, ENTRY VIA PACIFIC HIGHWAY SIDE.

- Several of our members will bring in and talk briefly about 'My Favourite Plant'.
- Additional to those presentations, judging of the growing challenge will take place and entries in the photographic competition are to be submitted.
- So, all members who took a seedling of *Pitcairnia flammea* (donated by Michael Drury) at our February meeting, please bring them in for judging. The best grown-on plant will win the prize.
- For the photo competition, the two photographs in a plain envelope are to be submitted to Sharyn sometime during the meeting. Each member is allowed three entries and judging by popular vote will take place at the Christmas party on December 1.

WORKSHOP #4 - Saturday, 17th NOVEMBER – This Q & A workshop provides members with the opportunity to obtain answers to all those vexing questions about collecting and growing broms. It will be held at Sharyn Baraldi's, 25 Antrim Avenue, Warilla (4296 2166). We will begin at 10.00 am with morning tea and have lunch (BYO) after the last question has been dealt with. Please bring your lunch and cake or slice to share. As well, you will need a notebook and pen to record the words of wisdom from the experts.

LIBRARY NOTE: Would members who have books, videos or journals out on loan please return them by our November meeting as this allows for any stocktake, repair, etc. during the Christmas break.

CHRISTMAS PARTY: This year's Christmas party will be held in our usual meeting room – the Laurel Room – and will be a catered affair. Cost will be $25 per person (members/non-members) and, as for last year, will include a choice of carved meats, salmon, salads/vegetables and desserts. The Society will supply some drinks but wine/beer will be on a BYO basis. We will have access to the room from noon on Saturday, and so, after time for setting up, we have asked for lunch to be served at 12.45 pm. As in past years please bring a small gift for sharing (around $10)—men bringing presents suitable for men and women bringing presents suitable for women—bromeliads always welcome! Suzanne will need the numbers and monies in by our November meeting—and/or numbers by the November 17th Workshop.

GENERAL MEETING – 2ND FEBRUARY 2019 – STEVE FALCONE - ECO ORGANIC GARDEN PRODUCTS
Steve Falcone will be coming from Sydney to give us updated information about Eco products in relation to the growing of bromeliads. We will learn that Eco has been taken over by Yates and whether he will be able to bring products for sale will not be known until late this year or even early in 2019. If possible, that information will be circulated prior to the meeting.

MARCH 2019 SALES DAY AT WARILLA: We have tentatively booked space at the Warilla Neighbourhood Centre for the weekend of March 9/10—yes, hoping to extend this to a two-day sale!—but this has yet to be discussed and we will let you have more details well before this event is due to take place!

UPCOMING EVENTS . . .

Oct. 13- 28	**MAYFIELD GARDEN – SPRING FESTIVAL –** With access to the Hawkins' Family Garden 9.00 am to 4.30 pm (Last garden entry 3.00 pm). $35 adult/$30 concession. Mayfieldgarden.com.au
Oct. 18 - 21	**BERRY GARDENS FESTIVAL**: Open daily 10.00 am to 4.00 pm. $20 for 8 gardens (may be used over the 4 days/$5 indiv. gardens. Children under 18 free.
Oct. 27 – 28	**BROMELIAD FAIR** - Concord Senior Citizens Centre, 9-11 Wellbank Street, Concord Saturday 10 am – 4 pm/Sunday 9 am – 12 noon – EFTPOS, Visa, MasterCard available

July , 2018: Plant Results

Open:

1st	Beth Clague	*Guzmania*
2nd	John Toolan	*Neoregelia 'Painted Desert'*
3rd	Noel Kennon	*Cryptanthus 'Satin Ribbons'*
3rd	John Toolan	*Goudaea ospinae* var. *gruberi X* 'Poelmanii'

Tillandsia:

1st	Suzanne Burrows	*Tillandsia dura*
2nd	Suzanne Burrows	*Tillandsia tenuifolia* X *bergeri*
3rd	Noel Kennon	*Tillandsia disticha* 'Major'

August 4, 2018: Plant Results

Open:

1st	Noel Kennon	x*Sincoregelia* 'Galactic Warrior'
2nd	Barbara Jones-Beverstock	*Neoregelia* 'Blushing Tiger'
3rd	Noel Kennon	*Billbergia 'Hallelujah'*

Tillandsia:

1st	Ted Clare	*Tillandsia cacticola*
2nd	Noel Kennon	*Tillandsia latifolia* var. *divaricata*

September 1, 2018 Plant Results

Open:

1st	Beth Clague	*Guzmania* 'Limones'
2nd	John Toolan	*Aechmea distichantha*
3rd	John Toolan	*Cryptanthus* 'It'

Tillandsia:

1st	Noel Kennon	*Tillandsia tenuifolia*
1st	Suzanne Burrows	*Tillandsia recurvifolia*

PERMITTED TILLANDSIA SEEDS LIST: Michael has kindly provided us with a list of tillandsia seeds currently approved for import into Australia by the Australian Government, Department of Agriculture and Water Resources—effective as of 25 July, 2018. Unfortunately the list is too long to be able to include in *Newslink* but details can be found at www.agriculture.gov.au with the note that "This document contains Chapter 7 of 7 (Genera beginning with 'T' to 'Z' of the Permitted Seeds List)." Chapters 1-6 (Genera beginning with 'A' to 'S') can be found on the department's website.

SHOW RESULTS - 2018

CHAMPION BROMELIAD: OPEN

Freda Kennedy	*Neoregelia* 'Thunderbird'

CHAMPION BROMELIAD: NOVICE

Heather Thain	*Neoregelia* 'Heck'

BEST SPECIES

Laurie Dorfer	*Tillandsia tectorum*

DULCIE DOONAN MEMORIAL AWARD

Suzanne Burrows	Cryptanthus bowl

CATHERINE (RENA) WAINWRIGHT MEMORIAL AWARD

Ted Clare	*Tillandsia cacticola*

CATEGORY I – DIVISION I: HORTICULTURAL - OPEN

Class A - Aechmea (8 entries)

1st	Freda Kennedy	*Aechmea recurvata*
2nd	John Toolan	*Aechmea distichantha*
3rd	Ann and Noel Kennon	*Aechmea recurvata*

Class B - Billbergia (9 entries)

1st	Bob Stephens	*Billbergia*
2nd	John Toolan	*Billbergia* 'Hallelujah'
3rd	Michael Drury	*Billbergia distachia*

Class C - Neoregelia (14 entries)

1st	Jørgen Jakobsen	*Neoregelia chlorosticta*
2nd	Jørgen Jakobsen	*Neoregelia* 'Hula Girl'
3rd	Jørgen Jakobsen	*Neoregelia* 'Boldstreak' X *macwilliamsii* (not reg.)

Class D - Miniature Neoregelia (7 entries)

1st	Ann and Noel Kennon	*Neoregelia* 'Turmoil'
2nd	Barbara Jones-Beverstock	*Neoregelia* 'Mambo'
3rd	Jørgen Jakobsen	*Neoregelia* 'Strawberry Cup'

Class E - Tillandsia (20 entries)

1st	Laurie Dorfer	*Tillandsia tectorum*
2nd	Laurie Dorfer	*Tillandsia xerographica*
3rd	Ann and Noel Kennon	*Tillandsia floribunda*

Class F - Vriesea/Guzmania (14 entries)

1st	Beverley Irvine	*Vriesea fosteriana*
2nd	Suzanne Burrows	*Goudaea ospinae* var. *gruberi*
3rd	Freda Kennedy	*Vriesea gigantea* var. *seideliana*

Class G - Other Genera (15 entries)

1st	Elizabeth Bevan	*Cryptanthus* 'Pink Starlight'
2nd	Ann and Noel Kennon	*Orthophytum* 'Roberto Menescal' (Name change from *Orthophytum vagans* variegated
3rd	Jim and Beth Clague	*Deuterocohnia chlorantha* now *D. brevifolia*

CATEGORY I – DIVISION II: HORTICULTURAL – NOVICE

Class H – Aechmea (3 entries)

1st	Anne Mobbs	*Aechmea* hybrid
2nd	Anne Mobbs	*Aechmea* 'Pie in the Sky'
3rd	Glenn Martin	*Aechmea recurvata* var. *benrathii*

Class I – Billbergia (3 entries)

1st	Anne Mobbs	*Billbergia* 'Manda's Othello' X self
2nd	Anne Mobbs	*Billbergia* 'Ralph Graham French'
3rd	Anne Mobbs	*Billbergia* 'De Nada'

Class J – Neoregelia (4 entries)

1st	Heather Thain	*Neoregelia* 'Heck'
2nd	Heather Thain	*Neoregelia* hybrid
3rd	Anne Mobbs	*Neoregelia* hybrid

Class K – Neoregelia Miniature (1 entry)

1st	Anne Mobbs	*Neoregelia* 'Dinkum'

Class L - Tillandsia (2entries)

1st	Heather Thain	*Tillandsia stricta*
2nd	Heather Thain	*Tillandsia bergeri*

Class M - Vriesea/Guzmania (3 entries)

1st	Heather Thain	*Vriesea* 'Kent's Sunset'
2nd	Anne Mobbs	*Guzmania 'Francesca'* (Not registered)

Class N - Other Bromeliad (2 entries)

1st	Belinda Drury	*Orthophytum* 'Warren Loose'
2nd	Belinda Drury	*Cryptanthus*

CATEGORY I – DIVISION III: HORTICULTURAL - DISPLAY AND MULTIPLE PLANTS

Class O Colony – Aechmea/Neoregelia/Vriesea (19 entries)

1st	Freda Kennedy	*Neoregelia* 'Thunderbird'
2nd	John Toolan	*Neoregelia olens*
3rd	Ann and Noel Kennon	*Neoregelia* 'Fireball' variegated

Class P - Mounted Tillandsias (1 entries)

1st	Laurie Dorfer	*Tillandsia xerographica*

Class Q - Mounted Bromeliad (1 entries)

1st	Bob Stephens	*Aechmea orlandiana*

CATEGORY II - ARTISTIC

Class R - Basket or Decorative Container (4 entries)

1st	Belinda Drury	Canoe-shaped Cane Basket
2nd	John Toolan	'Need a Bigger Boat'
3rd	Ann and Noel Kennon	Basket of Orthophytum

Class S - Bromeliad Garden (3 entries)

1st	Suzanne Burrows	Cryptanthus Bowl
2nd	John Toolan	Mini Garden
3rd	Suzanne Burrows	'Camouflage'

Class T - Artistic Arrangement (5 entries)

1st	Bob Stephens	Artistic Arrangement
2nd	Freda Kennedy	Artistic Arrangement
3rd	Ann and Noel Kennon	'Past Glories'

COMPETITION STATISTICS

2012	20TH Show	154 Entries	15 Competitors
2013	21st Show	158 Entries	19 Competitors
2014	22nd Show	170 Entries	17 Competitors
2015	23rd Show	166 Entries	14 Competitors
2016	24th Show	153 Entries	18 Competitors
2017	25th Show	126 entries	18 Competitors
2018	26th Show	141 Entries	17 Competitors

FERTILIZING

(Extracted from *The BSGC News,* newsletter of the Bromeliad Society of Greater Chicago, July 2018)

Many of the people buying plants at our show asked us about fertilizing tillandsias. I have included several responses to this question from various sources.

In "*Bromeliads A Cultural Manual*" by the Bromeliad Society International, it says that tillandsias will survive without fertilizer but will grow more slowly and won't flower as often. They suggest feeding once a month using ¼ tsp fertilizer/1 gallon water. If you do this in the water that you soak them in that takes care of two jobs at one time. They also say that if you are going on vacation if you place the plants in a shady place and soak them one hour that will keep them hydrated for up to three weeks.

The following information is from the October 2014 *Journal of the Bromeliad Society of New Zealand*. It says that you can use a granule form for potted 'green leaf' tillandsias at 20% of the recommended dosage. All tillandsias feed through the leaves and some through their roots as well. Over-fertilising can damage your plant. It is better to use a liquid feed with a weaker solution more often. They are best used in spring and summer. They will not absorb much in the way of nutrients in cold months.

In Paul Isley's book, *Tillandsia,* he discusses fertilization. He says that a consistent fertilization program during the warm months will produce larger, more robust, plants when combined with strong light and frequent thorough watering. For optimum balanced growth, he suggests a ratio of N(2):P(1):K(3).

Potassium and phosphorus are important in enhancing flowering and seed setting, help the plant to resist disease, promote root growth and strengthen cell walls.

In the June 2017 newsletter of the [East London] Bromeliad Society South Africa, I found the following article:

Fertilising your Bromeliads: We received some interesting input from our member, Craig Nicholas in Durban.

Craig Nicholas: I have been using slow release fertilizer similar to *Osmocote*, called *Planticote,* for about a year now on my broms. I am only now learning quite a bit from the results, such as how many round pellets to use depending on the variety of bromeliad. At the beginning the thought was to put in a lot of pellets around each bromeliad, but because the pellets are so small it is easy to want to put too many in a pot. This has resulted in some bromeliads becoming too green, with stretched out leaves. I have found that with some varieties it is best to not feed or only put maybe small amounts, e.g., five or six pellets in the pot.

Be careful with overfeeding lineated varieties such as *Neoregelia* 'Amazing Grace'. You end up losing the great form and shape of the plant as well as the boldness of the lineation. *N*. 'Amazing Grace' should be grown hard for best character. I also like *Neoregelia* 'Shamrock' for its compact shape and markings. I overfed a couple of offsets and they grew up a bit bigger, but with loss of form as well as colour intensity. I like to see a plant that is grown to its best shape and colour that truly represents that specific variety.

Some miniature varieties, if overfed, also lose form and colour—e.g., *Neoregelia* 'Domino'. It is best to grow it hard or with few pellets. Other blotched types such as *N*. 'Pheasant' will always look better with little to no food. Marmorated foliage will also be affected and faded out by overfeeding. Best to grow these varieties hard with none to very little feeding.

Albomarginated neoregelias can get a fair amount of food. Just remember, too much may not affect the colouring of these albo types, but some will lose their form.

Variegated neoregelias: In general give mild feeding; however, some food is good due to the fact that variegated plants are weaker due to lower level of chlorophyll.

Banded neoregelias such as *N*. 'Hannibal Lector', *N*. 'Shockwave', *N*. 'Touchdown', *N. '*High Voltage', etc. can take more feeding while still retaining their bold markings.

Large neoregelia types such as *N*. *carcharodon* 'Tiger', N. 'Spines', N. 'Rainbow', etc. can also take more feed. Although, if you really want that hard form and toothy look, medium to smaller doses of food will ensure that look.

Billbergias: These do not respond well to feeding. The softer leaf varieties which are heavily mottled can lose character and boldness of blotching, although the plants do still look healthy. For example, *Billbergia* 'Connie Tim', when grown hard, is shorter and the boldness and roundness of the white blotching is striking, while taller, well fed plants don't have that same intensity of markings. The heavier thorned, thicker leaved billbergias seem to be able to be fed more.

Alcantareas: Can be well fed with *Osmocote* pellets as well as liquid fertilizer such as *Multifeed.* They still need to be grown in optimal light for best results.

I also want to add that another alternative to slow release pellets would be foliar feeding with such as *Multifeed* 2:1:2 which is mixed with water and can be either used with a sprayer or drench using a watering can. This can be done once every 3-4 weeks. This will give the bromeliads a boost with a lower concentration of food which is unlikely to change their leaf form and colour but will help with vigour and contribute to healthy foliage.

In conclusion, I think the aim to feeding should be to give the plant a slight boost, especially when younger, to get it to a growth stage where the plant can kick on by itself. There are, however, some genera which do respond well to more food, such as *Alcantarea, Vriesea, Guzmania*, etc. You still want to grow you plants in optimum light conditions, especially when feeding, as a plant grown in too low a light, plus feeding, can result in over-elongation of the leaves. An overfed plant may also become a weak plant, with thinner flower spikes and poorly shaped offsets which may take two generations of pupping to get those pups back to their true form and colour. For me, personally, plant vigour is important and what one must aim for is a healthy plant which represents the true nature, form and colour of the species of hybrid.

More fertilising comments . . . (From South Africa)

From Lyn Wegner: My fertilising 'efforts'! I don't spend too much time fertilising my bromeliads but it has been my intention for some time to pull up my socks and make more effort! I need to experiment with two of the same plant in the same position, feeding only one and monitoring the difference, if any. I just want healthy plants with good form, shape and colour. Currently I add a few granules of *Vitaboost* either to the top of the soil mix if I am just tidying a plant or when repotting I place a few granules at the root level. I probably use about half a tablespoon. I especially like to add the fertiliser to my vrieseas, nidulariums and guzmanias. I sprinkle it on the soil of my cryptanthus and alternate with Epsom Salts. I also try to fertilise the crypts monthly with *SeaGro* when I water. What you put in is what you get out! I need to make time to fertilise!

Another comment: *Osmocote* is a bead of concentrated fertilizer with a ceramic coating. When it gets warm and wet some of this fertilizer leaches out and can be taken up by the roots of plants, so you need an active root system and water wetting the potting mix. This is fine for small pups and seedlings, which make roots to establish. But, after that the tank takes over the role of nutrient absorption. Some people put a teaspoon of *Osmocote* on the top of the potting soil, but unless the watering reaches this, it will always remain dry. If you do buy *Osmocote*, then it must be mixed in with the potting mix when potting up new pups (1 heaped teaspoon per 215 cm pot). Their roots will absorb this nutrient and use it to establish and grow. It only lasts about 6-9 months, and once exhausted the mature plant will then colour up. I pot up with an enriched potting mix that includes some well-rotted chicken manure and also *Bounce Back/Avison* pelletized chicken manure which gives the new pups or seedlings a kick start. Once depleted, I feed with a dilute inorganic, soluble fertiliser like *Phostrogen* or *Multifeed,* drenched over the plants with a watering can.

VARIEGATION IN BROMELIADS

By Luiz Felipe Nevares de Carvalho, Rio de Janeiro, Brazil

(Reprinted from a 2015 edition of *Bromeliaceae*, journal of the Bromeliad Society of Queensland Inc. with the following comment:) Editorial comment (Bob Reilly) Reprinted, with permission of the Bromeliad Society International, from the Journal of The Bromeliad Society, 2000, volume 50(4) pp. 182-185. Variegated bromeliads are often keenly sought after by collectors. In this article the author discusses the causes and types of variegation, as well as the propagation of variegated bromeliads. Note that the process of naming a particular variegated plant can sometimes be more complex than might be inferred from the article. (Additional editorial comment [Eileen Killingley]: As the original article was written in 2000 and the reprint appeared in a 2015 edition of *Bromeliaceae*, in line with the item on Bromeliad Name Changes which appears below, the plants mentioned in this article under "Types of Variegation" could well have undergone a name change.)

Variegation is a rather common phenomenon in the plant kingdom and is found in many plant families. It is especially pronounced in *Bromeliaceae*.

The word "variegata" comes from Latin—*variegatus, variegata, variegatum*—meaning variable coloration with patches of different colors. A bromeliad is known as "*variegata*" when it has two or

more different colors. Over 60% of cultivated bromeliads have bands, dots, lines, and streaks, and can therefore be considered variegated. However, the term is accepted in horticulture when applied to bromeliads that have lines, streaks and longitudinal bands of contrasting colors, especially those that show differences in pigmentation between the green chlorophyll-containing tissues and albino tissues.

On the other hand, if we look at the many bromeliads growing in the wild, it appears that variegation is a rare phenomenon. As a general rule, patently variegated plants are less hardy and lower growing than normal, and those that arise spontaneously in nature normally survive the competition for space and light only when man intervenes, taking them from the wild for cultivation.

Variegation is rarely found in the subfamily *Pitcairnioideae*, and is not particularly common in *Tillandsioideae*. It does occur, however, in the genera *Guzmania, Vriesea, Alcantarea*, and in a few species of *Tillandsia*. In the subfamily *Bromelioideae*, variegation is quite common, especially in the genera *Aechmea, Ananas, Billbergia, Cryptanthus, Neoregelia*, and *Nidularium.*

Causes of Variegation

Although there has been much progress in scientific research on bromeliads, comparatively little is known about the causes of variegation. As a general rule botanists agree that bromeliads have a rather mutable genetic structure, and therefore several different theories are possible. The first of these link variegation to virus infection.

Viruses are common in plants and animals and may cause many harmful and debilitating illnesses. In nature they provide a quality control system for living organisms. These viroids have the capacity to alter the genetic programming of plant cells by molecular inclusion or extraction of chromosomes. Bromeliads are known to host viruses, but the physiological mechanisms of virus infection in plants is poorly known.

Viruses may attack the plant meristem or main vascular system. Bromeliads are monocotyledons and as such they mostly have parallel veins running lengthwise along the leaves. Beginning from a tissue with infected calls, as the plant grows the “problem” is transmitted down the entire leaf, producing clearly defined lines or bands. Variegation that appears in plants grown from seed can be explained by previous infection of the seed-producing plant, even before ovule fertilization, or by infection of the pollen grains. The viruses are often no longer present when the symptoms—variegation—manifest themselves.

Variegation is also thought to be frequently associated with environmental factors, but there is no scientific proof to back up this assumption. Some investigators support the hypothesis that natural radiation may cause genetic mutation. Laboratory experiments show that B-and X-rays lower the number of meristem cells, which may cause variegation.

Chemical substances are also capable of producing variegation in plants. It is a well-known fact that flower-inducing substances produce lateral buds of the “*variegata*” type in adult plants.

Factors relating to microclimate, temperature, humidity and light are also sometimes mentioned as influencing variegation. Biological stress, such as prolonged dehydration or poor nutrition, is said to bring on variegation, as are ecological disturbances such as fire, freezing, cyclones, etc.

In short, variegation may be caused by genetic mutation or by virus infection, but it seems probable that a number of causes can potentially bring on this phenomenon.

Types of Variegation

Plants with two different types of tissues—albino and chlorophyll-pigmented (diploid and tetraploid)—are called chimeras. This definition can be applied to the “*variegatas*”. Variegation may be fixed or mutable, temporary or permanent. Tissues with fewer chloroplasts are light green or yellowish in color. A total lack of chloroplasts leads to white or cream-colored tissues.

There are certain visible forms of variegation that are recognized botanically, although the naming of forms is not always consistent or precise, and some are treated as synonyms:

- *variegata.* The white or yellow bands have no clear organization, and usually do not extend to the margin of the leaf. As was mentioned above, the term "variegata" refers generically to any form of variegation (i.e., [sic] *Vriesea platynema* var. *variegata*). The term striata is also used here (i.e., [sic] *Nidularium innocentii* var. *striatum*).
- *marginata***.** The leaf margins are white (*albomarginata*) or yellow (*flavomarginata*) and the central part of the leaf is green (i.e., [sic] *Aechmea nudicaulis* var. *flavomarginata*).
- lineata. Thin white or yellow lines running along the leaf (i.e., [sic] *Nidularium innocentii* var. *lineatum*.
- medio-picta, meaning "painted center", this type is similar to "variegata" but with green stripes in the centre of the leaf.
- Tri-color--three-colored; usually green, cream and rose (ex. *Neoregelia carolinae* forma *tricolor)*.
- Quadricolor—four colored; usually white, yellow, red, and green (*Aechmea magdalenae* var. *quadricolor*).

The pigment group known as the anthocyanins is present in many bromeliads; it is found in the epidermal cells and may hide both chlorophyll-pigmented and albino tissue. In *Aechmea orlandiana* var. 'Ensign', anthocyanin produces a very beautiful red or rose color in the albino tissue.

Reddish-brown stripes and bands are found in several hybrids such as *Aechmea* 'Red Ribbon' and *Neoregelia* 'Amazing Grace'.

Propagation of Variegates

Theoretically, vegetative reproduction will lead to the replication of the mother plant, but this method is not totally reliable when dealing with variegates. Even the best lines, the so-called fixed clones, may occasionally show some alteration. Some, however, have survived for decades without mutations, generation after generation.

As a rule, variegated plants are harder to grow than all-green plants. Inflorescences are smaller than normal and the tendency to bud laterally is also reduced. Some have definitely slower growth rates than normal plants. This is especially true of vrieseas and guzmanias, which are also slower to root.

It is advisable to leave lateral shoots (pups—Editor) on the mother plant for a longer time than with normal plants. Experience has shown that shoots about half the size of the mother plant can be detached with no problem. An important sign of shoot maturity is root emergence. To promote increased production of lateral shoots, the removal of the newly formed inflorescence is recommended, so that the plant can channel its energy into the lateral shoots.

Multiple variegate plants tend to produce either albino shoots or all-green shoots. True albinos are apt to die when separated from the mother plant, thus wasting previous reproductive energy. It is therefore recommended that they be removed as soon as they appear.

MORE NAME CHANGES: (Extracted from Bromeliad Society of Greater Chicago newsletter, July 2018)

Previous Name	New Name
Aechmea caudata variegated	*Aechmea* 'Forget Me Not'
Aechmea nudicaulis var. *flavomarginata*	*Aechmea* 'Flavomarginata'
Guzmania zahnii variegated	*Guzmania* 'Madam Omer Morobe'
Hohenbergia disjuncta	*Aechmea disjuncta*
Nidularium rutilans variegated	*Nidularium* 'Rutilan Regal'
Orthophytum vagans variegated	*Orthophytum* 'Roberto Menescal'
Neoregelia 'Purple Star' variegated	*Neoregelia* 'Purple Nova'

BROMELIAD FAIR

Hundreds of exotic bromeliads from beautiful to bizarre

Rare and unusual Tillandsias, colourful Neos and Guzmanias, spectacular Vrieseas, dazzling Aechmeas.

Broms for all tastes!

Saturday/Sunday, October 27/28, 2018

You will find us at:

Concord Senior Citizens Centre:

9-11 Wellbank Street
Concord, NSW 2137
Saturday 10-4
Sunday 9-12

Free entry- and bring a box

- EFTPOS- Visa, MasterCard, debit cards
- Books and fertilizer for bromeliads also available

For more information please contact:

Garry Flemming – (02) 6553 9868/041378884
Peter Tristram: peter@bromeliads.com.au

Golden Broms

17-20 October 2019 | Gold Coast QLD

20TH AUSTRALASIAN BROMELIAD CONFERENCE

To be held at Sea World Resort on the Spit on QLD's Gold Coast

Early bird registration $350.00 until 30 June, 2019.
Registration after that date will be $375.00

This full registration includes entry to all presentations, the Welcome BBQ and Conference Opening, Banquet, full day tour to gardens and morning and afternoon teas as well as lunches on conference days.

For more information see: http://goldenbroms.com