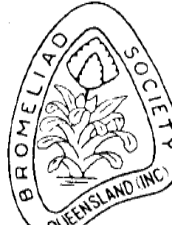


Bromeliaceae



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Authors are responsible for the accuracy of the information in their articles.

Front Cover:	<i>Aechmea fasciata</i>	Photo by Ross Stenhouse
Rear Cover :	<i>Canistropsis billbergioides</i>	Photo by Ross Stenhouse

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Society Annual General Meeting for 2007 Results

On the previous page are the results of the Society AGM for 2007. Many of the positions remain filled by the same people who held them last year, however a number of key positions have new occupants. The position of Secretary remains unfilled and this is a key position for the society. If you are interested in finding out the duties of the secretary position and maybe considering giving it a go, please contact Olive Trevor, our new President, Glen Bernoth, the Treasurer or Bob Reilly, the Immediate Past President. Their telephone numbers are on the previous page.

Books For Sale

The Society has the following books for sale:

• Starting with Bromeliads	\$18
• Pitcher Plants of the Americas	\$60
• Bromeliads: A Cultural Manual	\$5
• Judges Handbook by BSI	\$34
• Back Copies of Bromeliaceae (2005, 2006 Editions)	\$4
• Bromeliads for the Contemporary Garden by Andrew Steens	\$36
• Bromeliads: Next Generation by Shane Zaghini	\$33

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

Pitcher Plants of the Americas : Book Review

(by Bob Reilly, Brisbane, Australia)

This book of 320 pages was written by Stewart McPherson and published by The McDonald & Woodward Publishing Company in the United States of America in 2006. A copy of the book is in the Bromeliad Society of Queensland's library. It can be purchased from: McDonald & Woodward Publishing Co in Ohio, USA for US\$34.95 (soft cover) and US\$44.95 (hardcover). Their website is: www.mwpubco.com or phone 1-740-321-1141. This book can be purchased from the Society (\$60 plus postage)..

The bromeliad "connection" for this book is the description and analysis of the only recognised carnivorous bromeliads, namely, *Brocchinia reducta*, *B. hechtioides* and *Catopsis beteroniana*. For these plants, there is a description of: the plant's structure, the process by which insects are trapped, their distribution, habitats, general ecology and botanical description.

The text for these plants is profusely illustrated with over 20 high quality photographs of the plants and their habitats, as well as line drawings. The treatment of these plants is the most comprehensive I have seen in any bromeliad book.

The same comprehensive treatment extends to the other "pitcher" plants covered in the book. The other genera covered are: *Darlingtonia*, *Heliamphora*, and *Sarracenia*.

The book then has chapters on several related topics, namely, habitat loss (particularly in southern United States of America) and a brief coverage of horticultural issues (including where these plants can be ob-

tained—an Australian nursery, as well as ones in Britain and the United State of America are listed). Pitcher Plants of the Americas concludes with a Glossary, Bibliography and Index.

Overall, the author succeeds in the task he set himself, namely:

"...(the book) is a substantive summary of the content, biology, ecology, distribution and conservation status of the five genera that incorporate the American pitcher plants, and an exploration of the spectacular diversity that exists within this group..." (p.6)

If you have an interest in these plants, the book is well worth considering buying or, at least, borrowing from a library.

Why Old Mothers Must Die.

Author: Rob Smythe MSc

Editorial Comment: This article is an extract from the January 2007 issue of the E-Mail newsletter "Brom Watch"

Sad when you have grown some of these giant vrieseas for ten years then they flower and die. Generally up here we are lucky for them to survive that long. If we are lucky and very patient we can grow those difficult fluffy seed. I bought 16 Vr. Red Chestnut plants and one for my son in Brisbane. Several years on he has them coming out of his ears while I have one surviving to adulthood. That one unlike the others is strapped to a tree.

Neo Mothers - These usually mature, pup and die. I have found out that I can keep them looking decent for another year by putting water gel in them from flowering on. Not hard to understand. In the wild they grow early in life searching for good anchorage to a tree. The leaves feeding status then becomes defunct as shown by radioactive tracer studies. The plant continue growing feeding through the leaves.

You should not be surprised by this if you have grown guzmanias and large *A. blanchetianas*. Pups of the latter I have seen grow to half maturity in empty pots with no roots formed. Guzies I have seen even proportionately bigger when left in peat to root. Back to the life story of our *Neoregelia* on the tree. It has now grown to full size and is flowering. The flower dies and the meristematic tip has gone so no new leaves can form. The well starts to leak, the food runs low. The roots start to rot, it tips on its side. Now with no hope for food it shoots pups if it has not done so before and the cycle repeats itself. Adding water gel interrupts this cycle by preventing water/nutrition loss when normally the well should have run dry.

Experiments Using Unwashed Sand

by Daryl Ganter

From January 2007 'Bromelia Post' of Central Coast NSW Bromeliad Society Inc.

This paper sets out some of the ways I have used beach sand:

1. To stop crown rot.
2. To prevent rot and to promote root growth in offsets.

Stopping Crown Rot.

In May of 2006 I discovered some serious cases of crown rot. Five plants were affected: *Billbergias* 'Hallelujah', 'Dominigos Martins' and 'Fantasia' plus *Neoregelia* 'Bird Rock' and *Nidularium* 'Sao Paulo'.

It was easy to see what had caused the problem. I had been enthusiastically spraying a mixture of foliar fertilizer and Clensel all through April and I forgot to stop as the weather cooled. I was also giving them too much water for the cooler weather. It is worth noting that I had been using town water.

The affected plants had all been on

the second or third shelves so the plants that became sick had received extra water and fertilizer as it dripped from above. The *nidularium* was the worst affected plant and was beyond help as the entire centre had rotted out. Fortunately the other plants were not as bad. The three *billbergias* each had rot in the centre but only one or two emerging leaves were affected in each plant. *Neoregelia* 'Bird Rock' had three centre leaves affected and five outer leaves intact and the core of the plant seemed to be solid.

I had read a few home remedies and occasionally someone at the society meetings had mentioned how they used antifungal mixtures to cure problems similar to mine. Every remedy I had encountered had used an aqueous antifungal drench of some kind. I had often thought that it was risky to add moisture to a plant affected by a disease that originally develops in moist conditions. It seemed to me that the plant should be kept dry.

The Clean Up

It will be no news to any bromeliad grower that the muck I found inside my plants was pretty foul! Using long handled tweezers and wads of tissues I mopped and wiped out the centre of each plant until it was dry inside. Because I had this idea of keeping the plant dry I made a mixture of unwashed dry sifted beach sand and dry Captan™ fungicide powder – ratio 1/2 teaspoon (1.5g) Captan to 500g beach sand.

I deliberately used unwashed beach sand for the antibacterial properties of sea salts. As some bromeliads tolerate sea mists and salt environments I decided that the small quantity of salt in the beach sand would not affect my plants. I repotted each plant into orchid bark and poured in enough of the sand mixture to half fill the dried out vase of each plant. The sand was dry so it poured easily.

I watered the bark in the pots but no water in the vases of the plants. The vases and

their sand mixtures were kept dry throughout the experiment. The plants were put into strong light and I eagerly waited to see what would happen. I regularly checked them by gingerly tugging on a centre leaf to see if the rot had continued.

After one month every plant was still alive and every leaf was still intact – so far, so good. The plants were living but I could not expect any growth during winter. In the first week of August I received a surprise. The *billbergias* were producing offsets – *Billbergias* ‘Hallelujah’ and ‘Fantasia’ each had three, and *Billbergia* ‘Domingos Martens’ had five! *Neoregelia* ‘Bird Rock’ had been more diseased than the *billbergias* and it looked just the same but ultimately faded and died.

The sand mixture in the *billbergias* was left in place and kept dry for another month and finally rinsed out in the last week of September, making a total of three months through Winter to Spring. By November the *billbergia* offsets were growing well.

Conclusions

* My *billbergias* should only be grown on a top shelf regardless of available light.

* To save any plant from crown rot the disease has to be detected before three inner leaves are lost.

* The dry sand and Captain mix destroyed the fungal disease and kept the adult plants alive until they could reproduce.

To Prevent Rot and Promote Root Growth in Very Young Offsets.

Our society was preparing for the Flora Festival and I asked members to grow pineapple tops for our Hawaiian themed display. This experiment began when a few of us noticed the tops were slow to make roots and grow. I considered that if the base of the pineapple tops could be kept firm and moist without rotting it might make roots quicker.

I decided to treat the tops as if they

were cuttings and not offsets. After peeling all but the top four of five leaves away from the base I planted each fresh pineapple top in my usual orchid bark. I did not dry out the exposed base, as is the recommended practice. I then eased the ‘cutting’ to the side and carefully poured in unwashed, dry beach sand, repeating this procedure again on the opposite side so that I had the pineapple ‘cutting’ planted in bark but with a layer of sand completely surrounding its base. The pot was watered thoroughly but gently so the sand would not be lost but the salts in the sand would be diminished.

My theory was that the sand would help hold the cutting firm while retaining a little moisture. The salts remaining in the sand would provide some protection against fungal attack. It worked! The pineapple tops treated in this fashion developed roots up to three centimetres long in approximately 10 days while other pineapple tops dried out and planted in just bark took more than a month to show just small roots.

After that experience I began to plant all my offsets, freshly cut from the parent plant, into orchid mix with a beach sand layer as described above. I find the offsets make roots faster and no rotting occurs.

First Society Field Day for the Year

March 10th

At home of Paul and Jane Bundell. Their address is the corner of Lyons Road and Fisher Road in Kurwongbah. - GREGORY's map 140 C9. Ph. 3285 3625.

Correction

In the November/December 2006 edition of *Bromeliaceae* on page 10, a photo was incorrectly captioned. The lady in the centre is the State Librarian, Lea Giles-Peters not Leanne Day, Senior Librarian as stated.

The Editors Desk

by Ross Stenhouse

Yet another term as editor for the association draws to a close as I pen these words. I think this is the thirteenth edition I have edited. I hope you have been pleased with my efforts, I get quite a few pleasant emails and that is a pleasant 'perk' of the job.

On the front and rear cover of this issue, I decided to put images of two of my favourite bromeliads growing in my garden. I have a number of *Ae. fasciata's* growing and there seems to be a number of cultivars, each with a different inflorescence. The ancestors of these plants have been growing in my garden for about 30 years. I suspect that the original owner of my house was a keen bromeliad grower.

I wonder if the different cultivars are from a common ancestor and have differentiated themselves over the years because of different growing conditions. I have often speculated over this ponderous question and still it remains a mystery - would be a pity if I ever solved the riddle. The quest for an answer I am sure is more interesting than the actual answer.

As is very obvious from the number of images of miniature neoregelias, Bob Reilly and I thought that a feature on these would be well received by the readership. A thought just crossed my mind, I wonder if this is one

of the most comprehensive articles/collection of images on miniature neoregelias ever published. I suspect it would have to be close to that if it isn't.

On the subject of readership, we print about 500 copies of each edition now and about another 1000 copies of each edition are down loaded from the web. It's interesting with the web to see in which countries the people who visit the site, live. Over 3000 visits were made to the BSQ site during the month of January, 2007. The main web readership seems to be in the USA, Australia, Japan and NZ followed by a spread of other countries. It varies month to month so its difficult to come up with really accurate figures.

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Crossing Bromeliads

by Rob Smythe MSc

My son Aaron asked for some pointers when breeding with broms. Thought these comments might interest you.

- Breeding for stripes - always use the stripe as the female 'pod' plant. If you are talking of white stripes there appears to be no other way. With red stripes it does not seem to be so important.

- Cross larger onto a smaller flowered plant (pollen tube length).

- Breed to a theme eg if a plant has lovely colours but lousy shape cross it with one with good shape.

- When I was an orchid nut, the world's best breeder of phalaenopsis gave me this advice. If you want to grow green coloured flowers cross green with green. Sounds axiomatic but is wiser than you think. As a chemist I understand that with plants crossing yellow with blue won't give you green.

- The female plant (pod bearing plant) should receive pollen from only the one clone as pollen parent. There are ways like using colour codes with coloured straws to identify multiple crosses on one plant. Difficult enough to keep tags in place without multiple records.

- Removal of stamens before flower opens is a pain. I prefer to just cross very different looking plants so that the plants occurring from the out cross are obviously different to the selfing. Unfortunately you will often get these selfings as well. Plants usually lose their self sterility once pollinated by a foreign pollen. Selfings of similar plants would be difficult to distinguish from the out cross if both parents look alike.

- If you actually want to self a plant

which usually won't take there are ways to do it. Chemicals and surgery have been used but there is a simpler way. Collect pollen from a foreign but related plant. Kill it by microwaving and put it on the stigma with the plants own pollen.

- Study the parentage of parent plants used. Keep in the back of your mind the idea that the pollen parent could be incorrect even with a registered cross. There are a lot of ant pollinated parents not registered by the ant.

- Finally - preventing out crossing by ants etc. A stocking over Vrieseas and Aechmeas works fine but not so good for Neos but it is possible by tucking stocking down into the water.

A Tip on Labeling

Carmel Cullen came up with a good idea the other day. She told me that she was sick of losing the names of her plants when the label gets smudged or faded, so she writes the label on one side with a pencil and engraves the name on the other side with a cheap engraver she purchased

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Bromeliad Bonanza

21-22 April 2007

Show and sale of
plants to be held at
Mt. Coot-tha Botanic
Gardens.

Over 500 varieties and hybrids
of bromeliads will be on sale.

The book published by the
Society "Starting with Bromeliads"
will be on sale. This 100 page
guide to growing bromeliads in
the sub-tropics has over 200
photographs and 200 plant
descriptions.

Other bromeliad books will be
on sale.

Opening times:
Saturday 8 am to 4 pm,
Sunday 9 am to 3 pm.

Admission:
Adults \$3,
children under 14 free

The BSQ Seed Bank

The seed bank is gaining momentum
and now we are starting to see a nice
quantity of seed being donated.

Thanks to those who have supported
it up to now and thanks to those who
may read this article and decide to
contribute.

If you have some spare seed, please
give it to our seed bank.

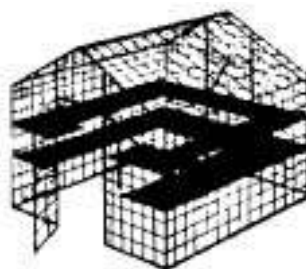
Of course the reason for the seed bank
is that you can put seed in and get
seed out, so contact Doug to find out
how to obtain seed.

Doug Parkinson is the steward of the
seed bank and may be contacted at
51-53 Analie St. Ningi 4511 or ph. (07)
5497 5220 or email Doug at
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More Miniature Neoregelias: Part 1

(by Bob Reilly)

Neoregelias are probably the most popular bromeliads amongst Queensland collectors. In this article, over 100 miniature neoregelias are described, although there are more than 300 from which to choose in Australia (This article is an expanded version of an article titled: Some Miniature Neoregelias, which appeared in the March-April 2005 edition of Bromeliaceae).

The plants are mainly grown for their foliage, as the inflorescence usually consists of a cluster of blue or white petalled flowers, in the middle of the plant's "tank", which is formed by the plant's central leaves. The tank stores water, which helps the plant meet its moisture requirements.

Miniature neoregelias typically have an erect rosette formed by 10 or so leaves, all of which have very small spines on their margins. Many of the ones grown today have attractively – marked and coloured, foliage throughout their life.

These neoregelias grow well in small pots. The containers should have a diameter of around 10 cm. Potting mixtures used successfully include:

- Well composted pine bark to which a continuous release, over a period of nine months or more, fertiliser such as Nutricote or Osmocote is added when the plants/pups are potted; and
- A mixture of 2 parts Peatmoss or Cocopeat combined with 1 part coarse sand. Add slow release (over a period of nine months or more) Nutricote or Osmocote to this mixture.

Many miniature neoregelias also grow well as clumps in 200 mm, or greater, earthenware bowls or squat, plastic pots. The photographs on p ZZ show clumps of N. 'Rosy Fireball' and 'Cheers' grown in earthenware bowls. They will also grow well in hanging baskets. The photo (from Joe's place) on p.10 shows a small clump of N. 'Buccaneer' grown in a "half" basket that is attached to a wall.

Miniature neoregelias will often grow well on logs and trees. The photograph (this is Doug Upton's photo) on p.XX shows a clump of N. pauciflora "cascading down" from a stump. (They can be glued on, or tied into position using cable ties or old stockings). The photos on p.10 (from Joe Green's place) show a range of neoregelias, predominantly miniature ones, growing on a tree.

If you are securing bromeliads to a tree, take care when climbing up a ladder to do this job. The branches may be slippery if they are wet, potentially causing the top of the ladder to slide. Also, the ground underneath the ladder may not be firm, resulting in the ladder sliding when you climb up it. Finally, some branches, even though looking quite solid, may be rotten and unable to support the ladder's top once you climb up it.

An interesting innovation is the use of suspended sections of tree fern logs to which miniature neoregelias are attached -see photo on p. H (Joe's place). Air circulation around each tree fern log is improved by attaching it to a "heavy duty" swivel that enables the log to rotate in the breeze.

Miniature neoregelias also grow well in shaded rockeries. Ones worth trying include: N. 'Fireball', ampullacea, pauciflora, and their hybrids.

Many people suspend the pots in the air by using plastic hangers. This saves scarce shadehouse space and also enables you to see the sunlight shining through the plant's



Neo. ampullacea

Neo. ampullaceae 'Purpurea'

Neo. 'Inkspots'

Neo. 'Sweetheart'

leaves. This outcome often accentuates the leaves' attractive markings.

Care should be taken in applying liquid fertiliser, as excessive fertilisation can result in the plants losing their symmetrical shape and, to some extent, their colouration. If applying liquid fertilisers, a brand such as Phostrogen (N:P:K ratio is 14 : 4.4 : 22.5), which has relatively low amounts of nitrogen in it, may give the best results.

In southern coastal Queensland, these plants grow well under 50% "density" shade cloth in Autumn, Winter, and early Spring and 75% shade cloth for the remainder of the year. Alternatively, they will grow quite well in lightly shaded positions in the garden, but it is important to avoid locations which receive the full afternoon sun (especially in summer).

The only pest which may cause some problems is scale. This can be treated by using an insecticide such as Folimat. Avoid spraying the plants when the temperature exceeds 30 degrees Celsius, otherwise leaf "burning" may occur (although such incidents are rare).

These plants readily produce pups which will produce flowering plants in 12 to 24 months time. While pups can be removed from their "parent" when they are about one half of its height, a more visually appealing effect can often be obtained by allowing the plants to form a clump.

Pups can be potted straight into any of the potting mixtures described previously. Ensure the mixture holds the pup firmly in position, as this helps promote rapid growth.

The plants should be watered at least twice a week from October to March, and once a week for the balance of the year.

The plants described in the balance of this article have mainly been grown in "strong" or "good" (as strong light is sometimes described) light and with little fertiliser.

Plants grown in more shade, and heavily fertilised, will be larger and have less intense leaf colouration.

While many of these plants are readily available, at least in southern Queensland, some are quite rare and will not be generally available for three to five years.

Some of the names given below are botanically invalid, and some of the hybrids have not been registered. While acknowledging the drawbacks of this approach, I considered it was better to include the plants with the names they are likely to be sold under, than not to mention them at all.

This group is very popular but also seems to be an area where name giving without registering is also popular and if we are to decrease problems in the future we should act now by registering as many of the unregistered ones as we can. Remember too that formula names (with an X between) do not identify the plant itself only its parents and needs a name of its own. To help in this I have used the name currently used on labels with suggestions as to their correct identity.

'Alley Cat' Around 10, 2 cm wide, leaves form an erect rosette approximately 10 cm high and 15 cm wide. The yellow-green leaves have brown-red barring of varying widths.

ampullacea About 6, 2 cm wide, leaves form an erect rosette around 10 cm high and 15 cm wide. The green leaves have red-purple spotting, which is particularly pronounced towards the plant's centre. This species has been widely used in hybridising.

***ampullacea* 'Punctate'** Around 10, 1 cm wide, leaves form an erect rosette about 10 cm high and wide. The yellow-green leaves have brown-red barring and spotting. Many people have this plant labelled as *N. punctatissima*.

***ampullacea* 'Punctate rubra'** Similar to *ampullacea* 'Punctate', with the exception



Neo. 'Annik'

Neo. 'Aurora'

Neo. 'Black Beauty'

Neo. 'Black Bands' (unreg)

that the leaves are light brown-red, rather than yellow-green.

***ampullacea* 'Purple'** About 6, 2cm wide, leaves form an erect rosette around 15 cm high and 10 cm wide. The red-purple leaves have green spotting and "splotching", especially towards their tips.

***ampullacea* 'variegata'** About 10, 3 cm wide, leaves form an erect, open rosette approximately 20 cm tall and across. The light green leaves have faint, cream edging and stripes, as well as faint, irregular red bands. The leaves have red tips.

***ampullacea* x 'Fireball'** About 10, 2 cm wide, leaves form a flat, open rosette approximately 20 cm across. The red leaves have small green spots and markings.

ampullacea* x *pauciflora About 10, 1.5 cm wide, leaves form an open, erect rosette approximately 10 cm tall and 15 cm wide. The leaves "flare out" at their tips. The green leaves are heavily marked with purple spots and splotches.

angustifolia* x *pauciflora About 15, 2 cm wide, leaves form an erect rosette approximately 20 cm tall and wide. In good light, the leaves are a light purple, with distinct, dark purple spots. At flowering, the plant's centre turns purple. Pups are formed at the end of 10 cm long stolons.

'Annik' (see photo pg. 14) About 10, 2 cm wide, leaves form a flat rosette approximately 20 cm across. The green leaves have cream margins. The plant flushes pink in good light.

'Aurora' (see photo pg. 14) Around 10, 2cm wide, leaves form an erect rosette about 15 cm high and 20cm wide. In strong light, the leaves are black, with green spots and markings. In more shade, the black colouration turns to green. This is a particularly striking plant.

'Avalanche' Around 10, 2 cm wide, leaves form an erect rosette about 10 cm high

and 20 cm wide. The yellow-green leaves have brown-red spotting.

'Aztec' x 'Red Dot' (see photo pg. 30) About 20, 4 cm wide, leaves form a compact, semi-erect rosette approximately 25 cm across, the yellow-green leaves have red tips, as well as red spots and markings. At flowering, the centre turns a pale yellow-green.

bahiana About 10, 3 cm wide, leaves form an erect, open rosette approximately 20 cm tall and wide. The red-purple leaves are covered with silver scurfing, and have pink-purple tips.

'Betty Head' About 20, 3 cm wide, leaves form a semi-erect rosette approximately 20 cm across. The green leaves have extensive red spots and markings. At flowering, the plant's inner centre turns red.

'Bits n' Pieces' (unreg) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm wide and tall. The yellow-green leaves have red tips and markings.

'Black Bands' (unreg) (see photo pg. 14) About 10, 1.5 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. The yellow-green leaves have pronounced brown-purple bands, particularly on their lower surfaces.

'Black Beauty' (see photo pg. 14) About 10, 2cm wide leaves form an erect rosette about 15 cm high and wide. The leaves' green colouration is almost obscured by black-purple spots, barring and markings.

'Blood Red' (see photo pg. 47) About 10, 2 cm wide, leaves form a semi-erect rosette approximately 20 cm across. The blood-red leaves have small dark red spots and markings. The pups form at the end of 15 cm long stolons.

'Bright Spot' About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and 10 cm wide. The light green leaves have red spots and markings, especially towards their base.



Neo. 'the old' pabstii

Neo. 'Buccaneer'

Neo. 'Pepper'

Neo. 'Empress x ?'

'Bromanza' (unreg) (see photo pg. 27) A few, 1.5 cm wide, pointed leaves form an open, erect rosette approximately 20 cm across and 15 cm tall. The upper halves of the leaves "flare out" from the central portion. The bronze leaves have red spots and markings, especially on their lower surfaces. The leaves have red tips.

'Buccaneer' (unreg) (see photo pg. 16) About 10, 3 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. The green leaves have brown-red spots and tips. In good light, the leaves flush brown-red.

'Caviar' (see photo pg. 24) About 10, 3 cm wide, leaves form an erect rosette approximately 20 cm across. The green leaves have purple spots and red/purple tips.

'Cheers' (see photo pg. 45) Around 10, 2 cm wide, leaves form an erect rosette about 15 cm high and wide. The yellow-green leaves have brown-red spotting, with their tips being brown-red as well.

'Cherry Surprise' About 20, 3 cm wide, leaves form a flat rosette approximately 20 cm across. In good light, the leaves flush pink-red. There are cream stripes of varying widths in the centre of the leaves. This plant looks like a small form of *N. carolinae* var. *tricolor*.

'Chili Verde' (see photo pg. 45) About 10, 2 cm wide, leaves form a semi-erect rosette approximately 20 cm across. The green leaves have central, cream stripes of varying widths, and small red spots. At flowering, the plant's centre turns bright red. The variegation in this hybrid is very variable between plants.

'Chiquita Linda' About 10, 1 cm wide, leaves form an erect rosette approximately 10 cm high and wide. The leaves are yellow/brown-red in colour, with scattered brown-red spotting.

chlorosticta x **'Marble Throat'** About 15, 4 cm wide, leaves form an erect rosette ap-

proximately 20 cm across and tall. The leaves are a mixture of cream, pink and green.

'Coral Fire' (see photo pg. 45) About 10, 2 cm wide, leaves form an erect rosette about 15 cm high and 20 cm wide. The yellow-green leaves have brown-red spotting.

cyanea About 10, 2 cm wide, leaves form an erect, open rosette approximately 20 cm across and 15 cm tall. The yellow-green leaves have red tips, as well as small, red spots towards their base.

'Daddy Long Legs' (see photo pg. 47) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and 10 cm wide. The bronze-green leaves are covered with small, brown-purple spots.

'Debbie' (see photo pg. 32) About 20, 3 cm wide, leaves form a compact, semi-erect rosette approximately 20 cm across and 15 cm tall. The light green leaves have cream stripes in their centres. In good light, the plant flushes pink.

diamantensis (see photo pg. 16) A few, 1 cm wide, leaves form an erect rosette approximately 8 cm tall. In good light, the light green, succulent-like, leaves turn a faint

Annual Subscriptions

Membership fees (\$15 - Single, \$20 - Family, \$30 Overseas) are due and payable on 1st January 2007. Prompt payment will greatly assist the treasurer and Membership Secretary. Members who have not paid their annual subscription will not receive further copies of *Bromeliaceae* after the January-February edition



Neo. 'Heart's Blood'

Neo. 'Guinea'

Neo. 'Hocus Pocus'

Neo. 'Jack Smack' (unreg)

purple. Silver scurfing occurs on the leaves upper and lower surfaces. This is an unusual and distinctive plant.

diversifolia About 10, 2 cm wide, leaves form an erect, open rosette approximately 20 cm tall and wide. The bronze-green leaves have red tips, and faint, red “shading”.

‘Dune’ (unreg) About 15, 2 cm wide, leaves form an erect rosette approximately 15 cm across and tall. In good light, the leaves turn an intense red. At flowering, the plant’s centre turns a lighter, but still intense, red.

eltoniana x pineliana About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. In good light, the green leaves turn pink-red. At flowering, the plant’s centre turns a bright pink-red.

‘Empress’ (F2) (see photo pg. 16) About 20, 2 cm wide, leaves form a semi-erect rosette approximately 20 cm wide and 15 cm tall. The red leaves have yellow-green patches and markings.

‘Fireball’ Around 10, 2 cm wide, leaves form an erect rosette about 10 cm high and 15 cm wide. In strong light, the leaves are bright red, while in heavy shade they are green. There are variegated forms of this plant.

This is a very hardy plant, which rapidly forms a clump. This plant was found in the wild in Brazil. It is highly likely that it is a species, but has never been formally described as such. It has had this temporary cultivar name (‘Fireball’) since 1960.

‘Fireball’ x ‘Persimmio’ About 10, 3 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across and tall. In good light, the green leaves turn purple. Faint, dark purple, spots and irregular banding are also evident.

‘Fireside Glow’ About 10, 3 cm wide, leaves form an erect rosette, approximately 15 cm across. The light purple leaves have

dark purple tips.

‘Flaming Lovely’ About 15, 2 cm wide, leaves form a semi-erect rosette approximately 20 cm across. In good light, the leaves are a light, “intense” red, with small, dark red spots.

‘Flare Up’ About 10, 2 cm wide, leaves form an erect rosette approximately 10 cm tall and wide. The upper halves of the leaves “flare out” from the plant’s centre. The green leaves have irregular brown-purple banding, especially on their lower surfaces.

‘Flicker’ About 10, 3 cm wide, leaves form an erect, open rosette approximately 20 cm across and tall. The yellow-green leaves have numerous brown-red spots, particularly on their lower surfaces. At flowering, the plant’s inner centre turns pink-red.

‘Flirtation’ Numerous, 3 cm wide, leaves form an erect rosette approximately 20 cm across and tall. The green leaves become suffused with a light, pink-red in good light.

‘Garden Goddess’ (unreg) About 10, 3 cm wide, leaves form an open, semi-erect rosette approximately 15 cm wide and 10 cm tall. The yellow-green leaves have faint red spots and markings, particularly towards the plant’s centre. At flowering, the plant’s centre turns pink-red.

‘Gold Nugget’ About 10, 2 cm wide, leaves form an erect rosette about 15 cm high and wide. The yellow-green leaves have faint, brown-red barring.

‘Golden Grace’ (see photo pg. 30) About 10, 2 cm wide, leaves form an open, erect rosette approximately 20 cm across. The yellow-green leaves have faint red spots and tips.

‘Granada’ x pauciflora) x smithii About 10, 2 cm wide, leaves form a flat, open rosette approximately 20 cm across. The green leaves have plentiful brown-purple spots and markings. At flowering, the col-



Neo. 'Hendrix's hybrid' (unreg)

Neo. pauciflora x anpullaceae

Neo. pauciflora

Neo. 'Red Waif'

ouration of the spots near the plant's centre, intensifies.

'Grande' x pauciflora About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall. In good light, the leaves are a pale violet-purple. This plant looks particularly striking when placed in a location where you can see the sun shining through its leaves.

'Gillian' About 10, 3 cm wide, leaves form an erect rosette approximately 20 cm across and tall. The yellow-bronze leaves have dark, brown-red spots and markings in good light.

'Guinea' (see photo pg. 18) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and 10 cm wide. The red-tipped, green leaves have brown-red spots, barring and striations, especially towards their base.

'Heart's Blood' (see photo pg. 18) About 15, 2 cm wide, leaves form an erect rosette around 15 cm tall and wide. The light green leaves have red spots and tips. At flowering, the plant's centre flushes red.

'Hendrix's hybrid' (unreg) (see photo pg. 20) About 15, 2 cm wide, leaves form an erect rosette approximately 15 cm across and tall. The yellow-green leaves have brown-red spots and markings, especially towards their tips. At flowering, the plant's centre turns a fiery red.

'High Flyer' (unreg) (see photo pg. 26) About 20, 2 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across. In good light, the leaves turn pink-red and have faint, cream stripes in their centre. At flowering, the plant's centre turns a deep pink-red.

'Hocus Pocus' (see photo pg. 18) About 20, 2 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across and 15 cm tall. In good light, the brown-green leaves flush pink-red. The

leaves have red tips and small, red spots.

'Hojo Rojo' About 10, 3 cm wide, leaves form an erect rosette approximately 20 cm across and 15 cm tall. The red leaves have small, dark red spots and markings. At flowering, the red colouration intensifies.

'Honour Bright' (see photo pg. 27) About 20, 4 cm wide, leaves form a compact, erect rosette approximately 20 cm across. The bronze-green leaves have faint, red tips and are slightly flushed with red towards their tips.

'Hybrid Ass' (unreg) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. The red-orange leaves have narrow, darker red-orange bands on their lower surfaces. In good light, the leaves' upper surfaces turn a more intense red-orange.

'Inkspots' (see photo pg. 30) About 10, 2 cm wide, leaves form an erect rosette approximately 20 cm tall. The green leaves

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are heavily covered with black spots.

'Jack Smack' (unreg) (see photo pg. 18) A few, 2 cm wide, leaves form an erect rosette approximately 15 cm tall. The green leaves are covered with brown-purple spots and markings.

'Kelcey Lee' (see photo pg. 27) About 10, 4 cm wide, leaves form an erect rosette approximately 15 cm high and 20 cm wide. The brown-red leaves have red tips, and deeper, brown-red spots.

'Lil Ocker' (unreg) About 10, 2 cm wide, leaves form a semi-erect rosette approximately 15 cm tall and 20 cm across. The pink-red leaves have faint red spots and red tips. At flowering, the pink-red leaf colouration intensifies, while the centre turns a bright pink-red.

lilliputiana (see photo pg. 39) Around 10, 1 cm wide, leaves form an erect rosette about 7 cm high and wide. The yellow-green leaves have brown-red spotting and faint barring. Quite a few of the newer miniature neoregelia hybrids have this species as one of their parents.

***lilliputiana* x 'Fireball'** About 10, 2 cm wide, leaves form an erect rosette approximately 8 cm tall and wide. The yellow/bronze-green leaves have red spots. The leaves' upper surfaces also have red bases, resulting in the plant's centre having a red appearance.

***lilliputiana* hybrid** About 10, 2 cm wide, leaves form an erect, open rosette approximately 20 cm across and tall. The "apple green" leaves have faint, brown-red shading, and pronounced brown-red spots and tips.

'Little Africa' (see photo pg. 27) About 15, 3 cm wide, leaves form a flat rosette approximately 20 cm across. The purple leaves have dark purple spots. At flowering, the plant turns a more intense dark purple.

'Little Devil' About 10, 2 cm wide, leaves form an erect rosette approximately

10 cm tall and 15 cm wide. The green leaves have brown-purple spots. At flowering, the plant's centre turns brown-purple.

'Little Faith' About 20, 3 cm wide, leaves form an erect rosette approximately 15 cm across. The green leaves, which have brown-purple spots and markings, also have red-purple tips.

'Little Jewel' A few, 2 cm wide, leaves form an erect rosette approximately 20 cm tall and wide. The green leaves have red spots, particularly towards their base. At flowering, the plant's inner centre turns red.

'Lullaby' About 10, 4 cm wide, leaves form a semi-erect rosette approximately 15 cm tall and 20 cm across. The green leaves have irregular, red banding and markings.

'Marble Throat' (see photo pg. 39) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm high and 10 cm wide. The light green leaves have faint, red tips; white markings in their central portions, and are brown-red at their base.

'Mini Misso' (see photo pg. 31) About 20, 3 cm wide, leaves form a tubular rosette, approximately 20 cm tall and 15 cm wide. The light red leaves have numerous green spots and markings, as well as red tips.

'Marnier-lapostolli' About 10, 2 cm wide, leaves form an erect rosette approximately 20 cm tall and 15 cm wide. The yellow/bronze-green leaves have irregular, red edges and markings, as well as red tips.

'Mo Peppa Please' A few, 1.5 cm wide, leaves form an erect rosette approximately 15 cm tall. The dark green leaves are heavily covered with small, brown-purple spots.

'Night Spot' (see photo pg. 37) Around 10, 1 cm wide, leaves form an erect rosette about 10 cm high and wide. The green leaves have brown-red spots.

'Nonis' (see photo pg. 31) About 15, 2 cm wide, leaves form a flat rosette approxi-

mately 25 cm across. The green leaves have white stripes and lines of varying widths. The plant flushes red in good light.

‘OBE’ About 15, 3 cm wide, leaves form a semi-erect rosette approximately 20 cm across and 15 cm tall. The yellow-green leaves have red tips when young, and irregular, red striations and markings. The leaves have a faint “spiral pattern” in their orientation.

‘Ocker’ (unreg) About 10, 2 cm wide, leaves form an open, erect rosette approximately 20 cm across and 15 cm tall. The light red leaves have small, dark red spots. At flowering, the plant’s centre turns red.

olens hybrid About 15, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and across. The yellow-green leaves have small red spots (especially on their lower surfaces) and tips. They also have, in some cases, narrow, red edges.

olens x ‘Marble Throat’ About 10, 3 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across and 15 cm tall. The pink leaves have very pale green spots and markings, as well as red tips.

olens ‘Marie’ About 10, 2 cm wide, leaves form an erect, open rosette approximately 20 cm across and tall. The yellow-green leaves have distinct, small, red spines, and are heavily covered with red spots and markings, especially towards their tips. At flowering, the plant’s inner centre turns a fiery red.

olens x ‘Vulcan’ About 15, 3 cm wide leaves form an erect rosette approximately 20 cm across and 15 cm tall. The yellow-green leaves are nearly covered in brown-red spots and markings. The leaves have red tips. At flowering, the plant’s centre turns a fiery red.

pauciflora (see photo pg. 20) About 10, 2 cm wide, leaves form an erect rosette about 15 cm high and 20 cm wide. The pale

green leaves have a “light” silvery “scurf” on their upper and lower surfaces, as well as brown-red spotting. This plant has been extensively used in hybridising.

This is a distinctive plant, which is often grown to good effect on a log or stump. Over time, the plants cascade down over the log/stump, creating an impressive display. As there may be over 50 plants in such a clump, it can take more than five years to achieve the desired effect.

There is a “large” form of this species. It is about twice the height of the plant described above.

pauciflora x ampullacea (see photo pg. 20) About 10, 2 cm wide, leaves form an erect rosette approximately 15 cm tall. The green leaves are profusely covered with purple spots and markings.

pauciflora x smithii About 10, 3 cm wide, leaves form an erect, open rosette approximately 20 cm tall and wide. The yellow-green leaves are heavily marked with purple spots and markings, and have purple tips.

‘Pepper’ (see photo pg. 16) About 10, 2cm wide, leaves form an erect rosette approximately 10 cm tall and 15 cm wide. The red-tipped, green leaves have numerous brown-red spots, particularly towards the plant’s centre.

‘Pheasant’ Around 10, 2 cm wide, leaves form an erect rosette, about 15 cm high and wide. In strong light, the older leaves turn brown-red, while the younger leaves are brown-red with yellow-green barring and splotching.

‘Picolo’ About 20, 3 cm wide, leaves form a semi-erect rosette approximately 25 cm across. The green leaves have central, white stripes of varying widths. In good light, the plant flushes pink-red.

‘Pink Stars’ (unreg) About 10, 3 cm wide, leaves form an open, erect rosette approximately 20 cm across and tall. The yel-



Bromeliaceae

low/green leaves have pink/red “marbling” and white spotting, particularly towards the plant’s centre.

‘Purple Princess’ A few, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and 10 cm wide. The light purple leaves have small, dark purple spots. The pups form on the end of 5 cm long stolons, and will, over time, cascade down over the pot’s sides.

‘Red on Green’ Numerous, 3 cm wide, leaves form an erect rosette approximately 20 cm across and tall. The yellow-green leaves have numerous red spots and markings, as well as red tips. At flowering, the plant’s inner centre turns pink-red.

‘Red Hen’ (unreg) About 15, 3 cm wide, leaves form an open, erect rosette approximately 20 cm across and 15 cm tall. The brown-red leaves have green spots and markings.

‘Red Nugget’ (unreg) Around 10, 2 cm wide, leaves an erect rosette about 15 cm high and wide. The leaves are yellow/brown-red, with irregular brown-red barring.

‘Red Throat’ (unreg) About 10, 3 cm wide, leaves form an erect rosette about 20 cm across and tall. The pink-red leaves have small, dark red spots and red tips.

‘Red Waif’ (see photo pg. 20) About 10, 2 cm wide, leaves form an initially erect rosette, which “flattens out” in its upper half. The rosette is about 8 cm high and 15 cm wide. Prolific brown-red spotting and markings nearly obscure the “background” yellow-green leaf colouration.

‘Ritzy’ About 15, 2 cm wide, leaves form an erect rosette about 10 cm high and 15 cm wide. The yellow-green leaves have brown-red spotting and barring, particularly in the plant’s centre.

‘Rosa Mueller’ (see photo pg. 28) Numerous, 3 cm wide, leaves form a compact, semi-erect rosette approximately 20 cm across. In good light, the leaves are pink-red.

‘Rosy Fireball’ (See photo Pg. 26) About 10, 2 cm wide, leaves form a semi-erect rosette approximately 20 cm across. The leaves have cream edges, and in good light, the leaves turn pink. This plant looks very nice when grown as a clump in a 200 mm plus flat bowl.

sarmentosa (see photo pg. 28) About 10, 2 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across. The pale, yellow-orange leaves have red tips and spots. In good light, the plant flushes a light pink.

‘Satsuma’ About 15, 2 cm wide, leaves form an open, semi-erect rosette approximately 20 cm across and tall. The light purple leaves have small, scattered, dark purple spots.

‘Screaming Tiger’ About 20, 4 cm wide, leaves form a flat rosette about 25 cm across. The green leaves have brown-red markings and tips. At flowering, the plant’s inner centre flushes red-purple.

smithii About 10, 2 cm wide, leaves form an erect rosette approximately 20 cm across, The yellow-green leaves have numerous purple spots and markings. At flowering, the purple spotting in the plant’s centre becomes more pronounced, as the remainder of the leaves become almost white.

species (ex Brasil, grown by Olive Trevor from seed supplied by Marjorie McNamara) About 10, 2 cm wide, leaves form an erect rosette approximately 5 cm across and 15 cm tall. The yellow-green (some forms are red) leaves, have silver scurfing on both surfaces, and pink-red tips.

‘Strawberry Cream’ About 10, 3 cm wide, leaves form a flat rosette approximately 15 cm tall and wide. The green leaves have white margins and flush pink in good light. At flowering, the plant’s centre flushes red.

‘Strawberry Cup’ (see photo pg. 24) About 15, 3 cm wide, leaves form an erect



Neo. 'Rosy Fireball'



Neo. 'High Flyer' (unreg)



Neo. 'Bromanza'



Neo. 'Little Africa'



Neo. 'Cheers' potted in an orchid pot to ensure good drainage





Neo. 'Aztec' x 'Red Dot'



Neo. 'Golden Grace'



Neo. 'Inkspots'



Neo. 'Nonis'



Neo. 'Wee Willy'



Neo. 'Mini Misso'





Neo. 'Debbie'



Neo. 'Warlock'



Neo. 'Wild Tiger'

rosette approximately 15 cm tall and wide. The red-tipped, bronze-green leaves have red spots and barring. The barring is more pronounced on the leaves' lower surfaces. The bottom portion of the leaves' upper surfaces is red, giving rise to the plant's name.

'Sugar n Spice' Around 10, 2 cm wide, leaves form an erect rosette about 10 cm high and 15 cm wide. The yellow-green leaves have red spotting and markings, as well as red tips.

'Sweet Nellie' (see photo pg. 37) About 15, 2 cm wide, leaves form an erect rosette approximately 15 cm high and 20 cm wide. The yellow-green leaves have red tips and red spots/markings.

'Sweetheart' About 15, 2 cm wide, leaves form a semi-erect rosette approximately 15 cm across. In good light, the leaves are a "glowing" red. The plant looks like a larger, but more compact, form of N. 'Fireball'.

'Tar Baby' About 10, 3 cm wide, leaves form an erect rosette approximately 20 cm tall and 15 cm wide. The purple leaves have scattered, small, dark purple spots.

'Tiger Cub' (see photo pg. 24) About 10, 2 cm wide, leaves form an erect rosette about 10 cm high and wide. The yellow-green leaves have brown-red banding on their lower, and to a lesser extent their upper, surfaces. They also have brown-red spotting.

'Townsville Red' (unreg) About 15, 2 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. In good light, the leaves are red-orange with red spots and tips.

tristis **'Oppenheimer'** About 10, 3 cm wide, leaves form an erect rosette approximately 15 cm tall and wide. The yellow-green leaves are covered with light purple spots and markings. At flowering, the green portions in the plant's centre turn to cream.

'Truly' (see photo pg. 24) About 15, 3 cm wide, leaves form a semi-erect rosette

approximately 20 cm across. The green leaves have small, brown-red spots, as well as brown-red tips. The plant's inner centre turns red at flowering.

'Turmoil' Around 15, 2 cm wide, leaves form an erect rosette about 10 cm high and wide. The light green leaves have red tips, and irregular red banding, particularly on the younger leaves.

'Warlock' (see photo pg. 32) About 15, 3 cm wide, leaves form a compact, erect rosette approximately 10 cm across and 15 cm tall. In good light, the leaves turn red, with light green spots and markings.

'Wee Willy' (see photo pg. 31) About 15, 2 cm wide, leaves form an erect rosette about 10 cm high and wide. The green leaves have irregular, brown-red bands and splotching.

'White Miami' (unreg) About 10, 3 cm wide, leaves form an erect rosette approximately 25 cm tall and 10 cm wide. The green leaves are heavily covered with brown-purple spots. In good light, the leaves flush brown-purple.

'Whose Baby' x punctatissima About 20, 2 cm wide, leaves form an erect rosette approximately 15 cm across and tall. The yellow-green leaves have irregular, red-brown, thin banding, as well as red-brown tips. At flowering, the plant's inner centre turns brown-red.

'Wild Tiger' (see photo pg. 32) Around 10, 2 cm wide, leaves form an erect rosette about 10 cm high and wide. The brown-red leaves have irregular green banding and splotches.

'Zoe' About 10, 2 cm wide, leaves form a flat rosette around 10 cm tall and 20 cm across. In good light, the leaves are bright red, with thin, white stripes in their centres. This is a variegated, but less hardy, form of N. 'Fireball'.

zonata About 10, 3 cm wide, leaves

form an erect rosette approximately 20 cm tall. In good light, the leaves are suffused with light purple, and have irregular, brown-purple bands.

Acknowledgements I thank Ross Stenhouse for taking the photographs used to illustrate this article, Olive Trevor for supplying many of the photographed plants, and Joe and Jan Green for making their bromeliad tree and plants available for Ross to photograph.

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Wot's in the Conference Cauldron

by Lynn Hudson

Bromeliads Downunder, World Bromeliad Conference, 24-29th June 2008, Cairns

At the end of January there were 164 Registrants. There are lots of plans and jobs being done, keeping us out of trouble. Over the next two months I will arrange discounted accommodation. These details will be mailed to each society and posted on our website.

Bromeliads Beachside – Pt. Macquarie 21-23 September 2007

I started out to do a conference for about 150 delegates “especially for those members who cannot for many reasons come to Cairns in June 2008 to attend the 18th World Bromeliad Conference”. The Seminar room can hold 170 delegates and 200 for Banquet.

Registrations: I am fully aware that some bromeliad lovers are saving their money for WBC 18 Cairns in June 2007.

To 3rd. February I have registrations for 84

Delegates and 92 for the Banquet and I know more intend to attend.

Once I reach 170 Delegates, no further registrations will be accepted.

For those who want to pay by direct debit: BSB 034-664 20-4263 Westpac, Cairns Central. “Cairns Bromeliad Society Inc. Conference Account”.

Bus Trips: As I cannot find any local growers who live close to the venue I cannot organize a gardens tour. However there will be an optional trip to Timbertown on Friday morning. I will advise details when they are finalized.

There are many attractions and available trips in the immediate area within easy walking distance from the hotel. We will provide a list with discounted charges for all attendees.

Book Sales: There will be a book sale table and the normal 20% reduction will apply.

New Release Hybrids: Should any delegate have any new hybrids for release, please contact me so I can give it good exposure both before and during the conference.

Our events website www.bromeliadsdownunder.com is full of information and regularly updated as news is available.

BSQ Field Day

March 10th

At the home of Paul and Jane Bundell

10AM to finishing 1.00 PM.

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Kurwongbah

GREGORY's map 140 C9.

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Letter to the Editor

Dear Editor

A friend in Sydney who is also a BSQ member, Nina Rehak, a lady that many would know, wanted me to pass on to you how much she reading Bromeliaceae and what a high quality publication it is. I must agree. We appreciate the time and effort you put into it and its great to see so many photographs. Obviously a labour of love and we always look forward to our next issue arriving. BSQ should be very proud of such a magazine.

On a related subject - the book "Starting with Bromeliads" and the hiccup with the faulty binding on some of the books. My phone number is the contact for BSQ and I can tell you from a personal perspective how successful this book has been. Not one person who rang me about the problem with the binding wanted their money back, but wanted a replacement book instead. It has really hit the mark since people who were actually "Starting with Bromeliads" loved it. That's a commendation indeed for the BSQ's first effort in that direction.

Well done to those involved.

Newly Formed Ipswich & Districts Bromeliad Society (Inc)

by Carmel Cullen

My son Tolly and I have been wanting a Bromeliad Society in Ipswich for quite some time and finally decided to get some leaflets printed up to hand out at the annual Glebe Road Garden Expo. The leaflets invited all interested parties to meet together in our garden at the end of September with a view

to forming a new Bromeliad Society.

In the meantime I mentioned our endeavours to Bob Reilly, President of the Bromeliad Society of Queensland (Inc.), who offered a piece of valuable advice - that we really needed to set up a steering committee beforehand.

But how to do it! So we decided to throw a barbecue and invited three people from the Brisbane meetings who lived in our general vicinity; Noma Poole, Pat Barlow and Glen Bernoth. In turn they said they knew of some other people they would invite. So in the end we were looking across the table at faces we didn't know, and found they were willing to step into the positions of a steering committee.

A couple of weeks after that, we had a very good turnout from the public at our garden get together which certainly showed us we had support in the area. As publicity officer, I placed a piece in a rural newspaper after hearing that many people in the nearby Lockyer valley were interested in Bromeliads. Roy Pugh from the BSQ was kind enough to inform the BSQ members in the area about our meetings. Response from the rural people has been amazing - hence the word "Districts" in the name was adopted.

If anyone reading this article is able to impart some knowledge of bromeliads and their care to us as newly appointed people, we would very much appreciate having you speak publicly at our meetings. Please contact me if you can help us learn more.

At the time of writing, the Ipswich and Districts Bromeliad Society (Inc.) has held three meetings and its membership is steadily growing. We extend a welcome to all who would like to visit us on the first Sunday of each month (except January), at 2.00 pm and currently held at the S.D.A. church hall, 56 Hunter St., Brassall, 4305. 3201 6524. We would love to see you!

Neoregelia concentrica
‘Albomarginate’ now
called ‘Bill Morris’

by Derek Butcher

Ever since Adda Abendroth sent seed to us from Brazil in the 1950's we in Australia seem to have had a love affair with *Neoregelia concentrica*. Not the wishy washy ones you see these days but ones with leathery leaves. If you have any of these older clones at least they have a bit of a pedigree about them.

First to be given a cultivar name was ‘Ferris’. A coloured photograph of this plant appeared on the front of the Proceedings of the Australian Bromeliad Conference held in Brisbane 1985. By October 2002 I was fed up with writing ‘*Neoregelia concentrica* red centre from Olwen’ and decided to call it ‘Ferris’ and told you all about it.

Another one that has been bugging me for years is that great clone of *N. concentrica* ‘Albomarginate’ we can trace to Bill Morris. I was half expecting it to be given formal varietal status as Foster did with a variegated *N. carolinae* that cropped up in his garden but nothing has happened. So Bill's plant has been in limbo – not a botanical entity nor a cultivar. I plan to rectify the matter here.

In Bromeleter34(4): 9. 1996 I wrote:

In one of these early batches of seed sent to Bill from Adda Abendroth one was of Neoregelia concentrica which was all the more memorable because one of the seedlings had white variegations. He removed a couple or so of the inner leaves when the plant was large enough to withstand such treatment and he was rewarded.

The plant did not produce ‘normal’ offsets but a myriad of adventitious pups similar

to what you expect in certain Vriesea. One of these offsets had even greater potential and was selected out. BUT the variegation was not consistent in its offsets.

Shortly after this Bill moved to Cairns and no doubt some of these plants would have left his stable. I have not been able to ascertain if this variegation has happened since but in the J. Brom. Soc. 27(4): 181. 1977 John Nicol of Melbourne reported mutation from several years before with a *Neoregelia concentrica* but regrettably did not know the source of his plant.

In J. Brom. Soc 33: 162. 1983 James Elmore referred to the Australian clone of *Neoregelia concentrica variegata* having been in the USA for many years.

In 1996 Bill Morris confirmed some of my thoughts in the following letter

Dear Derek,

Regarding the article in Bromeleter and Neoregelia concentrica marginata (my original naming). Yes, I did distribute it before I went to Cairns so I am sure it fairly rapidly got spread around (It was not highly variegated at first so grew fast).

Now one of its characteristics in those early days was that the offsets would come quite well variegated but as the plant matured the variegation often decreased until you would get an unvariegated plant except for the original lower leaves. If these died or were stripped off the plant would appear unvariegated. Yet, when the plant flowered and produced new offsets they would be variegated. So I have always believed that John Nicol's plant was simply one of these plants.

However, with time, and selection of the best variegated pups (remember, like most variegated plants the offsets varied from excellent to poor.) most of the plants grown now hold their variegation. Also through selection there are now wider borders on the leaves



than the original plants. Also in Australia (first in Brisbane) and in the USA a central variegation arose with no variegation on the margin. Originally, Grace Goode took about half a dozen offsets to one of the US Conferences. When she returned she told me there had been a great demand for more of them and as she could not supply perhaps I might be able to do so. Eventually, I sent 12 each to Erwin Wurthmann and to Kent's nursery. These plants were the source of the American plants in cultivation today. It is possible that other variegated *concentrica* have occurred but I do not know of any.

However, some imported (ex USA) so called variegated *concentrica* I have seen appear to me to be hybrids rather than *concentricas*. In hybridising, *concentrica* is fairly dominant in many characteristics so that most of the offspring are *concentrica*-like. I think this may have caused some people to think that the plant had selfed when it really been crossed and so the seedlings have been labelled *concentrica*. The reason I suspect they are not *concentricas* is that the leaves are thinner and not hard and leathery. Also many are much fuller (with more leaves) and more compact than most *concentricas*. The centre colour is also often less purple and more red-purple'

Regards,
Bill

So if you do have this particular clone please change its name to 'Bill Morris' which will be shown in the Cultivar Register as follows *Neoregelia* 'Bill Morris' – named by D Butcher, AU, originated as seed of *concentrica* from Adda Abendroth in Brazil in 1958 and grown by Bill Morris of NSW, AU. One seedling showed variegation and by selection over the years produced stable variegation, mainly albomarginate,

See 'Uncle Derek says', Reg Doc 1/2007, photo fcbs.org

Neoregelia simulans
that is really
Neoregelia laevis
by Derek Butcher

I could have called this *Neoregelia* species revisited because I just fell over this in my review of this genus.

It was in 1990 when Australians first saw a plant called *Neoregelia simulans*. It had been collected in Brazil by Marg McNamara from NSW and I don't know who identified it. It could not have been Elton Leme because he knew what it should look like. In 1993 it was in Adelaide and by 1994 it was with John Catlan in Qld. It is a reliable pupper so would have spread to all parts of Australia. A comment at the time was that the flowers were scented. Whoever identified it must have gone from the meagre description in Smith and Downs based on fragments!! In 1994 I did take the inflorescence to pieces but could find no real conflicting evidence to the data in Smith & Downs. Since then the plant has just grown and flowered without being butchered until now!

In my thirst for knowledge I found out that Pereira and Leme had in fact written an amended description of *N. simulans* in Rev Brasil Biol. in 1985. The hardest part was finding the publication but perseverance won out. The easy part was translating it from Latin! The article was headed 'Emenda Necessaria' which was the case because of the missing bits in Smith & Downs. Here I found amongst other things that the petals were lilac and narrow whereas our plant had white broad petals with a little green line near the centre. A photo showing what *N. simulans* looks like is on page 25 of Elton Leme's 'Bromeliads in the Brazilian wilder-



ness' 1993.

This sent me on a wider search and I chanced upon Harry Luther's article on *Neoregelia laevis* forma *maculata* in Journ. Brom. Soc. 51(6): 269. 2001. Why had this not rung bells? Perhaps we get set in our ways as to what a species looks like and we knew that *N. laevis* never had spots on the leaves!

The problem now, will be to convince others that *N. simulans* is not in Australia unless it has crept in behind my back. The plant we have is *N. laevis* but I leave it up to you to decide if the leaves are maculate enough to call it forma *maculata*.

Vr. erythrodactylon **(long Spike)**

Author: Ross Stenhouse

I find myself intrigued by the inflorescence on this vriesea. The foliage, in common with a lot of vrieseas, is quite plain, however this species rewards the grower with a magnificent inflorescence.

In the book "Starting with Bromeliads" published by the society, *Vriesea. erythrodactylon* is described as being about 10, 2 cm wide, pale green leaves form a semi-erect, open rosette approximately 20 cm tall and wide. The inflorescence is an inflated spike with separated tips. It is about 15 cm long and 10 cm wide, and yellow-orange at its base, becoming red at its tips. The flowers have yellow petals. This hardy bromeliad can be grown in the ground in protected, shady spots. The inflorescence is "twisted" in appearance, giving rise to the species' name.

What I find particularly attractive is the odd shape the inflorescence forms in it's immature state. I have shown two images of this plant on the page over. They demonstrate the difference in shape between immature and mature inflorescence.

The Carnivorous Bromeliads

By Stewart McPherson

It was during Christopher Coumbus's second voyage to the New World in 1493 that bromeliads were first collected and described by Europeans. During the five centuries since, at least 3,000 species have been described all of which occur exclusively in the Americas with the exception of only one species. When we examine this vast group of plants, we see a startling diversity in the differing shapes, sizes, structures and colours of bromeliads. This wide diversity and adaptability has enabled the Bromeliaceae to emerge as one of the most successful families of new world plants. Bromeliads have mastered terrestrial, epiphytic and even in some cases lithopytic habitats and within specific ecological niches, they can dominate local flora. Yet within this incredible group of plants, three particularly interesting species stand alone, for they have evolved the remarkable adaptations that enable the trapping of insects and other animal prey. They are the carnivorous bromeliads.

It may be surprising that just 0.1% of currently known bromeliad species are carnivorous. Carnivory in the plant kingdom is in all incidences, extremely rare, however tank bromeliads seem so naturally predisposed towards the trapping of prey that they would appear to be the most likely plants to evolve to become carnivorous – yet this is not so, they are far outnumbered by almost 600 species of non-bromeliad carnivorous plants. Three species of bromeliads belonging to two genera are currently seen to be carnivorous. Two belong to the genus *Brocchinia* (*B. hecetioides* and *B. reducta*) and one belongs to the genus *Catopsis* (*C. berteroniana*). In



Vr. erythrodactylon (long Spike)



Vr. erythrodactylon (long Spike)
with immature inflorescence



B. hecetioides in Venezuela



Above: The stout *Brocchinia* which does not fit into the current descriptions of *B. hecetioides* or *B. reducta*

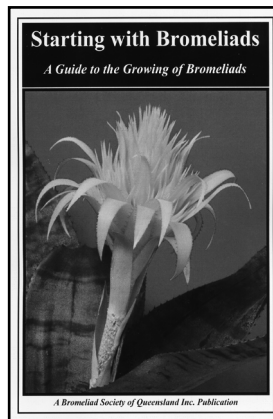
both cases, each genus consists of around 20 species, the overwhelming majority of which are non-carnivorous regular tank bromeliads. This in itself is unusual since all other genera of carnivorous plants consist exclusively of carnivorous species – perhaps this is an indication of a the recent evolution of carnivory among bromeliads. It is certainly clear that carnivory evolved separately in the two genera after *Brocchinia* and *Catopsis* diversified from an ancient common ancestor, thus carnivory has emerged at least twice in the Bromeliaceae although apparently, has been driven in parallel evolutionary directions.

All three species were first described during the late 19th and early 20th centuries as the botanical exploration of tropical parts of the New World intensified yet all three have remained obscure and little known until relatively recently. During the 1980s and 1990s, botanists discovered unusual morphological traits in *C. berteroniana* and *B. reducta* which displayed similarity to adaptations of known carnivorous plants. Experiments such as those conducted by Frank et al 1984 demonstrated that *B. reducta*, *B. hechtioides* and *C. berteroniana* caught prey much more readily than regular tank bromeliads and indeed in the case of *C. berteroniana*, 12 times more prey was caught in comparison to regular bromeliad species under identical conditions and circumstances.

It has always long been known that all tank bromeliads inherently trap insects which occasionally and randomly fall into the plants' water reservoirs and drown but observations reveal that unlike regular tank bromeliads, *B. hechtioides*, *B. reducta* and *C. berteroniana* possess clear adaptations that actively elevate the rate by which insects are trapped. In essence these three bromeliads possess the ability to attract, retain, digest and absorb insect prey in fundamentally the same ways as other known carnivorous plants.

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Catopsis berteroniana growing in the cloud forest in Venezuela



Brocchinia reducta in the lowlands of Venezuela



Sarracenia flava in Florida, USA

***B. hechtioides* in Venezuela**

B. hechtioides, *B. reducta* and *C. berteroniana* produce foliage that collectively forms upright, hollow, water containing leaf rosettes that store a permanent quantity of rainwater which functions as the plants' trap. The foliage in all three species is vividly coloured (bright yellow) and extremely conspicuous. The leaves of all three species are lined with a prominent coating of intensely UV-reflective white powder. In the UV sensitive vision of insects, this powder coating must make the bromeliads stand out as brilliantly – perhaps to mimic conspicuous and often similarly shaped flowers. The presence of water and the occurrence of previously trapped dead insects within the leaves act as bait to entice new prey. Sweet secretions akin to nectar occurring within the leaf rosettes of the carnivorous bromeliads have also been noted by botanists and may also act as an addition lures. The result is a bright, colourful and fragrant structure to which flying insects, beetles and ants in particular are drawn.

Catopsis berteroniana

Perhaps mistaking the foliage for flowers, visiting insects explore the interior of the plants' rosettes in search of nectar. The surface of the leaves of *B. hechtioides*, *B. reducta* and *C. berteroniana* is extremely waxy and very slippery. The UV-reflective white powder that coats the leaves is crumbly and loose and greatly hinders the ability of insects in securing a firm footing. The slightest movement of the plants in the wind or any falter on the part of the insect, causes it to flip and fall into the water filled leaf axils of the bromeliad. Trapped by the surface tension of the liquid contained within, the prey is unable to climb up the slippery leaf exits, and eventually drowns. It is not clear the degree to which enzymes are secreted by *B. hechtioides*, *B. reducta* and *C. berteroniana*

however the work of Plachno et al. 2005 demonstrated that at least simple enzymes such as Phosphatases are produced directly in the case of *B. reducta*. Bacteria and various micro organisms assist the digestion process and break down the soft remains of trapped prey releasing nutrients into the liquid contained within the bromeliads' reservoirs. The resultant nutrient soup is absorbed directly by the bromeliads leaves.

The same basic structure is consistent in the traps of all three tank bromeliads. The foliage is arranged in a compact water tight rosette that is capable of retaining water either centrally or in the plants leaf axils. The foliage of *C. berteroniana* forms a relatively broad rosette which contains water predominantly in the plants' leaf axils whereas the foliage of *B. reducta* is arranged in a tightly tubular rosette which offers little or no space for axil reservoirs but a large, central reservoir in the middle of the leaves. *B. hechtioides* is midway between the two extremes. It produces a loosely arranged leaf rosette with large leaf axil reservoirs but also a large central reservoir. The differences in the trap structures perhaps reflect differences in the ecology and habitats of the plants. *C. berteroniana* grows epiphytically and therefore requires small, compact, relatively streamlined foliage that is less likely to overturn and spill while the much more tubular, upright foliage of *B. hechtioides* and *B. reducta* are always anchored to the ground as these plants grow terrestrially.

The foliage of *B. reducta* appears to be the most specialized towards carnivory and indeed this species generally catches the largest amounts of prey of all three carnivorous bromeliads. It is reasonable to suggest that insects may escape more readily from the leaf axil reservoirs of *B. hechtioides* and *C. berteroniana* than the deep, tubular, tight rosettes of *B. reducta*. Yet to achieve



this efficiency, *B. reducta* has evidently compromised the efficiency by which it can photosynthesize. Its tightly arranged foliage forms an effective trap but since the leaves are positioned upright and overlap one another, far less sunlight is caught than the more widely spread foliage of *B. hechtioides* and *C. berteroniana*.

This trade off appears to afford *B. reducta* a number of very significant advantages, since it reduces dependence on the local availability of nutrients and enables the plant to flourish in the most marginal areas of habitat where barren and inhospitable conditions reduce competition. In such areas a reduced rate of photosynthesis is likely little disadvantage. Consequently on the desolate summits of the tablelands of Venezuela, *B. reducta* is particularly especially prevalent and frequently represents the overwhelmingly dominant species of large plant.

The ability of the carnivorous *Brocchinia* to acquire nutrients through carnivory is apparently so significant that both *B. hechtioides* and *B. reducta* are able to grow rooted directly to bare rock – their modified leaves provide a permanent and stable supply of water and a constant source of essential nutrients in the form of trapped insects.

B. reducta

The mechanisms and processes by which *B. hechtioides*, *B. reducta* and *C. berteroniana* trap insects are essentially exactly the same as those employed by the genera of pitcher plants *Cephalotus*, *Darlingtonia*, *Heliophora*, *Nepenthes* and *Sarracenia*. Insects are lured through various forms of bait, encouraged to fall into reservoirs of water that the plants' leaves hold, and then are prevented from escaping and eventually digested so that nutrients can be absorbed by the plant. The only significant difference between the carnivorous bromeliads and the

conventional pitcher plants lies in that the trap of the carnivorous bromeliads consists of several leaves rather than just one. On this basis, McPherson 2006 handles the carnivorous *Brocchinia* and *Catopsis* as 'bromeliad pitcher plants' and refers to the five conventional genera as 'true pitcher plants'.

The fundamental morphological similarities between the bromeliad pitcher plants and members of the true pitcher plants are often extraordinary. The clearest example is the similarities of the structure of the trap of *B. reducta* and *S. flava*. Both plants produce traps that are narrow, tubular, and approximately of similar heights. In both, the ratio of width to height is the roughly the same, probably reflecting the most efficient balance for the retaining of prey. Both are highly UV-reflective and both are bright yellow and contrast conspicuously with surrounding vegetation. Both plants are lined with vertical veins and the uppermost parts in both are often infundibular. If the sweet bait of *B. reducta* is confirmed, then both will essentially possess exactly the same lures to attract prey. Although the two plants have evolved completely separately, they appear to have evolved in direct parallel with one another.

Brocchinia reducta* and *Sarracenia flava

Arguably the simplicity of the traps of *B. reducta* offer significant advantages over the *Sarraceniaceae* including the *Heliophora* – a genus of pitcher plants that are closely related to *Sarracenia*. Whereas the traps of *S. flava* last only a few months and die back every winter, the collective trap of *B. reducta* is maintained through the combined effort of several individual leaves and is therefore more durable and lasts the entire life of an individual plant. Since *Brocchinia* occur in tropical areas, the lack of cold winter temperatures allows continual growth year round



Neo. 'Daddy Long Legs'
 - pup growing on stolon
 from mother has the roots
 starting to grow from the
 base of the pup.



Neo. 'Blood Red'



Crypt 'Goldie Langdon Irvin'
 Photo by Jim Irvin



Cryptanthus
 'Imposter Red'

so that the plants 'pitcher' is permanently maintained as older leaves die back. Prey that is trapped by *B. reducta* may therefore be digested over a longer period and perhaps nutrient extraction per prey is more efficient. On the other hand, the Sarraceniaceae consist of several leaf traps and the combined total of prey which each plant catches may therefore be greater than that of *B. reducta*. These variations of the pitcher plant theme arise from differences in climatic and environmental conditions as well as evolutionary and ecological history, yet the fact that evolution can yield such essentially comparable results is extremely interesting.

At the start of the 21st century, large blanks remain in our understanding of even the basic ecology and taxonomy of the carnivorous bromeliads. Fundamental details of the floral structure and reproductive traits of these plants, especially the *Brocchinia* remain unclear and indeed even the boundaries between each of the species of *Brocchinia* remains very unclear. There are at least two other taxa of *Brocchinia* which do not fit into any currently described *Brocchinia* sp. yet at the same time, these undescribed variants show very clear affinity to *B. hechtioides* and *B. reducta*.

The stout *Brocchinia* which does not fit into the current descriptions of *B. hechtioides* or *B. reducta*

One is a much larger version of *B. hechtioides* which consists of three times as many leaves, each of which are up to 100 cm tall. It differs from all currently known *Brocchinia* sp. in that its rosette is upright, compact and forms an essentially tubular vessel similar to *B. reducta* and *B. hechtioides* yet it is considerably larger than both. A second variant is more similar to *B. reducta* and possesses a tightly tubular rosette that is much shorter, but considerably stouter so that the result is almost triangular in cross section.

Both undescribed variants appear to display all of the characteristics towards carnivory that *B. hechtioides* and *B. reducta* display – perhaps there are more than two species of carnivorous *Brocchinia* after all.

It will certainly be many years until we fully understand these remarkable plants and their extraordinary abilities to trap insects and other small animals.

Stewart McPherson's new books *Pitcher Plants of the Americas* and *Lost Worlds* examines the wild ecology and remarkable diversity of *B. hechtioides*, *B. reducta* and *C. berteroniana*. Stewart is selling copies personally through his online company www.redfernnaturalhistory.com to raise money for the Meadowview Biological Station to actively support the permanent protection of pitcher plants and their habitats – please see www.redfernnaturalhistory.com/conservation.htm.

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Cryptanthus Experience

By Grace Goode OAM

(reprinted from *Bromeliaceae*, July/
August 1996)

Cryptanthus are endemic mostly to Brazil where it is summer all the year round', so their first requirement is warmth. They are terrestrials and are rarely found as epiphytes. They will grow well in shade houses, if the humidity is well maintained, perhaps by automated mist or sprinkler system.

The most helpful guide to good growing is information about the habitat from which the species came and trying to simulate the same conditions. They are sometimes found in full sun, but mainly prefer the filtered light or shade in coastal regions and forests of East Brazil. The temperature there ranges from 20 degrees to 28 degrees celsius.

They will grow in most types of soil, but in culture, African violet mixture is recognised as most suitable. There are many mixtures used for *Cryptanthus*, but my preference is for mainly peat moss with added charcoal and coarse river sand. They will grow in just peat moss but need foliar feeding and granular feeding at the base of the plant. The best medium for getting roots on offsets is pure peat moss.

It is very difficult to find squat pots suitable for growing *Cryptanthus*. Preferably they should be no more than 8 cm deep and 10 to 15 cm in diameter. The nearest to this I have found are the round squat tubs used by the margarine manufacturers. Some African violet growers obtain pots ideal for growing *Cryptanthus*, but I do not know the source. Growers of our 'Earth Stars' are not many so the plastic pot manufacturers see no necessity to make these pots for a small clientele. The smaller *Cryptanthus*, such as that little

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charmer, 'Ruby', 'B vittatus', 'Cafe Au Lait', 'Coffee Royal', 'Acaulis' and others do well in large saucers which are used under big pots, about 30 cms or more in diameter and 5 cms to 7.5 cms deep. I have used the large terracotta saucers with some success, (after having them suitably modified for drainage holes) but they are inclined to dry out too quickly. They are most suitable for growers with automated sprinkler systems.

Cryptanthus root systems usually extend out to the extent of the leaves. The roots grow laterally, that is why I like a wide pot. I have not seen a well grown *Cryptanthus* without a good root system. I have seen average crypts without roots, only because the plant was kept damp and foliar fed. I guess the plants felt no need for a large root growth when the feeding was from above and absorbed by the leaves.

Initially I tried to grow my *Cryptanthus* in the garden. I cleared an area under a calliandra tree, sheltered from the westerly winds and getting filtered morning sun. I was at a loss to understand why they looked miserable. An experienced grower said "Pull them up and you will soon find out". I did so and was appalled to find their roots covered in mealy bug. Some had no roots at all. If *Cryptanthus* are too dry, mealy bugs thrive. I dipped them all to remove the bugs, then I placed corrugated fibrolite roofing on the ground and placed the potted plants on top. Reasoning that the mealy bugs came out of the soil, I sealed off the ends of the fibrolite, hoping to keep the channels filled with water. This was a failure too, as the fibrolite soaked up the water in no time. At that time we had no reticulated water system and all the plants had to be hand watered. With only tanks, one had to be careful with the water. The mealy bug infested the pots again, much to my disgust. New horizons opened up when reticulated water was laid on.

On my north facing verandah, I nailed 6 inch wide boards to the railings. On this I placed foam troughs, which are sold by nurseries and big stores. The longer troughs are the best, as they have a reinforcing bridge across the centre. I used old fence palings, cracked and worn from years of service. I made a platform from a paling, cut to fit down in the trough, with two small pieces nailed on each end, the bridge in the middle being the middle foot of the platform. I poured water to the level of the platform, which readily absorbed the water. The crypts in their pots were placed on the platform and they thrived. The trough will take from 5 to 6 plants depending on their size. The veranda was enclosed with 50% shade cloth. The sun streamed in at winter time, and in summer, when they did not need the hot sun, the overhang from the roof sheltered them. I found it an ideal way to grow my crypts. With over 100 pots to water on the verandah, the task of carrying buckets of water up twelve steps became a

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chore. I could not use the hose as the verandah boards would deteriorate and as it was, and careful as I could be, they were already showing signs of rot. I commend this method to growers who can use the hose to fill their containers and keep the water to the level of the platforms. This method will do equally well in shade and in glass houses.

I tried the wick system used by African Violet growers. At last, I thought I had found the ultimate. I used clear plastic tubs as the water containers, so I could watch the water level. The potted crypts were placed on top of the water container with the wick, supplying the water. It should have been successful, but life was not meant to be easy, the algae grew in the water pots, a slimy mess. I was forever cleaning the slime off the tubs, even using steel wool, as the algae just loved living in that water. I tried fungicide, but even that could not stop the algae. I do not know what the African Violet growers do, to overcome this problem. So, another great scheme went

the way of all schemes.

I saw a nursery in Florida which grew their plants on a slightly slanted bed of underfelt. Old carpet would do as well. This was watered from the top, the water permeating to the bottom. This method looked great to me, but I did not stay around long enough to find out the drawbacks, if any.

A most commendable method is Bob Whitman's treatment of *Cryptanthus*. He has a very large shade house, reinforced in winter with a covering of thick plastic or bubble plastic. It can get fairly cold in Texas, USA and Bob told me in the years he has been growing Bromeliads, they have had a few sprinkles of snow. Large boulders are laid on the ground, marking the pathways. The beds are built up to the height of the boulders, with rich dark soil. The *Cryptanthus* were in their element, growing with their earth mother. They were a delight to behold, Australian hybrids in one bed, species in another and hybrids by USA in another bed, not hard to find when a customer wanted a particular plant. So if Bob Whitman can grow his *Cryptanthus* so well in Texas, we should be able to grow them better in warm and sunny Queensland.

One of the best methods I have seen was used by Robert Reilly, some years ago now. In his large shade house, the centre was taken up by a large table waist high and from memory about 12 ft long and 6 ft wide. On this was laid flat sheets of galvanised iron, with a lip of about 2 inches or so all around. This bed was filled with coarse river sand, always kept damp and the *Cryptanthus* loved it. If I were young again and had the wherewithal, this is the way I'd go.

Crypts on the average grow about 10 inches across, but who of us (the oldies I suppose), can remember that C. 'Goldie Langdon' of some years ago, when John Catlan took Champion of the Bromeliaceae at the Mt Cootha Show. It must have been 3

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feet across. I asked John how he grew it to such dimensions and perfection. He said he could only attribute it to an employee, who used to throw the residue of fungicide over the end of the bench, when she had finished spraying other plants.

Maybe Crypts like fungicide occasionally. I did not have a camera at the time, but if any member has a photo of that phenomenal cryptanthus, I'd be most grateful of a copy.

Under artificial light, crypts respond very well. Because of the cold, some of our USA members have to grow their plants in cellars, lit and warmed by fluorescent tubes. They grow them as well as those who grow them under natural conditions.

From these methods which I have recounted, I hope there is one which appeals to you. I hope this article will induce more members to take up the challenge and grow these beautiful plants. I look forward to seeing a whole array of captivating *cryptanthus*, gracing the tables at the next Mt Cootha Combined Show.

The Earth Stars are not the lowly relations of the more flamboyant genera of the Bromeliaceae. They are given to us to gladden our days, as their counterparts, the heavenly stars, do at night.

Zeolites in Horticulture

by Eric Jordan

Editorial Comment (Ross Stenhouse)

Reprinted from Newslink, the journal of the Illawarra Bromeliad Society Incorporated. This is a fairly technical article requiring a reasonable understanding of a number of scientific principles to fully understand what the author is explaining.

Readers may be more familiar with perlite. Perlite is similar to zeolite although

zeolite has considerably higher cation exchange capacity which enables a more efficient buffering of excess ammonium and magnesium concentrations in the root environment.

What are Zeolites?

Natural zeolites are robust insoluble and chemically stable aluminium silicate minerals that were formed millions of years ago from the "glassy" components of volcanic ash. They have a unique structure, with a well-defined internal porosity of cavities and channels that can host ions, water and other molecules.

Zeolites increase water-holding capacity while keeping the medium open and aerated. Tilled into the soil, they will add a permanent water reservoir, providing prolonged moisture-holding power between natural rainfall events or interrupted irrigation cycles.

Benefits of Zeolite

Natural zeolites can perform a variety of functions due to their high ion exchange capacity, absorption/desorption energies, propensities for regeneration and recycling. Frequently zeolites can reduce production costs and increase yields in horticultural production, whilst reducing environmental pollution.

Zeolites are nature's slow release fertilizer. The very high cation exchange capacity attracts, holds and slowly releases beneficial plant nutrients such as nitrogen (N) and potassium (K). They also have a high availability of silica.

Zeolites lower water and fertilizer costs significantly by retaining beneficial nutrients within the root zone (again downward leaching and bacterial activity).

They are also very environmentally-friendly. Zeolites lower fertilizer costs while reducing harmful leachates (the products of leaching action) entering ground and surface

water. They also sustain air-filled porosity and improve the structure of compacted soil.

Many horticultural applications are established, including hydroponics growing systems and as an inert medium for plants - for instance as an orchid-growing medium. Growers might find them valuable for soil amendment and as a beneficial component for potting mixes and in propagating media. For such uses, a fine grade of, say 3 mm particle size or less should be appropriate, Courser sizes such as 5 mm to 8 mm grades used in orchid mixes might be considered in growing media.

About the Author:

Eric Jordan's background is that of a professional nurseryman. Over the years he has worked with many groups of plants. In particular he has propagated and done much work with the hybridising of azaleas and vireyas.

Some Ideas About Using Perlite

Author: Ross Stenhouse

The information in this article is the result of a literature review; the information has been gained from many sources and placed here in a condensed form for your enjoyment and education.

Perlite is the common name used for expanded perlite. Expanded perlite is made by heating perlite to about 850-900 degrees centigrade and then it expands to about 7-16 times its original volume. This expansion is caused by the presence of two to six percent combined water. When heated, the perlite granules expand (bit like being the popcorn of the horticultural world.)

In its natural form the colour of perlite can vary from grey through to white. When expanded the granules become show-white

with a neutral pH and contain many closed cells and bubbles.

Perlite has the ability to absorb water. This ability can be cunningly used by soaking the perlite in water containing water soluble fertilizer. The capillary action of the perlite will soak up the water/fertilizer solution.

The perlite is then used in the conventional manner when growing bromeliads and fertilizer it will be available for later use by the plants. Be careful to use a fertilizer suitable for growing bromeliads (ie one high in K & P and low in N).

When used in high concentrations, perlite serves as a light reflector, this is particularly useful when growing your bromeliads in low light such as indoors.

Finely powdered perlite can be successfully used as a seed-starting medium. The particularly light weight of perlite allows the seeds to "push-up" easily.

The surface of perlite has a large number of crevices, these osmotically retain water. In these days of water shortages, the ability to retain water and allow it to be available to the roots of a plant "on-demand" make perlite a very useful constituent for use in potting mixtures.

According to the literature, the size of the perlite particle determines the moisture holding capacity of the perlite, thus adjusting the size of the particle allows the tailoring of of the water retained and thus the water availability to suit the demands of a particular plant.

If you use a potting mix with high percentage of perlite, the light weight of perlite can leave the pot unstable, so to improve the stability add rocks to the bottom of the pot.

You can grow your bromeliads in 100% perlite so in that case pot stability is almost certainly going to be a problem unless you adopt a procedure such as the one above to increase the pot's stability.

Field Day 10th March 2007 10 AM - 1PM

Venue: Paul and Jane Blundell's 36 Lyons Rd Kurwongbah 4503

Our property is 30 kms north as the crow flies from the Brisbane CBD. Located on Map 88 G9 at 36 Lyons Rd Kurwongbah. Our property is the wedge shaped block bounded by Lyons, Fisher and Nundah Rds. Entry is on the corner of Lyons and Fisher Rds. You can travel north on the Bruce Highway as far as the Dohles Rocks Rd turn off. Follow this road to its intersection with Anzac and Narangba Rds at the water tower. Go straight ahead at this intersection into Narangba Rd travel approx 2 ½ kms north then turn right into Lyons Rd. Now go approx 1/2km and turn right into Fisher Rd. Our gate is immediately on the left.

If approaching from the north along the Bruce Highway turn off at the Boundary Rd exit. Head west on Boundary Rd over the top of the Bruce Highway. Now turn left into Gympie Rd and follow this to Alma Rd on the right. Follow Alma Rd to its end, which is just after the little railway bridge. Turn left into Narangba Rd and continue past Lakeside Rd and turn next right into Lyons Rd. Proceed as above 1st paragraph.

We have lived at Lyons Rd for approx 14 years. We started with a bare pallet. Our property is 7 acres. Three acres of which is developed. Our gardens cover a range of types. There is a large covered area at the back of the house which is planted with neo tropical foliage plants. Begonias, cordylines, ferns, aroids, palms, spathiphyllums, catlathas, gingers, diffenbachias, aglaonemas, maranta, kaemferia, philodendrons etc etc etc.

The outside area is inhabited by large cycads, palms, shrubs, succulents and a variety of other plants. Then we have the bromeliad gardens. Hundreds of bromeliads are a feature in gardens at the back of the house. Many more hundreds of bromeliad plants are also to be found in the shade houses. To the east of the house is another tropical garden whilst at the front is a newly established walk through succulent garden. This features Agaves, yuccas, euphorbias plus many smaller growing succulents.

Tea, coffee and light refreshments will be provided. Plants will be available for sale during the course of the day, including bromeliads, bergonia's succulents and many of the genera mentioned above. Please join us for what we hope will be a day you will enjoy.

Calendar of Events

April 21st-22nd. - Bromeliad Bonanza - Autumn Show and Plant Sales at Mt Cootha Botanic Gardens, 8 am to 4 pm Saturday, 9 am to 3 pm Sunday.

April 28-29th - Sunshine Coast Bromeliad Society Bromeliad Spectacular - Millwell Rd Community Centre (Eastern End Millwell Rd) Maroochydore. Ph 5496 7795

May 19-20th - Australia's open garden scheme "Plant Fail at Woodston" - All forms of plants and products - Hughes Rd East, Dakabin. 5 minutes off the Bruce Highway - Exit at Boundary Rd/Narangba. 9am-4.30pm

October 14th - Field Day at the home of Viola Hamilton. Viola's garden is also part of the Australian Open Garden Scheme held each year. The address is 280 Beaudesert - Beenleigh roads in Bahr Scrub just south of Beenleigh

December 6th - Society Christmas Party

GENERAL MEETINGS of the Society are held on the 3rd Thursday of each month except for December, at the Uniting Hall, 52 Merthyr Rd., New Farm, Brisbane, commencing 8 pm. Classes for beginners commence at 7.30 pm.

Plant of the Month Programme for 2007

JANUARY:	Aechmea, Alcantarea, Ananas, Androlepis, Areococcus, Ayensua.
FEBRUARY:	Billbergia, Brewcaria, Brocchinia, Bromelia.
MARCH:	Canistropsis, Canistrum, Catopsis, Deinacanthos, Deuterocohnia, Disteganthus, Dyckia.
APRIL:	Edmundoa, Encholirium, Fascicularia, Fernseea, Fosterella, Glomero pitcairnia, Greigia, Guzmania.
MAY:	Hechtia, Hohenbergia, Hohenbergiopsis, Lindmania, Lymania, Mezobromelia.
JUNE:	Navia, Neoregelia.
JULY:	Nidularium, Ochagavia, Orthophytum.
AUGUST:	Pepinia, Pitcairnia, Portea, Psuedaechmea, Psuedananas, Puya.
SEPTEMBER:	Quesnelia, Racinaea, Ronnbergia, Steyerbromelia.
OCTOBER:	Tillandsia.
NOVEMBER:	Ursulaea, Vriesea, Werauhia, Wittrockia.

Competition Schedule for 2007

Novice, Intermediate and Advanced in each Class of the Mini-Shows and in the Popular Vote.

January: MINI-SHOW

Class 1: Aechmea - species and hybrids

Class 2: Vriesea - species and hybrids

Class 3: Dyckia - species and hybrids

Class 4: Any Other Mature (flowering) Bromeliad - species and hybrids.

February: POPULAR VOTE: Any Genus – species or hybrid

March: POPULAR VOTE: Any Genus – species or hybrid

April: MINI-SHOW

Class 1: Bromelioideae not listed elsewhere in the schedule – species and hybrids.

Class 2: Guzmania - species and hybrids

Class 3: Pitcairnia and Pepinia - species and hybrids

Class 4: Any Other Mature (flowering) Bromeliad - species and hybrids.

May: POPULAR VOTE: Any Genus – species or hybrid

June: POPULAR VOTE: Any Genus – species or hybrid

July: MINI-SHOW

Class 1: Billbergia - species and hybrids

Class 2: Tillandsioideae not listed elsewhere in the schedule – species and hybrids.

Class 3: Neoregelia - species and hybrids – up to 200mm diameter when mature.

Class 4: Any Other Mature (flowering) Bromeliad - species and hybrids.

August: POPULAR VOTE: Any Genus – species or hybrid

September: POPULAR VOTE: Any Genus – species or hybrid

October: MINI-SHOW

Class 1: Neoregelia - species and hybrids – over 200mm diameter when mature.

Class 2: Tillandsia - species and hybrids.

Class 3: Pitcairnioideae not listed elsewhere in the schedule – species and hybrids.

Class 4: Any Other Mature (flowering) Bromeliad - species and hybrids.

November: POPULAR VOTE: Any Genus – species or hybrid

Note 1: Class 4 in each Mini Show schedule provides for any flowering bromeliad that would not be in its prime for the appropriate Mini Show.



Canistropsis billbergioides

Bromeliaceae

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Jan/Feb 2007