Bromeliaceae

VOLUME XXXIX - No. 4 - JULY/AUGUST 2005

The Bromeliad Society of Queensland Inc.

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Front Cover: *Vriesea carinata*	Photo by Ross Stenhouse
Rear Cover : *Tillandsia punctulata*	Photo by Ross Stenhouse

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Please make the following new members feel welcome to the society.

Max Marskell, Frank and Hazel Coleman, Andrew Jackson, Bryan Hall, Coral Graham, Geoff Jon, Barry and Joan Lee, Ema Basic, Micheal De Kort, Paul McGuren

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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.

Society Diary

NEWS REPORTS EVENTS

GENERAL MEETINGS are held on the third Thursday of each month except for December, at the Uniting Hall, 52 Merthyr Road, NewFarm, Brisbane, commencing 8 pm.. Classes for beginners commence at 7.30 pm.

FIELD DAYS are held regularly in the gardens of members as advised.
MEMBERSHIP FEES: Family $20, Single $15 pa
The BSQ web page can be accessed at w.w.w.bsq.org.au

Competition Results:

May Meeting

Advanced

First	Bob Paulsen	*Neo. Pendula brevifolia* x *eleutheropetala*
Second	Yves Daniel	*Neo* 'Blazer'

Intermediate

First	P. Crawford	*Neo.* 'Moneau Beauty'

Novice

First	Evelyn Rees	*Tillasndsia stricta*
Second	Lyn Grubb	*Neo* 'Trangerine'

JuneMeeting

Advanced

First	J. Higgins	*Neo. Hybrid*
Second	J. Higgins	*Neo* 'Alley Cat'

Intermediate

First	G. & N. Aizlewood	*Crytanthus fosteriannus* cv *Elliane*
Second	G. & N. Aizlewood	*Tillandsia bullbosa*
	B. & A. Kable	*Neo.* 'Johannus de Rolf'

Novice

First	L. Grubb	*Neo.* 'Johannus de Rolf'
Second	L. Grubb	*Neo.* 'Royal Cordovan'

Raffle Results - Meeting 19th May 2005	Raffle Results - Meeting 16th June 2005
Lucky Door - Sean Dunstan	Lucky Door - Lockeil Seare
1st Draw - Michael Copestake	1st Draw - Valerie Portley
2nd Draw - Lori Dunstan	2nd Draw - David Rees
3rd Draw - Beryl Batchelor	3rd Draw - Len Trevor
4th Draw - Narelle Aizlewood	4th Draw - Nancy Kickbusch

MAY 2005 FIELD DAY REPORT

(by Bob Reilly)

The Society's first field day for 2005 was held at Brom-Haven. This is Nancy Kickbusch's residence at The Gap. Around 40 people attended the field day.

Nancy appears to have "packed" more plants into her garden since the Society's last field day there in 2001. This is quite an achievement, as a lot of plants were there then!

Highlights of Nancy's collection included:

- Most of the bromeliads were grown in pots, rather than in the ground. This makes it easier to shift them around in response to changing light patterns during the year.
- A feature was the many neoregelias grown in hanging pots. These included: *bahiana,* variegated 'Fireball', *lilliputiana*, 'Little Faith', *penduliflora v. brevifolia,* 'Red Beauty', 'Strawberry Cream', and 'Strawberry Cup'.
- Some of Nancy's grey-leafed tillandsias were in flower. Of particular interest, was a very nice multi-branched form of *T. compressa.*
- A beautiful plant of *Aechmea orlandiana* 'Ensign' showed the "trademark" pink-red flushing throughout its leaf, which contrasted sharply with the leaves' white edgings.
- Nancy has made effective use of the shade produced by trees and house walls. In pockets of deeper shade, there are shade-loving bromeliads such as nidulariums, while in sunnier spots there are aechmeas and neoregelias, which thrive in these conditions.
- About 20 plants of *Aechmea nudicaulis* 'rubra' were growing all over a stump in nearly full sun. They were clearly enjoying the conditions and made a lovely display.
- Nancy has made effective use of a wire mesh fence to provide extra growing space by hanging pots from it. Another innovation was using a length of chain to bridge the gap between two steel pickets in her garden. The chain was festooned with hanging pots of bromeliads.

I gave a talk on growing grey-leafed tillandsias in pots, while John Higgins discussed miniature neoregelias. Some highlights from John's talk were:

- Many miniature neoregelias look their best when grown in clumps. Some of John's plants were grown as clumps in 300 mm plus "squat" plastic pots, (which are often sold by orchid nurseries), and they looked magnificent.
- John stressed that it was important not to over-fertilise these plants, as they will lose their distinctive shape and often their colour as well.
- A interesting part of John's talk was the linkages he made between the characteristics of various species which have been used in hybridising and the traits displayed by the hybrids made from them
- Miniature neoregelias can be used as an effective ground cover for small areas covered in pine bark or similar material.
- These plants also look effective when grown on trees. However, it is important they are tied on securely through, for example, the use of plastic cable ties.
- A feature of many miniature neoregelias is the attractive "barring" and

Continued on page 6

SOCIETY PROJECTS WANTED!

(compiled by Bob Reilly)

At the May general meeting, it was decided to reduce the Society's financial reserves to $40,000/$60,000. About $40,000 is available to spend on a range of projects, over the next two years, consistent with the Society's objects (aims).

The Society's aims are to:

- Promote good fellowship among all people interested in bromeliad horticulture and in horticulture generally;
- Further the knowledge and advancement of all that pertains to bromeliads, including their natural history, cultivation and hybridisation; and
- Disseminate knowledge of bromeliads and carry out educational and research activities into all aspects of (the plant family) *Bromeliaceae*.

Please note the Society's constitution precludes us from distributing money to members.

You are invited to send an outline of possible projects to the Secretary by 30 August 2005.

For each project, please supply the following information, in writing:

- What it will achieve.
- How it helps the Society to meet its aims.
- What is involved, where the project will take place, and over what period of time.
- How much it will cost.
- Who will undertake the project on the Society's behalf.

Peter Paroz (phone 07 3265 1547) and Olive Trevor (phone 07 3351 1203) will help you with any queries you may have.

The Management Committee will prepare a list of recommended projects for consideration at the November 2005 general meeting.

Continued from page 5

markings on the leaves' lower surfaces. If you are placing such plants in a tree, it is important they are established at "eye-level" or higher, so their markings can be easily seen.

Thanks Nancy for putting on the field day. I know it is a lot of work. Thanks are also due to those members who helped out in a variety of ways on the day.

NOTIFICATION OF ELECTION RESULTS

At the March 2005 General Meeting of the Society, it was resolved that nominations for the vacant office of President would close with the Secretary at 5pm on 3 June 2005.

Only one nomination, namely, for Bob Reilly, was received. The nomination complied with the requirements of the Society's rules (constitution).

Therefore, in accordance with the Society's rules, I declare Bob Reilly elected to the position of President.

Karen Murday
Secretary
Bromeliad Society of Queensland (Inc)

Photographers Code

RS : Ross Stenhouse
DU : Doug Upton
RSm: Rob Smythe
BB : Beryl Batchelor
DB: Derek Butcher
CC: Carmel Cullen

The Editor's Desk

Its time to write yet another editorial, this job sure seems to come around quickly, time flies when you are having fun as the saying goes. It's quite a challenge getting all the information and articles together and matching them up with suitable photographs.

We have been working hard to improve the quality - one edition to the next, this being my third edition. This is a publication entirely written and photographed by unpaid amateurs. As editor, I think we are doing a good job, certainly the feedback from members supports that statement. The society is looking at ways to reduce its bank balance, one way I see is by increasing the content of this publication.

Members would appear to support the introduction of more pages of colour photographs and in this edition we have done just that. I think we could go a bit further and add maybe another 4 pages of colour. I would like to thank the contributors who make it possible to publish this journal. The Sept./Oct. issue is well underway and in it we have extensive coverage of the combined show (including 4 pages of colour photographs). Peter Paroz will be writing an article on how to grow bromeliads from seed, I am particularly looking forward to reading that article. Being a beginner in the world of broms and a very inexperienced gardener, I am sure I will learn a lot from Peter's article and am sure that of the 300 or so members of BSQ there are bound to be a lot of others that can be induced to grow Broms from seed. Doing that opens up the world of hybridising the plants.

BROMELIACEAE

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Bromeliaceae Copy Deadlines

September/October.....August 5th, 2005
November/December.....October 5th, 2005
Jan/Feb.....December 5th, 2005

Please forward all copy and photographs to:

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Phone: 07 3376 5558 Email: rossjanstenhouse@hotmail.com

Electronic copy RTF or MSWord 7.0 or earlier - Times New Roman

Member's Code of Conduct

This statement was approved at the May 2005 general meeting of the Bromeliad Society of Queensland (Inc.).

1. Joining the Society

Any person may apply to join the Society. If the application is accepted, the person becomes a member.

A person who is accepted for membership after 1 November in any year will not need to pay the membership subscription for the following year.

2. Membership subscriptions

Membership subscriptions are payable on 31 December for the following year. Members who do not have any outstanding dues are regarded as "financial members". Where a member resigns before 28 February of a given year, then the entire membership subscription for that year will be refunded.

3. Members' entitlements

Members are entitled to participate in most of the Society's activities, including attending meetings, field days, shows, and purchasing plants and books. They may also stand for election to any of the Society's management positions.

Financial members have additional privileges. They include:

- the right to vote at general meetings;
- receiving *Bromeliaceae,* the Society's journal;
- selling bromeliads at Society functions;
- for those who can attend general meetings; borrowing books and related materials from the Society's library.

Some of these privileges are subject to conditions and limitations. These can be obtained from the Secretary.

4. Members' obligations

Members' obligations include:

- behave in a civil and courteous manner to other Society members;
- comply with any conditions which may apply to participation in particular Society activities;
- pay their membership subscription by the due date, if they wish to enjoy financial membership privileges;
- not distribute letters, posters and other printed material at general meetings without the prior permission of either the meeting, the Management Committee, or the President and Secretary.

Members who do not meet these standards of behaviour could face disciplinary action such as a reprimand from the Management Committee or general meeting or, in serious cases, termination of membership (see section 7).

5. Society's privacy policy

Under the Society's rules (constitution), members may inspect a register containing

details of all members, upon request to the Secretary.

Printed copies of the register are given to Management Committee members and other persons who need this information to undertake activities on behalf of the Society.

Copies of the register will not be supplied to other organisations or people, unless there is a legal requirement to do so, or the Management Committee considers it is reasonable to provide it, given the proposed use.

6. Dispute resolution

If a member is unhappy with a decision of the Management Committee, or a person managing an activity on behalf of the Society, then the person should:

(a) first, raise the matter with the person who made the decision;

(b) if the first step is unsuccessful, or the decision has been made by the committee, raise it with the Secretary, preferably in writing, for consideration by the Management Committee.

(c) if the matter is still unresolved, advise the Secretary in writing, and the President will place the matter on the next general meeting's agenda. The decision of the general meeting is final.

Where members have not followed this process, then the matter will not be considered at a general meeting, except at the President's (or the person acting as meeting chairperson) discretion.

7. Membership termination

A member may resign at any time.

Termination of a person's membership may also occur for a variety of reasons. These are covered in the Society's constitution.

BOOKS FOR SALE

A Bromeliad Glossary (1998 edition) by the Bromeliad Society International (BSI)	$13
A Guide to Beautiful Neoregelias by Shane Zaghini	$20
Bromeliads: A Cultural Manual by BSI	$5
Bromeliads: Next Generation by Shane Zaghini	$33
Bromeliads for the Contemporary Garden by Andrew Steens	$36
Growing Bromeliads by the Bromeliad Society of Australia	$22
Judges Handbook by BSI	$34
Tillandsia Handbook by Hideo Shimizu & Hirouli Takizawa	$66
Back copies of *Bromeliaceae* (2005 editions)	$4
Label-marking pencils	$3

Post and package extra. Unfortunately, we cannot supply overseas orders. Please telephone the Librarian, Mrs Evelyn Rees (07 3355 0432), to order books.

Neoregelia 'Blushing Bride' RSm

Aechmea mexicana alba marginata CC

Neoregelia 'Blushing Bride'

by Pat Coutts

With reference to 'Oldies but Goldies' in Bromeliaceae, September-October 2004, I wish to add a plant which I imported some years ago. Other growers had acquired one over the years so there must be a number of plants still about.

It was brought to my attention at a Bromeliad nursery in Brisbane that Blushing Bride does not blush in the south and was shown a plain green plant with a strawberry centre.

The offsets of this plant have very distinctive maroon glips on the foliage even before colouration and the plant measures 23 cm wide when mature.

I don't remember ever having a plant flower although it is reasonably generous with offsets.

Information on parentage is somewhat sketchy, although it is described as being a cultivar of *Neoregelia macrosepala* hybrid.

It is recorded that this Neoregelia was presented by Mulford Foster, one of the greats in the introduction of Bromeliads into cultivation, to Bert Foster as a wedding present. Hence the name, no doubt.

Thanks to Rob Smythe for his assistance in research and the photograph of this plant

An Interesting Story

Author: Carmel Cullen

Years ago a man offered to swap a small *Aechmea mexicana*, which he had grown from seed, for an unusual silver form of *Aechmea triangularis* I had growing in my front yard. In those days the only *Ae.. mexicana* I had ever seen was a picture in a book called "Tropica" by A. Graf. The plant in the picture was growing as an epiphyte along the edge of a highway in Brazil and being completely exposed to the sun was glowing rich ruby red.

I eagerly agreed to the swap even though the seedling was green at that stage. Sadly I lost *A. triangularis* shortly after when my dogs destroyed the mother plant, unable to ever find one again., never mind I had my exciting new acquisition.

To cut a long story short, the A mexicana took many years to reach maturity and no matter how much sun it grew in, it remains grass green. Trying to locate the red form has proved fruitless.

Then recently I saw something that would make me forget the red one. I was at Olive Branch and there in all its splendour was a mature plant of *A.mexicana albo marginata*; a spectacular sight (see photograph). I was so glad I happened to have a camera with me. Although not yet available I will wait patiently (?!!) for a specimen of this gorgeous plant.

Society Library Wants to Buy

• There is an increasing demand to borrow books from the Society Library.
• Unfortunately, we cannot purchase more copies of "out of print" books.
• We would particularly like to purchase a copy, in good condition, of the English edition of *Blooming Bromeliads* by Ulrich and Ursula Banensch.
• If you are interested in selling a copy, please contact Bob Reilly
(phone 07 3870 8029) or
email bob.reilly@nrm.qld.gov.au.

Aechmea 'Aztec Gold' RS

Aechmea recurvata var. *benrathii* RS

Aechmea 'Aztec Gold' RS

AECHMEA 'AZTEC GOLD'

(by John Catlan)

Editorial Comment: (Bob Reilly) Reprinted from Bromeliaceae, 1992, volume XXV (3), pp6-8. Sometimes it is a real struggle to keep a variegated plant which has arisen as a sport or mutation from a non-variegated one. In this article, John Catlan describes how he dealt with this situation.

Aechmea 'Aztec Gold' is really the story of trying to produce a desirable plant, by swinging the odds in the grower's favour.

One day in 1991 a friend of mine, Ian Sellars, found a plant in a group of my *Aechmea recurvata* plants, with a good clear yellow stripe on one of its leaves. The variegated leaf appeared on a fully mature plant, that had failed to flower that year.

It was the unanimous lament that many plants of friends as well as our own had shown partial variegation, that had not been passed on to the pups. The low averages were definitely against success, but with this plant we hoped it was possible, as the variegated leaf was low down in the butt of the plant where the pups originate.

After researching the material available, looking for a magic wand, I found that there were none, or more precisely, none that I could find. Now was the time to put into action three lessons learnt while observing our plants.

One day while sitting on an old stump, with a shovel in one hand and a cup of coffee in the other, trying to get inspiration, I noted just how hardy bromeliads really were. There were dozens of discarded plants lying on their sides with their pups happily sitting up ready to grow into new clumps.

LESSON 1. If a plant falls over and a pup forms, nine times out of ten the pup will start on the top side of the plant.

Like most bromeliad growers, being short of room, I would take pups off and sit them in a pot in a very open mix to keep them upright till I had time to tend to them. If you are too long, you would end up with a solid ball of roots. This resulted in tearing them apart and damaging the roots. Gradually in dawned on me that the root system initiated from one side of the pup. The opposite side from the heel piece torn from the mother plant. The rule became face the wound side to the centre of the pot. The roots all grow to the outside of the pot and are easier to separate. This explained to me why in a clump of bromeliads the pups are generally grown on the mother plant furtherest from the grandmother. I reasoned that the roots on that side absorbed the nourishment and gave slightly more food to that side of the plant. I foliar fed the plants on one side only and this resulted in a very high percentage of pups from that side.

LESSON 2. If you liquid feed a plant, by foliar feeding it on one side, you increase your chances of getting a pup from that side.

I remembered one year, there being not enough bench space for all the plants, so some were placed under a bench. Being winter, the sun was low in the sky and light penetrated very well in under the bench as it faced north. Spring arrived and busy-busy - busy then well into summer, lo and behold there were the plants with all their pups, like soldiers - facing the path. At the time I thought it was rather convenient for the removal of the pups.

LESSON 3. If the plant is denied light

on one side, it will throw its pups on the side facing the light source.

The time had come to bite the bullet. We lay the plant at an angle of 45 degrees facing away from the sun with our yellow stripe being on top, facing to the sun. A few weeks later at an angle of 90 degrees to the yellow stripe appeared a green pup. This was removed with a sharpened screwdriver. Our theory was that the pup had started its growth cycle prior to our meddling with nature. Be patient and wait. Success immediately followed by disaster. The pup was there but it was pure yellow. We only had the one variegated leaf and the pup was right under it. So all we could do was leave it as an interesting experiment.

A few months later and the pup had grown and we looked and wondered, for there on the upper side of the leaves was a solid green stripe. A phenomena of this plant is all pups appear as plain yellow, but as the leaves develop the green stripe improves and it turns into a sturdy vigorous grower for a variegate.

To promote the growth of 'Aztec Gold' we left it attached to its parent, this promoted vigorous growth which resulted in a mature plant which produced 10 pups over 3 years. Any pups appearing on the green side were cut off so the 'Aztec Gold' received all the energy.

Over the years 'Aztec Gold' has never produced a pup for me that has reverted to green. In the first couple of years we only had to destroy about 6 plants that did not grow strong enough for me.

Our climate is described as sub-tropical but 'Aztec Gold' has not been adversely affected by our heat. In 1985 our winter produced 16 frosts in a row and that year the flowering was the most spectacular we have ever witnessed.

'Aztec Gold' was grown in 7" hanging baskets potted in a very open mix and hung 18 cm from the roof. They had plenty of light and 9 month Osmocote as a fertilizer. They were watered regularly, but they were very well drained and had plenty of air movement. They grow in full sun on a wire bench 1 ft. from the ground now and they are doing fine.

Some people who have had trouble growing 'Aztec Gold' are probably giving too much water and not enough light and air movement to keep up with the watering.

Aechmea orlandiana 'Ensign'. After our success with 'Aztec Gold' I acquired a plant of *Aechmea orlandiana* Ensign. This plant had a good variegation on one side. The other side was only slightly variegated. We faced the slight variegated side against a fibro wall -the strong variegation facing the light source. Pups came out all over the place, but we did eventually get a good 'Ensign' which we left on the parent plant till we got a good sturdy plant.

We wondered whether as *Aechmea orlandiana* was a climbing bromeliad more than a clumper, maybe our rules for this type were not as applicable.

I hope the proceeding information will help along your collection of bromeliads. Don't forget to let us hear of your results.

WHAT IS THIS WITCHCRAFT?

by Lynn Hudson.

What is the phenomenon of allure and captivation bromeliads exert over people?

They are prickly and scratch. More often than not they are full of extremely

smelly water, which will inevitably spill or splash on the person who is trying to tidy them up!

How do normal people suddenly get the "brom-bug" after taking just one plant home? How do they suppose they will be satisfied with just one when there are hundreds of the scratchy little devils waiting to take over their gardens, homes and lives? Why do they change from brown eyed normal people to green eyed droolers when faced with a plant they have never seen before, and that 'I have to have it' monster takes charge of their sanity and pocket?

I have heard them say they are not interested in Tillandsias, then lo and behold at the next meeting, they have purchased six or more – "just for contrast, aren't they great?". Next chance they get, they are buying more! No one can stay with just one genera, each is too beautiful, too alluring.

Why is there such a strong friendship link between collectors? A group of such persons, so utterly different, each attend their monthly club meetings, get to know other enthusiasts from all around the world through club affiliations, attend the biennial conference like it is a religion - yes to learn, but just as much to rekindle friendships formed over the years.

It is quite mind - boggling. They have Round Robin discussions on the Internet, they spend hours and years hybridizing and studying these plants then very carefully report their successes and failures to other enthusiasts. They even publicly argue over the names and cultivation of these plants - yet stay good friends. They go on collecting trips to both fascinating and dangerous places and report back to avid envious friends and anyone else who will listen. They use up years preparing books to share these wonderful plants - books with magnificent photographs. Then to share them further, many more hours are forgone translating these magnificent books into other languages.

If only we could harness this enthusiastic friendship. What a difference we could make in this world.

But back to the plants and their allure. Is it borne of the sun shining through a beautiful purple neoregelia or spotted billbergia? Is it the sudden appearance of a flower spike followed by the majestic blooming? Is it the beautiful colours that touch and gladden our very core? Is it the way the little devils multiply so we can have more - some to keep, some to give away, some to sell and finally some to mulch under the lawn mower when they threaten to be really feral? Is it the same for other plant enthusiasts eg. rose lovers?

Maybe it is the fauna they attract - the scurrying lizard or the smiling sleeping vivid green frog, the noisy leatherhead or silvereye bird stealing *Tillandsia usneoides* for his nest, or the stupid dove which puts down a few twigs and lays her eggs amidst them.

I do not know exactly what the allure is. Maybe it is just the whole fascinating gamut of the bromeliad family and the bromeliad enthusiast family. But be warned, the bug will get you - once you take one home, they are addictive.

One thing I do know - the allure is certainly not the fiendish scratchy prickles! Be warned, you too can become bewitched, bothered and bewildered by bromeliads and yes, scratched.

Neoregelia 'C2' RS

Neoregelia 'Nonis' by Skotak RS

Aechmea 'Lucky Stripes' RS

Neoregellia carolinea 'tricolor' RS

VARIEGATION IN BROMELIADS

(by Luiz Felipe Nevares de Carvalho)

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.

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 – *variegatuus, 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 that grow in the wild, it appears that variegation is a rare phenomenon. As a general rule, patently variegated plants are less hardy and slower 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 cells, 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

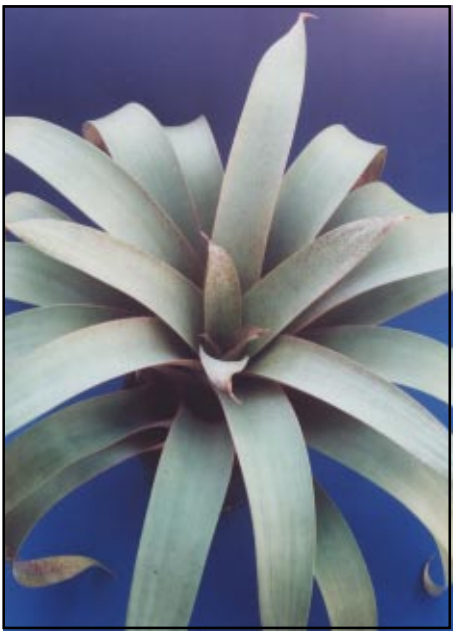
Plants with two different types of tissues – albino and chlorophyll-pigmented (diploid and tetraploid) – are called chimeras. This definition can be applied to the "variegatas". Variegation may be fixed or mutable, temporary or permanent. Tissues with fewer chloroplasts are light green or yellowish in 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 platynmea* 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) N*idularium innocentii* var *lineatum.*
- *medio-picta* meaning "painted center", this type is similar to "variegata" but with green stripes in the centre of the leaf.
- *tricolor* 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 tissues. In *Aechmea orlandiana* 'Ensign', anthocyanin produces a very beautiful red or rose color in the albino tissue.

XAechopsis 'Angeline' flower *DB*



Vriesea saundersii RS

XAechopsis 'Angeline' *DB*

Vriesea saundersii displaying fading variegation *RS*

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

Variegation is also found sometimes in inflorescences, and in primary and floral bracts, such as happens in some *guzmania* hybrids.

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 precious reproductive energy. It is therefore recommended that they be removed as soon as they appear.

THE CASE OF THE FADING VARIEGATION

(by Bob Reilly)

Around 20 years ago, I bought an apparently non-variegated clone of *Vrieseu saundersii*. This is an attractive plant grown primarily for its foliage – see photograph pg.19.

However, my clone produces variegated plants (see photograph pg.19) under certain conditions. The variegated plants are produced when the "mother" is nutrient-stressed (which means I put the plant under the bench and forgot about it).

As with most variegated bromeliads, the pups showing this trait are given the best of attention including liquid fertiliser and plenty of light. The interesting outcome though, is that this attention "causes" the varigation to "fade", so that it eventually looks like non-variegated plants. I have heard of a similar phenomenon in certain palms.

I would like to hear from anyone who has had similar experiences, or has an alternative explanation for "the case of the fading variegation".

xAechopsis *'Angeline'*

by Derek Butcher

Shown in the BCR as either 'Angeline' or 'Angellina' this came to Australia in the 1980's as *Nidularium billbergioides* 'citrinum angelina' which caused heads to be shaken when it flowered! Clearly it was a bigeneric of sorts and it was eventually discovered from Corn Bak that *Aechmea fasciata* was involved. The name had its origins at Kent's Bromeliad Nursery in

California because in their 1979 catalogue we read *Nidularium billbergioides* 'Citrinum' cv. 'Angellina' 'Variegata' at US$75. At this price one can only assume there were not many plants in existence! It was then called xNidumea 'Angeline'

When *Nidularium billbergioides* became a *Canistropsis* the bigeneric name *xAechopsis* was used.

It is interesting that the variegation is clearly seen in the inflorescence.

The Ultimate Method for Controlling Mosquitoes in Bromeliads.

By Rob Smythe MSc

Can't we get paranoid about council inspectors or health department officials exploring our bromeliads and finding even one wriggler? The publicity on the TV is lousy. They never differentiate between—bromeliads hold water therefore all mosquitoes breed in them by the thousands from—bromeliads contain water and most of the time they control mosquitoes by having the eggs or the wrigglers destroyed. I say "most of the time" because now and then, as is natures way of keeping a balance, the system must fail and mosquitoes can appear.

In Townsville from time to time you can spot four types of mosquito in bromeliads. For many years I have sampled my plants by sucking up water and have never found one of the nasty *Aedes aegypti* present. This is the mosquito currently found in Townsville and known to carry Dengue Fever. Last month a new mosquito was detected entering Australia from the north. It is called the Asian Tiger mosquito and it spreads Dengue Fever and is expected, if not destroyed, to bring areas as far south as Sydney under its influence. It is quite unlike *Aedes aegypti* now strictly a tropical urban mosquito which , very importantly, I repeat, I have never found breeding in broms. It is different in that it is more of a rural mosquito. Will the new pest breed in broms? Does anyone know if this was discussed at the recent convention on mosquito and broms held in the Philippines?

The mosquitos known to breed in bromeliads in Townsville are:

#1 *Aedes notoscriptus*—one of the salt marsh plague mosquitos. These blow in by the thousands from the salt marsh areas after rain and/or king tides. Those coming from our broms are negligible in comparison. The unfortunate thing about this mosquito is that it takes a trained eye to differentiate a well-fattened *Aedes aegypti* (the one councils are concerned with) from a partly starved *Aedes notoscriptus*. You need a lens to see the lyre markings on the thorax or the white band on the proboscis. So rule one is all mosquitos with those football sock markings are not one of the bad ones. Medically *Aedes notoscriptus* is of some concern as it can transmit Ross River Fever if you have infected kangaroos, possums or other carriers (not humans I believe) in the area. The other mosquitos listed below are low incidence and really the presence of *Aedes notoscriptus* just in your garden and not a general infestation should be your main indicator that something could be wrong with your bromeliad hygiene..

#2 *Aedes tremulus* –This is a very uncommon orange mosquito. The odd one is found around broms and also may indicate problems in the darker areas of broms like

the wells in Billbergias. If you see these, act by checking darkened areas.

#3 *Culex fatigans* or *Culex quinquefasciatus*. This is an urban mosquito. I think these two names are synonyms. These breed in large numbers in my bird baths and every week they have to be tipped out taking care that they don't finish up in the broms. I personally have never found these in broms but a research team from Tropical Health, looking for predators, found them in the side axil ponds in large vrieseas and alcantareas. Health wise they are bad for the dogs as they carry heartworm. Interestingly in the bromeliads in my garden these wrigglers don't usually reach maturity as the next mosquito species I will mention eats them.

#4. *Toxorhynchites speciosus*—a beautiful mosquito in more ways than one. It also has the football socks and is beautifully marked and is much larger than the others mosquitos mentioned. It stands apart, as it dances on the water in any of the plants with a sizable water pondage. You can bet that if you find a large pondage with wrigglers in it they are often quickly eaten and you finish up with only a very large solitary reddish wriggler. This is it, it has eaten all brothers and sisters and any compatriots who may have come along. It grows with the availability of the food supply and I have observed the one wriggler in residence for up to three months. Very interestingly this insect itself survives the predators that destroy the undesirable wrigglers. How convenient is that? When I have found *Culex fatigans* I have poured the contents of the plant well into vessels and sealed them. All but once the predator ate all the offenders. Really this therefore is far from being a problem mosquito in Townsville.

All that is by way of introduction. In the past with the help of a crustacean mosquito predator named mesocyclops and other fly in predators like the above mentioned mosquito and midges, my thousands of plants have stayed mosquito free for extended periods. The plants must be kept free of detritus including spent flower heads. Unfortunately nature demands a balance between those doing the predating and those being predated upon. I have observed this while cultivating my mesocyclops using laboratory conditions (not in broms but in glasses). In addition to sexual reproduction the mesocyclops can each divide into two. This must play hell with their digestive systems as wrigglers can survive during this period of dieting. This is because this asexual reproduction happens to all of the mesocyclops at the same time. Probably triggered off by some exogenous factor like weather change or food supply. So if we are still paranoid as a result of this rare break down in our brom's defence system, I think I have found the perfect solution. What I am saying below is early days stuff not tested with time consuming scientifically designed experiments but just conclusions from observations by someone with a scientific background.

Use of Water Crystals for controlling mosquitoes in Bromeliads.

250 gm of Water Storage Crystals will swell in water up to about 30 litres. I placed these swollen crystals in to all the water retaining areas of my broms. Fortnightly I carefully go round and sprinkle a few dried crystals where needed. After two months I estimate it will cost me less than a dollar a week to be absolutely free of mosquitoes.

Observations.

#1. 10 % of my broms were sampled after 2 months with absolutely zero mosquitoes found.

#2. Where wrigglers were introduced they were all dead the next day.

#3. In most cases the other predators were still present after 2 months but in reduced numbers. The different swimming motion of wrigglers does not allow them to negotiate the gel particles while with the squirming motion of midges it is also OK and with the minute size and swimming action of mesocyclops it is also to no disadvantage.

#4. Sometimes when topping up the gel too much is added and it swells up above the waterline which compresses the gel below killing all the pond life mentioned.

#5. The health of the plants, surprisingly, seems to improve and mothers seem to last longer. The reason for the former I can only presume is that small amounts of decaying matter may not be visible and will not be washed out. This becomes a supply of extra food. The untreated mothers usually dry out and gel might supply much needed moisture.

#6. Plants are easily cleaned by collecting debris off the gel rather than washing it out. It can also be washed off with care.

#7. The gel breaks down faster in strong light and some plants seem to have a mechanism for breaking it down. This might be the result of (an hypothesis) an intrinsic defence system of the plant designed to hydrolyse egg shells or young wrigglers. *Neo. concentrica* and its hybrids are the ones observed with this property.

#8. In places where I have missed filling the pondage with gel the natural predators were in large numbers like I have never seen before. Presumably this is because there has been no need to wash out pondages as before. Before it was a balance between washing out wrigglers and detritus versus washing out predators. I always advise new growers using the predator control method to wash either the central well or the side pondages but never both at the same time.

I have observed that when I put only a small amount of water crystals in the pondage I still don't get wrigglers. I don't know why. I tested this out in my bush house with a glass of water with about 10% of the water volume occupied by expanded crystals. It has sat there for 6 months and not one wriggler. It is growing algae, and the crystals are still there but never a single mosquito was present.

When do I use it?

#1. When there are mosquitos in my yard without an apparent reason.

#2. When I am going away for a time.

How much do I use?

To just below the waterline so it is not visible.

Are there any problems?

Only one so far and that is when the well has detritus in it and becomes anoxic so that pathogens can build up due to this lack of transfer of oxygen down to the rotting material—types of centre rot can be enhanced. This is easily avoided—watch out for dark colouration due to rotting detritus— wash it out and replace it.

How long does it last?

Except for a few neos that like full sun it decomposes slowly (months). If there is a lot of pond life present, I have observed at least one little creature which appears to eat it, the life of the gel is reduced to one to two weeks. Other unrelated tests I did

showed that some bacteria break it down. Sunlight appears to accelerate its decomposition.

Any other positives?

Yes, I believe with the extended dry seasons that water penetration in soil is becoming a serious problem. The washed-out viscous liquid resulting from the break down of the gel could, I expect, enhance water absorption around the plant.

I believe mothers last longer as they don't dry out readily.

My crossings have been far more successful but this could turn out a negative as I may just be creating land bridges for pollinating ants to access the flowers.

Any other uses?

There are probably many. These are only suggestions.

#1. Swell it in a fertilizer solution and create a slow release fertilizer.

#2. Put it in your germinating mixture. It can take microwave sterilization.

#3. Use it for what it was designed. Holding water. I use a lot of it in hanging baskets. One unusual side effect is that baskets are full when fully wet and can appear half empty when very dry.

#4 If you are one of the fewer and fewer people using pesticides you could place the systemic pesticide in the well and cover with swollen gel so pets and wild life won't drink the poisonous water.

I'll conclude by saying that I have not said it won't kill your plants but I can say that I have been using this method for over twelve months on and off as dictated by the mosquitos or trips away and my plants look better than ever. Though I am a chemist I should, but do not, know the composition of the gel but since it is recommended for pot plant use I am assuming it is OK for bromeliads. Time will tell. My confidence is great as all my plants have had it placed in them. Not a good scientific technique as it suggests some bias in experimental planning.

Remember it is early days but this method is sure worth further testing and experimentation. It might be like silicon polymer, made by a chemist and found out to be useless for what he wanted. He threw it out. Today how could we live with out silicon glues?

Rob Smythe: rsmythe@austarnet.com.au.

GETTING RID OF MOSQUITOES

(By Gerry Stansfield)

Editorial comment: Reprinted, with permission of the Bromeliad Society of New Zealand (Inc), from Bromeliad, volume 42 (9), September 2002, p.15.

During the hot summer months, Auckland and many other places in New Zealand have mosquitoes.

For those of us who grow bromeliads in our gardens this can become a real problem. Here are some suggested 'solutions.'

If you have only a few bromeliads, the problem can be best solved with a spray of ordinary fly spray in the cups and surrounding leaves, but if you have many hundreds or perhaps thousands of plants, this method is obviously not suitable.

So, let's look at the life cycle of the mosquitoes as it can help us to combat them more efficiently. Their life cycle has various stages: e.g. egg, larva, pupa, and adult. If the life cycle is interrupted on any one of these, then the mosquito can't reproduce. This interruption can occur in

several ways.

Preventing water from standing is obviously the best way, as each of these stages requires water, but unfortunately so do our bromeliads, but hosing them out over the summer months is one way we can prevent them from breeding. But here again, if you have a large number of bromeliads and many of us do, this can be not only time consuming, but awkward, stretching over large areas of plants etc.

One very good solution come from our well known Auckland grower Len Trotman of Te Atatu South.

(Actually, this was not originally designed for mosquitoes but as a repellent against slugs, snails, and also to avert quilling in bromeliads).

Len Trotman's recipe for mosquitoes:

500 ml of Sunlight Liquid (dish washing).
200 ml of Household Cloudy Ammonia.
100ml of Citronella *or* Pine-O-Cleen disinfectant.

Pour the contents into 51ltrs of cold water.

As this mixture is very concentrated, use only at 2 to 4 tablespoons per litre of water in your watering cans. It can also be mixed with your liquid fertilizer, and can be used weekly if desired. It is not detrimental to your bromeliads even at the seedling stage.

You will notice when spraying, that foam is generated, but this is not a problem as each of the stages in the life cycle of the mosquito is dependent upon the surface tension of the water. The adults rest on the surface to lay eggs and the other forms hang below the surface. If the surface tension is broken, then the life cycle is interrupted.

Fire Ant Update

by David Brown
BSQ Fire Ant Co-ordinator

As most members are aware, Fire Ants, *Solenopsis invicta*, are serious pests, which have been detected in Queensland, Australia. They inflict a painful sting and if not eradicated will seriously affect our lifestyle. They are the greatest ecological threat to Australia since the introduction of the rabbit and are potentially worse than the cane toad.

The Department of Primary Industries has undertaken an eradication program that has been in effect since 2001. Due to the application of this program, Doonan thus claims the distinction of being the very first infested area in Queensland to be declared free of imported red fire ants. This is a significant milestone in the battle to eradicate the red imported fire ant in Queensland. However, this does not mean that we are in the clear yet but is encouraging news. Most other areas that fall within the "Restricted area" are currently in their surveillance period. At present "Restricted areas" include suburbs southwest of Brisbane, areas south and east of Ipswich and some suburbs around the mouth of the Brisbane River.

Part of the strategy to prevent the spread of fire ants includes movement controls or restrictions on high risk materials that can spread the ants. This requires that people moving plants from these areas need to have an Approved Risk Management Plan (ARMP) in place. This applies regardless whether the plants are for the trade table(s), display or competition. It also applies to functions held by the BSQ such as the Spring Show.

Continued on page 27

BSQ display at Garden Affair 2005 BB

2005 A-GARDEN-A-FAIR

(by Bob Reilly)

On 30 April/1 May, the Queensland Council of Garden Clubs held its annual show and plant sale at the Mt Coot-tha Botanic Gardens. The event was well supported by members of the public.

More than ten clubs mounted displays. In addition to the Society, they included: African Violet Society of Queensland, Cactus & Succulent Society of Queensland, and the Queensland Begonia Society. Bob Cross worked his usual magic with the Society's display. It featured a colourful mixture of aechmeas, billbergias, guzmanias, neoregelias, and vrieseas. At the rear of the display, grey and green-leafed tillandsias were mounted on a timber "back-drop".

In the competition, there was a class devoted to bromeliads. There were 15 entries covering several genera including: *Aechmea, Cryptanthus, Guzmania, Neoregelia,* and *Vriesea*. First prize was won by a well grown specimen of *Vr. fosteriana* 'Speckles', with second place being won by an unnamed neoregelia hybrid.

The competition had classes for a wide range of other plants such as begonias, ferns, other foliage plants, and orchids (there were some spectacular plants in this class). There was a good display of floral art and cut flowers.

A wide variety of plants were on sale ranging from outdoor ones such as grevilleas and miniature roses, through to herbs, ferns, bromeliads, succulents, coleus and african violets, Some garden products, such as fruit fly attractant, were also available for purchase.

Thanks are due to those people who provided the plants for the Society's display and helped set it up, as well as those who staffed it during the show. A "thank you" also to those members who brought plants along for sale, as this also contributed to the show's success.

Continued from page 25

The controls are part of *The Plant Protection Act 1989,* and its associated regulations, which provides penalties of up to $15,000 for the provision of false or misleading information. The Act also provides penalties of up to $75,000 for individuals and up to $375,000 for corporations for breaching the control regulations. There are no penalties however for reporting Fire ants.

The BSQ currently has its own ARMP in place but it is still required that individuals who wish to move plants from within these restricted areas need to apply to the DPI to have current site inspections of their storage facilities and be issued with a site inspection number. This can be arranged by contacting the DPI directly on 132523. ARMP's set out strategies that people can implement to reduce the risk of spreading fire ants, as well as reducing the chance of their premises or equipment becoming infested with fire ants. The plans are developed with the assistance of a DPI&F Inspector and can take as little as 20 minutes to draw up. If you have any queries about fire ants you can either contact myself or contact the DPI directly on 132523

14-17 October
Bromeliads XIII Conference, Bardon Conference Centre.

RAPID VEGETATIVE PROPAGATION OF ALCANTAREAS

(by Bob Reilly)

Alcantarea species are increasingly being used in sub-tropical and tropical areas as "feature" plants in landscaped gardens. Often, an even more impressive effect can be achieved if they are planted in groups or rows. However, it is not always easy to obtain large numbers of these plants.

These plants can be grown fairly easily from seed. But, seed is not always available, and it can sometimes be incorrectly labelled. Further, it may be desired to propagate from a particularly striking plant (clone). In these situations, vegetative propagation can be relied upon to produce the plants you desire.

A rapid vegetative propagation technique is available for alcantareas. This technique, and a modification of it suitable for growers with less elaborate growing "aids", is described in the balance of this article.

Alcantareas produce small "adventitious" offsets **(see photograph opposite - top left)** when the plants are immature and, with much reduced frequency, when they are approaching maturity. The propagation technique relies on harvesting, and rapidly multiplying, these offsets.

The technique has a number of steps, namely:

- Detach the adventitious offset(s) from the parent plant. This can best be achieved by placing a small knife's blade behind the offset (and near its base), and then "levering it out". Ensure that the offset has "basal tissue", as the plant's roots originate from it. (This step usually requires some practice to achieve consistent success. Inexperience may result in you severing the offset without any basal tissue. **The photograph opposite bottom** shows offsets which will produce roots.)
- Adventitious offsets as small as one centimetre (cm) high can often be harvested successfully. However, the offsets of some species, for example, *Alcantarea imperalis*, need to be about 4 cm high before they can be harvested with a high success rate.
- Pot the offsets into 50 mm pots/tubes, using a potting mixture comprised of 1 part Perlite to 1 part peatmoss, combined with a slow release (9 months plus) fertiliser such as Osmocote or Nutricote.
- Water the plants at least four times a day.
- Use a liquid fertiliser once a week.
- When the plants are about 10 cm high, pot them into a 140 millimetre (mm) pot. The basal tissue of the plant needs to be exposed, so as to maximise the production of adventitious offsets. It may be advantageous to use small stakes to help support the plant.
- The potting mixture should include a balanced plant fertiliser such as Osmocote. Continue using liquid fertiliser on a weekly basis.
- When the first group of adventitious offsets are removed from each plant, remove its basal leaves. This action stimulates the production of more offsets.
- Offsets can be removed throughout the year, if "bottom heat" can be supplied to them while they are developing roots.

This technique can produce over 50 offsets from the initial offset in less than a year.

If you do not have access to the equipment needed to provide a misting "set up"

Alcantarea extensa with number of pups growing from its base RS

Alcantarea extensa RS

Alcantarea extensa closeup of 5cm high pup - note roots from base RS

and bottom heat, then the technique outlined above requires modifying. The modifications are:

- Offsets are harvested when they are 4 to 7 cm high, rather than 1 cm. Such offsets usually only require watering once a day or every second day.
- Place several of the offsets in a 100 mm pot (known as a "community" pot), rather than separately into 50 mm containers. (Better survival and growth rates are achieved this way.)
- Once the minimum night temperature falls below 10 degrees Celsius, cease removing offsets, as they will usually produce few, if any, roots below this temperature.

This modified technique usually results in around 10 offsets being produced from the initial offset, over a 12 months' period.

The techniques outlined above have also been used successfully to rapidly propagate those *Vriesea* and *Werauhia* species, which produce adventitious offsets.

Acknowledgements The first technique described in this article is largely based on a lecture given by Bruce Dunstan to the March 2004 meeting of the Bromeliad Society of Queensland. I thank Doug Upton for taking some the photographs used to illustrate it.

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Planting Out

(by Robert Smythe)

All garden plants that have been retained in pots till time to plant out, the time is right now. I have collected so many new plants this past year that I managed to replace each mother as it was removed.

LIBRARY BOOK REVIEWS: PART 2

(by Bob Reilly)

The Society has an extensive library of books which are available for borrowing by members who attend the monthly meetings. Some of these books are now "out of print" which means you cannot buy a copy (unless you're fortunate enough to obtain a second-hand one).

In this article, two "out of print" books held by the library are reviewed.

CANISTRUM – BROMELIADS OF THE ATLANTIC FOREST

The book was written by Elton Leme. It was published in 1997 by Salamandra Consultoria Editorial Ltda

This book is the first volume of the "Projeto *Nidularium*". The other two volumes are*: Canistropsis – Bromeliads of the Atlantic Forest,* and *Nidularium – Bromeliads of the Atlantic Forest*. Collectively, the three volumes constitute a major taxonomic revision of the genus Nidularium and related species.

The book has 107 pages and over 60 colour photographs. Detailed botanical descriptions, as well as a commentary on their distribution and habitat, are presented for seven Canistrum , three Edmundoa, five Wittrockia, and four Aechmea species. A photograph of a flowering plant is provided for each species and, in some cases, a habitat photograph as well.

While many of the species are of limited horticultural appeal, some are very attractive. Examples include: *Canistrum seidelianum*, *fosterianum*, and *triangulare*; *Wittrockia superba, tenusiepala*, and *gigantea*; and *Aechmea*

echinata.

The second part of the book consists of a discussion on the defining characteristics of *Hylaeaicum*, a neoregelia sub-genus (photographs of some of the species in this sub-genus are included); commentary on *Aechmea aculeatosepala*; followed by black and white photographs of the "type specimens", and line drawings of the defining characteristics, for many of the species described in the book. A comprehensive list of references and an index complete the book.

While an understanding of botanical terms will help you when reading this book, such knowledge is by no means essential. Further, the book contains the most comprehensive published descriptions of the species in the Canistrum, Edmundoa, and Wittrockia genera, in a consolidated form. The book is well worth reading just for this information.

A DISTRIBUTIONAL CHECK-LIST OF THE GENUS *TILLANDSIA*

The book's author is Lloyd Kiff. It was published by Botanical Diversions in 1991.

The book's objectives are presented in its first paragraph, namely:

"… This check-list is intended to provide a single source for currently accepted names of Tillandsia species and an outline of their ranges. In addition, brief taxonomic notes are inserted for clarification. Country-by-country lists of Tillandsia species, based mostly on the published literature, and an index of synonyms are appended…"

As well as utilising the published literature, the author drew on the personal experience of many tillandsia experts to resolve, where practical, inconsistencies between publications, as well as providing their unpublished information on the matters discussed in the book.

The book is primarily a listing of tillandsia species, and their ranges. (The latter information can sometimes be quite useful in helping you decide whether a particular species is likely to grow in your conditions.) A high standard of accuracy has been achieved in the book.

The author has also included useful comments on certain taxonomic issues, for example, where published sources differ in their statements on whether a particular plant is justified in having species "status". This information, when combined with the list of synonyms on pages 60 to 76, can be quite useful in helping you ascertain the current botanically-accepted name for a plant which is labelled with a name which is no longer in use. (It can also help you avoid buying the same plant twice, but under two different names!)

As well as a list of synonyms, the book has a comprehensive bibliography, and a list of the tillandsia species known to occur in each country in the Americas.

When reading this book, one issue you need to be aware of is that there have been a number of taxonomic changes, and new discoveries, since the book was published in 1991. Unfortunately, there is no readily accessible source of this information.

This book is primarily of interest to the tillandsia specialist.

Bromeliad Bonanza Spring Show
November 5-6
For further details:Beryl Batchelor
email:berylbatchelor@dodo.com.au or
phone (07)3390 2214

2005 TILLANDSIA WORKSHOP

(by Bob Reilly)

Fourteen people attended this event. Topics discussed included:

• Techniques for maximising the chances of obtaining seed when pollinating tillandsias were discussed. For example, some tillandsias are self-sterile, so you need two different clones to achieve pollination.

• It takes at least 5, and more usually 10 to 15 years, to produce a flowering tillandsia plant from seed. So, I will have to wait a long time to see the results of my cross of *T. chiapensis* and *T. jalisco-monticola*.

• Tillandsias which dislike being mounted or grown in pots were considered. Typically, best results for these plants are obtained by either tying a piece of wire onto a part of the plant and then hanging it from a support, or by "hooking" the "end" of the plant into a sheet of galvanised mesh. Tillandsias which like this treatment include: *albida, chartacea, latifolia v. major*, and *purpurea.* Also, clumps of some tillandsias can grow well if they are placed on top of a wire mesh bench. Some tillandsia species which grow well this way include: *concolor, ionantha and juncea.*

• A variety of unusual mounts for tillandsias were displayed. Examples were: the top of an earthenware pot, and a wooden stump.

• Many of the larger growing grey-leafed tillandsias appreciate having access to some moisture-retaining material into which they can send their roots. The extra moisture obtained in this manner helps meet the plant's water needs. The dilemma, though, is that the material needs to dry out rapidly between waterings. Otherwise, the plant may rot.

• One way of dealing with this issue, is to place such plants in "open mesh" type pots, such as those used for growing certain orchids. (The potting mixture is usually comprised of pine bark chunks of varying sizes.)

• Madge Jarvis demonstrated a method which she has used with considerable success. Take some plastic "gutter guard", fold it over so as to form a "pocket", fill the pocket with pine bark chunks, use plastic-covered wire to "sew" up the pocket's edges, and then attach a tillandsia to one of the pocket's outer surfaces. The pocket and plant is then "hung up" in a shadehouse. The potting mixture dries out rapidly between waterings because of the excellent air movement through the pocket. This technique also has the advantage of producing a very "neat looking" product.

• Some of the many forms of *T. cyanea* were shown. Rarer forms included a variegated clone and one with a multi-branched inflorescence.

• A number of the green-leafed tillandsia species appear quite sensitive to the concentration of salt in the water used on them. If a plant is showing signs of leaf "burn", or "dead edges", then it may be best to use rainwater, if you can obtain some.

• Several forms of *T. punctulata* were displayed. The plant's white-tipped, black petals contrast sharply with its green sword-shaped "paddles", and red bracts.

Society Display at RNA Exhibition
11-20 August

Tillandsia purpurea RS

Tillandsia roseiflora RS

Tillandsia juncea RS

Wet Weather Problems with Potted Tillandsias

Author: Greg Stewart

(Reprinted from *Bromeliaeae* MARCH-APRIL 1990)

Hands up all the people who have had trouble with their potted Tillandsias over the prolonged wet summer. You will find in some cases that the plant is starting to go yellow with leaves dying and a very pungent odour coming from the plant and mix.

These tillandsias, such as *T. kalambacheri, T. lucida,* and *T. ponderosa* which fall in the group of neither really green or silver-leaved tillandsias, have very limited tolerances to over wet mixes in a potted situation. It is imperative that the mix be allowed to dry out completely between waterings and with our current spate of weather this has been impossible. The humidity over the last few months has not aided the plants' cause either and has contributed to plant losses.

If you have potted tillandsias in your collection which look sick take the following steps:—

1. Remove plant from the pot.
2. Remove all dead leaves and soft decaying material from around the base of the plant.
3. Dust base of the plant with a good reputable fungicide.
4. Try and keep plant water free for at least ten days.
5. After plant is completely dried out mount to a piece of virgin cork or timber with old panty hose.

If the plant survives and starts to grow roots on the mount leave it where it is. Tillandsias mounted tend not to grow as big as their potted brothers but their life expectancy in sustained wet periods is much more assured.

Propagation of Caulescent* Tillandsias

by Peter Paroz

When I first started growing these plants, I felt sure there would be some way of using the long stem to get a crop of offsets. After experimenting for some years, I find there is no general rule. Some plants offset freely, others very sparingly; some respond to sectioning**, others do not. The following is a summary of my observations and I hope these may be of some use to the newer growers.

T. latifolia var *divaricata* (large and small forms), *duratii* var *saxatalis*... These plants do not offset freely and I have not been able to force offsetting by cutting off sections of the old stem, even sections with functioning leaves. Close inspection of the leaf axils showed that the dormant eyes looked dry and dead. Application of an auxin cream failed to produce any results.

T. albida offsets freely from the base of the flower spike and will produce additional offsets from sections of stem (150mm long).

T. edithae and *T. funckiana* offset from the base of the flower spike and occasionally from the oldest (leafless) part of the stem. These latter have a very soft attachment to the plant while small, and are easily dislodged. While I don't recommend removing these very small plants, I have saved ones only 15mm long accidentally knocked off. Allow the base to dry and treat as for small seedlings.

T. heteromorpha offsets freely

Tillandsia jalisco-monticola DU

Tillandsia ionantha fuego RS

Tillandsia stricta RS

Tillandsia fuchsii forma *gracillis* RS

along the length of the live stem. Since the stem is small and thin, I have not tried sectioning the stem.

T. palacea offsets sparingly from the older part of the stem. I have not flowered this plant nor tried to section it.

T. tenuifolia seems to offset only from the base of the spike and sectioning the old stem has done no more than dry it up.

T. incarnata offsets very freely at maturity along the part of the stem which has functioning leaves.

T. purpurea has not flowered or produced any offsets and as the plant is not large, I have not experimented with it.

T. araujei offsets sparingly from the base of the flower spike. Sectioning has not been successful.

Adequate nutrition is essential for good offset production. Plants which do not have a good reserve of nutrients cannot support a large number of offsets.

.....

* *Caulescent….Having a long stem.*

** *Sectioning…. The cutting of the stem into short segments to try to induce growth of the dormant buds. There is a bud and potentially an offset in the axil of each leaf.*

Emails to the Editor

The following is an extract from a lengthy email sent in by Don Woods of Willetton, WA. At Don's suggestion it has been split and other sections will be used in the next edition of this journal. His comments are in connection with the last issue of this journal. In his email is a substantial section on plant labelling, this will be the basis of an article in the next issue.

• "You need to be careful of identifying your plant from a photo! A good example is on page 27, on a quick glance we could assume *Pitcairnia maidifolia* is a variegated form of the species. However I believe the foliage shown is of a different plant family.

• The comments attached to the Financial Statement on page 14 asking for suggestions regarding accumulated funds. It is my personal opinion that large sums of accumulated funds usually attract persons with hidden agendas to seek office and once they are entrenched it is difficult to counter these agendas. However a good rule of thumb with any sums of money is that this money is used for NEEDS, NOT for WANTS, especially if needs are not being met!

• With reference to pages 19-29 - An excellent feature! Why not send copies to all Bromeliad organisations affiliated with BSI International, as this issue of Bromeliaceae is the perfect promotion material for Bromeliad Society of Queensland Inc."

Editors Reply: *I take your point about photographs illustrating an article and the importance that the subject is clearly defined. I hope that the photographs I have used this issue have overcome that issue. However, sometimes it is necessary to use other than ideal photographs, after all this is a journal produced from material submitted by members. People need to be encouraged to contribute, there is no joy in submitting articles and photographs that are never used. With valid feedback such as that you have provided, contributors can see where improvement needs to be made. Thanks for the email and kind comments at the end.*

Perspective on the Society from a new member

by Michael Copestake

I thought it might be worthwhile to hear what a new member thinks of the society, so here goes but first I might explain how I became hooked on Bromeliads in the first place.

I am still quite a novice when it comes to Bromeliads, but when the bromeliad bug bites it is like the jaws of life and it really takes hold. I became interested in bromeliads through a friend of mine that lives in Cairns, after visiting a couple of years ago for a fishing holiday through the top of the Cape York Peninsula and the Torres Strait Islands. I noticed that this friend had a mass clump of plants in his garden which happened to all be flowering at the same time and I thought they looked fantastic (I soon learnt that this was the popular and widely grown *Billbergia pyrimidalis*). He also had this nice big orange coloured plant with these huge leaves in full sun in one of his garden beds (this was the *Aechmea blanchetiana*). After asking what sort of plants these were and learning they were in fact bromeliads and in the same family as the pineapple, he then proceeded to show me the rest of his collection. I was spellbound, he had bromeliads growing up his palm trees, in pots, in garden beds, and he had all of these really colourful leafed Neoregelias in a garden bed under these huge palm trees which I fell in love with (and actually to this day neos remain my favourite bromeliads). He also explained to me how easy bromeliads were to grow and take care of and how fast they multiplied, and needless to say I was hooked.

After arriving back in Brisbane I bought a copy of the book "Bromeliads for the Contemporary Garden" by Andrew (which was fantastic and got me even more hooked) and then started to compile my own small collection of Bromeliads. I do not own my own house at this stage and do not have greenhouses or such, but I do have some nice garden beds which are now overflowing with bromeliads (mainly neoregelias, billbergias and aechmeas). I also have bromeliads growing up a palm tree in the back yard.

After liaising with my friend Brendan and looking up information on the net (as well as attending the society's Spring Show of Bromeliads), I soon learned that there were bromeliad societies devoted to the cultivation and growing of these wonderful plants. I naturally became very interested in seeing what the society was all about. At this stage Brendan had been a member of the Cairns Bromeliad Society for a while (and is actually now the secretary of the Cairns Bromeliad Society), and encouraged me to attend one of the Bromeliad Society of Queensland (BSQ) meetings.

I joined the BSQ in late 2004, but it was not until the February 2005 meeting that I attended my first meeting (which happened to be the societies AGM and also when Brendan was visiting Brisbane for work and enthusiastically agreed to come along). I did not really know what to expect, but walking into the main hall and seeing close to a hundred people really surprised me. I thought Wow, these people are really into bromeliads. After having a look around we spotted the Book sales table (which Brendan swooped on and spent about $60 in 5 minutes) and then we headed outside

where our eyes lit up like Xmas tree lights after spotting the bromeliads for sale. We started accumulating a collection of broms to buy and did not really think it odd that we were the only ones, it was only when we juggled our collection of broms to the sales table with grins as wide as dinner plates that we were told by the lovely lady at the table that "I am sorry, but you cannot buy any broms until half time and then it is a case of first in first served". Needless to say we were very embarrassed and after apologising and returning the broms to the sales area, we very sheepishly tried to make ourselves as small and as inconspicuous as possible at the back of the room.

The President then announced that those interested make their way to the side room for the beginner's class, which of course we were very interested in. The class was conducted by Olive Trevor on the growing of patterned leafed vrieseas. Olive was a wealth of information and kept everyone enthralled in the presentation. It was a fantastic informative class and at the end of it I could not wait to attend the next one.

Next was the annual general meeting, where the all the formal committee positions were elected / re-elected and business agenda were discussed. After all the formalities, it was break time and of course we could once again start accumulating the broms we had originally collected for buying. After purchasing our broms the meeting was about to recommence.

During the break I caught up with Fran Dawson the then Secretary who I had been in contact with when joining the Society in November 2004, and after having a chat with her and Brendan mentioning that he had recently been elected to the position of secretary of the Cairns Society Fran said she would have to mention it to the President.

The raffle was then drawn, which to my surprise I happened to win the first draw and hence had the pick of the table (needless to say I was very excited). While collecting my win, I heard the President mention to the assembly that there was a guest from the Cairns society visiting and asked Brendan to stand up and everyone to put their hands together. Brendan was a little embarrassed and as he put it, it was like 90+ sunflowers turning to face him but he said it was very genuine and felt put at ease immediately.

The general meeting then commenced and once again I was pleasantly surprised, there were slides of different bromeliads and flora from across Australia including the grass trees of Western Australia in flower. There were competitions with the commentary also by Olive and a general discussion on bromeliads. It was a most enjoyable meeting and by the end of it, I could not wait to attend the next.

I have now attended all meetings since, as well as becoming involved in the study group sessions and I could not be happier. I am learning more and more about bromeliads all the time and would encourage everyone interested in bromeliads to join the society and get involved. I am now looking forward to all of the events put on by the society and will also be registering for the bromeliad conference in October.

Even though I am still a bit nervous about it, I am also being encouraged by Olive Trevor to have a go at entering some of my bromeliads into the competitions which I will do eventually I am sure.

CALENDAR OF EVENTS: JULY – SEPTEMBER 2005

(compiled by Bob Reilly)

21 July Society general meeting. Venue: Uniting Church Hall, 52 Merthyr Rd New Farm.

- Beginners' class topic: Growing green-leafed vrieseas. Discussion led by Narelle Aizlewood. Commences 7.30pm.
- Main meeting topic: Growing miniature neoregelias. Discussion led by Arnold James. Please bring along any of these plants you may have.
- Mini-show Class 1: Billbergia, Class 2: Tillandsioideae not listed elsewhere in the schedule, Class 3: Neoregelia – up to 200mm diameter when mature, Class 4: Any other mature (flowering) bromeliad. Species and hybrids are eligible for entry in all classes.
- Plant of the month: Species and hybrids from the following genera – Nidularium, Ochagavia, Orthophytum.

11-20 August Society Display at RNA Exhibition. Set up is on 10 August. We need people to supply plants for, and help set up, the display; and to staff it throughout the show. The Society provides free entry tickets, or will refund the cost of a "single" entry ticket. Many of our members have joined the Society after seeing our exhibit at the RNA, so your support for this activity helps build the Society of the future. Phone Bob Cross (07) 3265 4364 if you wish to help set up the display or would like to supply plants for it. Evelyn Rees (phone 07 3355 0432) is compiling the staffing register, so please contact her if you would like to assist in this activity.

18 August Society general meeting. Venue: Uniting Church Hall, 52 Merthyr Rd New Farm.

- Beginners' class topic: Basics of growing bromeliads. Discussion led by Narelle Aizlewood. Commences 7.30pm.
- Main meeting topic: Question and answer session on any bromeliad issue you may have. Discussion leaders: Olive Trevor and Cheryl Basic.

- Popular vote: Species or hybrids from any genus.
- Plant of the month: Species and hybrids from the following genera: Pepinia, Pitcairnia, Portea, Pseudaechmea, Pseudananus, Puya.

27 August Bus trip to Gold Coast/Mt Tamborine Botanic Gardens.

` Leaves Uniting Church Hall, 52 Merthyr Rd New Farm at 7.30am, Palmdale Shopping Centre, Logan Rd, Mt Gravatt 7.45am. Returns to Uniting Church Hall at 5.30pm. All bus seats must be paid for in advance. Phone BSQ Field Day Co-ordinator, Nancy Kickbusch, for more details on (07) 3300 1704. Cost $15.00 ea

15 September Society general meeting. Venue: Uniting Church Hall 52 Merthyr Rd New Farm.

- Beginners' class topic: Growing aechmeas. Discussion led by Dorothy Cutcliffe. Commences 7.30pm.
- Main meeting topic: Some neoregelia hybrids. Presenter: Arnold James.
- Popular vote: Any genus: species or hybrid.
- Plant of the month: Species and hybrids from the following genera; Quesnelia, Racinaea, Ronnbergia and Steyerbromelia.

24 September Plant show and sale presented by the Gold Coast Succulent and Bromeliad Society (Inc). Timings: 10am-3pm. Venue: Southport Community Centre, Lawson St, Southport. Admission: $2. More information: phone Pat Ross (President) on (07) 5576 1186.

2006 Field Days and Bus Trip

Each year the Society aims to hold two to three field days at members' gardens and a bus trip (which can also be to members' gardens).

If you are interested in hosting a field day in 2006, or being included on the bus trip itinerary, please telephone the Field Day Co-ordinator, Nancy Kickbusch (on (07) 3300 1704), by 15 August 2005.

While priority will be given to members who have not previously hosted field days, everyone is invited to let Nancy know if you are interested. Nancy will be making recommendations to the Society's Management Committee in September 2005, and the 2006 field day and bus trip program will then be advertised in Bromeliaceae.

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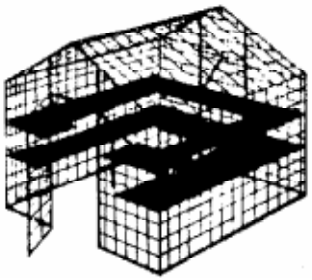

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Tillandsia punctulata RS