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# The Bromeliad Society of Queensland Inc.

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MS word

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## Cover Photographs:

#### Front Cover:

A different variety of *Vriesea fosteriana* without too much of a hint of red in the leaves. These lighter forms (showing much more green and white rather than the red and buff colouration are equally attractive). There seems to be large numbers of variations in these plants. For an introduction to some of them please refer to Bob Reilly's article in this issue.

#### Back Cover:

The attractive flower of Aechmea 'Eileen' one of the seemingly endless Aechmea hybrids that are now available to collectors. Again Bob Reilly introduces some of the more attractive and sought after hybrids in this issue's feature article

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Tillandsia Handbook by Hideo Shimizu and Hirouli Takizawa	\$58.00
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## Society Diary

**NEWS** 

**REPORTS** 

**EVENTS** 

GENERAL MEETINGS are held on the Third Thursday of each month except December, at the Uniting Church Hall, 52 Merthyr Road, New Farm, Brisbane, commencing 8 p.m.

Classes for beginners commence at 7.30 p.m.

FIELD DAYS are held regularly in the gardens of members as advised.

MEMBERSHIP FEES Family \$20, Single \$15 pa

The BSQ Web Page can be accessed at www.bsq.org.au

#### **AUGUST 2004 MEETING NOTES**

Members were invited to bring in bromeliads for identification, or for an opinion or what might be wrong with them, at the Society's August meeting. Nev Ryan and Barry Genn led the discussion. Issues addressed included:

- One of the tillandsias identified was Tillandsia disticha. Nev mentioned that there are at least six forms of this variable (in appearance) tillandsia in Queensland. Plants have either light green or grey leaves, and vary considerably in size.
- A wide variety of systemic insecticides can be used to control "fly speck" (and other types of) scale. The insecticide's active ingredient is usually an "anticholinesterase". This information can be found on the container's label. Several members stated that they had achieved good results using insecticides intended for controlling lawn grubs.
- A cryptanthus' leaves were turning to a "brown mush" and "dying off" from their tips. It was grown in a cold location, and had water on its leaves at night. Unfortunately, this combination of growing conditions will almost always result in the type of leaf damage shown on the plant brought in for discussion. If temperatures below 10 degrees Celsius are likely to be experienced, it is important cryptanthus' leaves (and the plants' centres) are dry before nightfall.
- The owner of an Aechmea 'Pinkie' showing a lot of leaf variegation had been unable to get the plant grow well despite trying it in different locations and potting mixtures. Plants of this cultivar often have very little chlorophyll in their leaves, due to the amount of variegation, and hence are unable to produce the "food" needed for survival. Unfortunately, this was the case for the plant brought into the August meeting.

- A seedling of a cross between Neoregelia 'Amazing Grace' and
  'Painted Lady' had brown "virus like" markings on its leaves, and
  was not increasing in size. A proportion of seedlings from such
  "complex" crosses, that is, a hybrid crossed with another hybrid,
  often exhibit such growth patterns. As they rarely improve over time,
  it may be best to discard them.
- Three T. bulbosa clones demonstrated the variability seen in this species. One clone had black-green leaves and was only 60-75 mm tall at maturity, while another plant was about 150 mm high. I have seen other clones that have bright green leaves, and are nearly 200 mm long from the top of their infloresence to the plant's base. A very rare, variegated clone also exists.
- Many orthophytums produce offsets along their infloresence's "stem" (rachis), as well as from the plant's base. A plant of Orthophytum 'Stellar Beauty' was used to illustrate this point. The plant had "clusters" of green bracts from which small, white flowers had emerged. Following flowering, offsets had formed at the base of these bracts. In nature, the weight of these offsets would "tilt" the stem (on which the bracts are located) over and bring the offsets into contact with the ground. They would then be able to form roots and, subsequently, new plants.

Thanks are due to everyone who brought plants in, as well as Nev Ryan and Barry Genn.

**Bob Reilly** 

Brisbane, Australia

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#### SOME HYBRID AECHMEAS

**Bob Reilly** 

echmeas grow well in coastal Queensland. While there are many species, this article discusses some hybrid Aechmeas. The plants featured are easy to grow, have attractive foliage or inflorescences, and, in some cases, both.

All of the plants described in this article grow best in pots or small buckets. Squat pots are better than conventional ones as they help to keep the plant stable and upright. Because the plants are tall relative to their width, (and so are inclined to fall over when they are watered), in some cases it helps to grow them in a large pot, but only fill the container with potting mixture to half its depth. Another technique is to grow them in a small pot, but wedge it into a larger pot or small bucket using stones or similar objects.

Potting mixtures used successfully include:

- A mixture of one part charcoal to seven parts of chemically treated pine bark chunks. (A special type of soluble fertiliser, available from the Bromeliad Society of Queensland, is used to treat the pine bark chunks);
- Well composted pine bark;
- · One made of 2 parts Cocopeat or peatmoss to 1 part coarse sand

The composted pine bark mixture is probably the one most commonly used. A continuous release fertiliser such as Nutricote or Osmocote should be added to the composted pine bark, and sand-based potting mixtures, when the plant is potted.

These hybrid Aechmeas should be given a heavy watering (between 7am and 10am) once a week in winter and twice a week in summer. During summer, they can be watered either early in the morning (between 6am and 8am) or late in the afternoon (after 4pm). (A heavy watering results in the plant's "vase" or "tank", formed by its leaves, being completely "flushed out" with water, and water flowing from the pot's drainage holes).

Foliar feeding with liquid fertiliser is not essential. However, some people prefer to use a liquid fertiliser such as Phostrogen, at half the strength recommended by the manufacturer for indoor plants, every fortnight.

These plants are subject to attacks from brown and flyspeck scale. These can

be treated using a systemic insecticide such as Folimat. Because it is sometimes difficult to see whether a plant has scale, when the infestation is in its early stages, it is best to spray all your plants once a year in early summer. Also spray any new plants you obtain, before they are placed with the rest of your collection. These measures will usually keep scale under control.

These plants reproduce through offsets known as pups. The pups usually emerge through the leaves near the base of the plant. In some cases, they form at the end of stolons up to 30 cm long which emerges from the plant's base. Pups should be removed when they are one third to one half the parent plant's size. Where pups are growing at the end of stolons, retain a 2 cm piece of stolon with the pup when you remove it. Place the pups straight into the potting mixtures described previously. Ensure they are held firmly by the mixture.

After the first batch of two to three pups have been removed, a second batch can sometimes be induced by fertilising the plant with a continuous release fertiliser such as Nutricote or Osmocote. The best times of the year to remove pups are mid September to end of November and late February to early April. Pups removed at these times will usually commence growing quite quickly.

Nearly all of these hybrid Aechmeas have small spines on each leaf's edges. If you are working in or around them for any length of time, avoid scratches by wearing gardening gloves and some form of covering over your arms.

During winter, these plants can be grown under 50% shadecloth. At other times grow them under 70 to 75% (medium density) shadecloth. Alternatively, they can be grown quite successfully under trees or shrubs, provided they receive the same amount of shade as would have been experienced under the shadecloth.

The plants described in this article can, in most cases, be obtained fairly readily from some of the nurseries which advertise in *Bromeliaceae*. They can also be found in the plant sales' areas at the Society's monthly meetings, field days, and shows.

'Blue Tango' About 20, 7 cm wide light green leaves form an erect rosette around 70 cm wide and high. The multi-branched infloresence rises

## The Editors Desk

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about 7 cm long and 1 cm wide. They are an iridescent dark blue/purple in colour. The infloresence retains its colouration for several months. This plant can be grown in a 200 mm bucket.

'Burning Bush' About 15 leaves, 7 cm wide, form an open rosette, with a central "vase". The rosette is about 50 cm across, and 50 cm high. The leaves' upper surfaces are a shiny greyish-green, while the lower surfaces are dark brown-maroon in colour.

The multi-branched inflorescence rises well above the plant's leaves. Each "branch" is 20 to 40 cm long and consists of a large number of yellow-coloured berries arranged in a cone-shape. The berries retain their colour for several months.

This plant can be grown in a 200 mm bucket.

'Echidnea' About 20 leaves, 2 cm wide at their base, form a relatively "tight" rosette, about 20 cm high, and 50 cm wide.

The upper surface of each leaf is green in colour and appears covered with a silvery "scurf" when young. The leaves' lower surfaces are brown-green in colour, with narrow silvery horizontal bands.

The inflorescence is similar to *Ae.recurvata* (one of this plant's parents). It resembles a dark red cone, about 10 cm wide and high, which rises above the plant's leaves.

This plant can be grown as a hanging plant in a 125 mm pot. It likes higher light levels compared with the other plants described in this article.

'Eileen' About 15 spineless leaves, 5 cm wide, form an erect, vase-type rosette about 50 cm high and wide. The leaves are coloured apple green on both surfaces and have a light covering of fine, silvery-grey scurf on their upper surface. The scurf is more pronounced on the lower surface.

The pink inflorescence rises just above the plant's leaves and is cone-shaped.

It is about 10 cm wide at its base and 10 cm high. This plant can be grown in a 200 mm bucket.

Fosters Favorite Favorite' This plant is a variegated form of 'Fosters Favorite', a hybrid produced by Mulford B. Foster, one of the American bromeliad "pioneers". The "original" 'Fosters Favorite Favorite', that is, the one imported from the United States of America, has white edging to the wine-red coloured leaves. The leaves, of which there are about 10, form an open rosette about 40 cm wide and 30 cm high.

The Australian form of 'Fosters Favorite Favorite' originated over 30 years ago in a nursery on the northern coast of New South Wales. Instead of being white, the leaves' edges are a creamy orange. It is a more vigorous plant than the United States form. I have had the Australian form for over 25 years and it has been a consistent performer for the entire period.

Both the American and Australian forms have a relatively insignificant inflorescence, consisting of about 10 red berries spread along a 50 cm pendent inflorescence. However, they look quite attractive for several months. I have grown this plant in a hanging basket. In that situation, the sunlight shining through its leaves creates an attractive effect. This plant can be grown in a 125 mm pot.

'Frederike' About 20 spineless leaves, 10 to 15 cm wide, form an upright "vase" about 30 cm in width, and 40 cm high. Each leaf has a light green upper surface, with the lower surface having a similar colour, and being covered with a silvery-grey "scurf". In the variegated form of this plant, the centre of each leaf has numerous thin creamy-white longitudinal stripes. Some of these are very close together, giving the appearance of wider, white striping. The variegation is apparent on both upper and lower surfaces.

The inflorescence consists of a pink-red "basket" about 15 cm across and 7 cm high that rises just above the plant's leaves. The inflorescence retains its colour for several months. This plant can be grown in a 200 mm bucket.

'Gold Nugget' About 10, 7 cm wide, leaves form a 60 cm tall, tubular-shaped plant. The green-brown leaves have silver "scurfing" and bands on their upper and lower surfaces.

The 25 cm long infloresence is comprised of about 12 grey-green, 5 cm long,

"clusters". This plant can be grown in a 200 mm bucket.

'J C Superstar' About 30 leaves, 5 cm wide, form an open "vase-type" rosette about 60 cm wide and 60 cm high. Each leaf's upper surface is grey-green in colour, has narrow red-brown edging, and is covered with fine, silvery-grey scurf. The leaves' lower surfaces are a light red-brown in colour, with silvery horizontal banding of varying widths.

The semi-erect, 70cm long, multi-branched inflorescence rises above the plant's leaves. Each branch has 2 to 3 "side" branches each of which has about 10 yellow berries. Each group of berries have the shape of a "sword", about 10 cm long, and 2 cm wide.

'Pink Rocket' About 20 leaves, 10 cm in width, form a relatively open, vasetype rosette, about 70 cm in width and 50 cm high. The upper and lower surfaces of each leaf are "apple green" in colour, and covered in "fine" silvery-grey scurf.

The inflorescence consists of a 20 cm wide and 15 cm high pink-red "ball" which rises just above the plant's leaves. Blue-purple tubular flowers occur on the surface of this ball. The inflorescence retains its colour for several months.

This plant can be grown in a 200 mm pot. As the plant appears to "burn" relatively easily, grow it in shady conditions.

'Shelldancer' About 25 leaves, 7 cm wide, form an open tank-type rosette, about 30 cm high and 50 cm in width. The upper and lower surfaces of each leaf are light green in colour and covered with a fine, silvery-grey scurf.

The multi-branched, 50 cm long inflorescence, initially rises above the plant's leaves, and then arches downwards. Each branch consists of a cylindrically shaped collection of pink-red berries. Each "cylinder" is about 30 cm long, and 7 to 10 cm wide. The inflorescence stays in colour for several months. This plant can be grown in a 200 mm bucket.

'Tornado' About 20 leaves, 5 cm wide at their base and rapidly tapering to 2 cm in width, form an open vase-type rosette, about 40 cm wide and 50 cm high. The leaves' upper and lower surfaces are a dark red-maroon in colour.

The multi-branched, 50 cm long inflorescence, rises above the plant's leaves and then arches to one side. Each "branch" consists of about six red-tipped white berries, from which flowers with blue petals emerge.

This plant can be grown in a 125 mm pot.

weilbachii x luddemaniana About 30 leaves, 5 cm wide, form an open vasetype rosette about 50 cm high and 70 cm wide. The leaves' upper surfaces are dark green in colour, with irregular dark red markings towards the leaves' tips, shading towards more continuous dark red colouring at the leaves' base. However, in good light, the entire leaf surface turns dark red-brown. The leaves' lower surfaces are dark red-brown in colour.

The multi-branched, 50cm long inflorescence, rises just above the plant's leaves and then arches to one side. Each "branch" consists of a "cylinder" of about 15 purple berries from which flowers with blue petals emerge. The berries fade after flowering has been completed.

This plant can be grown in a 200 mm bucket.

## Acknowledgements

I thank Olive Trevor for her help in preparing this article, and Doug Upton for taking the photographs used to illustrate it.

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email: bob.relly@nrm.qld.gov.au

## Photo Captions for centre pages:

Page 16 Top left: A. 'Friederike' and A. 'Friederike' variegata form Top right: A. 'Shelldancer'
Bottom: A. 'Friederike' variegata

Page 17 Top left: A. 'Pink Rocket'

Top Right: A. 'Gold Nugget" (same parentage as A. 'J C

Superstar'

Bottom: A. 'Eileen'

## 2005 Tillandsia Workshop

The Bromeliad Society of Queensland's 2005 tillandsia workshop will be held from 10am to 3 pm on Saturday 14 May at 66 Agnes St, Auchenflower. The format is the same as in previous years, namely:

Each participant will give a 10 to 15 minutes' presentation on a tillandsiarelated topic of their choice. Topics can range from "introductory" (for example, how do I stop my *T. stricta* from dying) to advanced (for example, the various forms of *T.capitata*).

During and after each presentation, there will be observations, questions, comments etc from the workshop's other participants.

Participation is open to a member of any bromeliad society. Each person should bring their own lunch and a "plate" for morning and afternoon tea. Hot water, tea, coffee and cups will be provided.

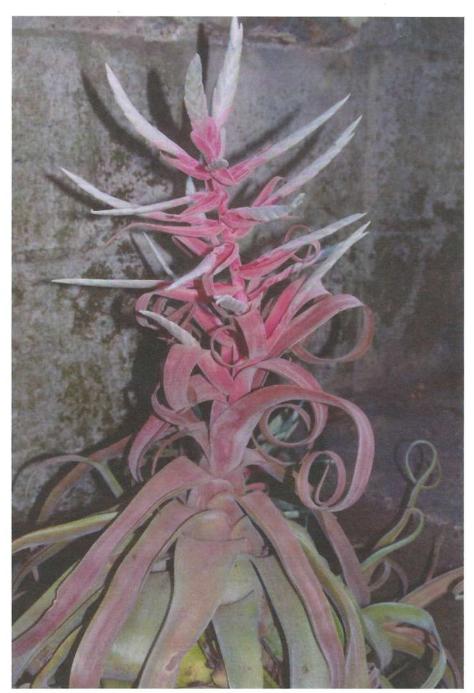
Participants can bring tillandsias to sell or swap if they wish. However, this is not the main focus of the day. (A 10% commission will be payable to the Society on all plant sales.)

It would be appreciated if each prospective participant could register with the workshop convenor, Bob Reilly, by 30 April 2005. This helps with catering, and the scheduling of participants' presentations.

#### 2005 Combined Show Notice of Dates and Venue

On June 11-12 2005 Combined show and plant sale of bromeliads, cacti, and other succulents. Over 1,000 types of these plants will be available for sale. Venue: *Mt Coot-tha (Brisbane) Botanic Gardens auditorium. Saturday (11th) 8am-4.30pm, Sunday (12th) 9am-3.00pm*. Entry: \$3 adults, children under 14 free. (Presented by the Bromeliad Society of Queensland Inc and the Cactus & Succulent Society of Queensland Inc)

For further details on either activity: Bob Reilly--email bob.reilly@nrm.qld.gov.au or phone (07) 3870 8029



#### 2004 TILLANDSIA WORKSHOP

The Society's 2004 Tillandsia workshop was held on 18 September. Topics discussed included:

A number of grey-leafed tillandsias with perfumed flowers were shown. They included: *caerulea, crocata, duratii, humilis, mallemontii, straminea, streptocarpa,* and several hybrids made from them.

The difference between the two varieties, namely, *duratii* and *saxatalis*, of *T. duratii* was explained.

Workshop participants had successfully grown grey-leafed tillandsias under 50% shadecloth in autumn, winter and spring; but experienced some difficulties with "leaf-burn" in summer. One way to address this issue is to "pin" an extra layer of shadecloth under the 50% shadecloth, for summer's duration.

Growing grey-leafed tillandsias in bright light can result, for some species, in a plant's leaves having a "red flush" in them, compared with plants grown in shady conditions. For example, this occurs with plants of *T. streptophylla*. Strong light can also cause the bracts of some tillandsias, such as *T. didisticha*, to be a deeper pink/red, than would otherwise be the case.

A well-grown *T. brachycaulos* in a pot was shown. Its owner explained she had gradually exposed the plant to more light, resulting in "red-flushed" leaves, but no leaf-burn. (Such damage can occur if plants are suddenly shifted from shady, to bright light, conditions).

It is desirable to mist tillandsia seedlings several times, as opposed to only once, a day. A relatively inexpensive (less than \$100) battery-operated tap timer that could be relied upon to switch the water supply to the misters, on and off, at hourly or less frequent intervals, was displayed. It can be purchased from major hardware stores such as Bunnings.

Techniques for gluing tillandsias to "mounts" of various types were

demonstrated. One person had obtained very good results using Selley's Aquadhere (Exterior), although he stressed the plants must be completely dry before they are glued.

Ten of the many different forms of *T.latifolia* were displayed. The plants ranged from 3 cm to over 100 cm in length; some had soft, green leaves, while others had succulent-type ones; and one was viviparous, while the others were not.

Several books on tillandsias were discussed. The best book for beginners is probably the *New Tillandsia Handbook* (which can be purchased from the Society), while a more comprehensive description, albeit in French, of tillandsia species is contained in *Les Tillandsia et Les Racinaea* (available from Anwyl Bromeliads, email address ANWYL.COM). Both books can be borrowed from the Society's library.

Frost sensitive tillandsias were discussed. Ones which died from actual exposure to frost included: brachycaulos, bulbosa, caerulea, caput-medusae, duratii, fasiculata, ionantha, juncea, pseudobaileyi, reichenbachii, stricta, and tenuifolia.

Species from Bolivia and Argentina often handle cold conditions (but not necessarily direct frost) quite well. Further, some species are found over very large areas, so it may be possible to find clones of such species that will handle cold conditions successfully, even if most plants will not.

Potted tillandsias can be prone to rotting in wet (especially in hot) weather. This risk can be reduced growing the plants in open-mesh (as opposed to conventional) pots, and using an orchid bark mix. Both of these items can be obtained from some orchid nurseries. (continued on page 15).

**Photograph caption page 12**: *Tillandsia streptophylla* grown in strong light, a truly outstanding Tillandsia.

Tillandsias which can do well in pots include: most of the green-leafed tillandsias (although a lot of care is needed for "cool climate" species such as *impemlis*, as these are prone to rotting); and certain grey-leafed species such as *abdita*, *brachycaulos*, *capitata*, *concolor*, *compressa*, *fasiculata*, *Jaliscomonticola*, *subteres*, *tricolor*, and *viridiflora*.

The Tillandsia workshop has been held in September for several years. A May date for the 2005 workshop may be desirable, as different tillandsias are flowering at that time compared with September.

## **Bromeliad Tips**

Bromeliads like company. Whenever practical, position them in groups of at least four to six plants with their leaves touching (or nearly so). However, if you do this at the start of summer, they may need to be spread out more by winter, to allow for the growth which occurs during summer.

To achieve the best visual effect, group plants of a similar size together. If a large plant e.g. an *Aechmea* hybrid which is 40 centimetres tall, is placed next to a small plant e.g. a *Cryptanthus* specimen, the larger plant will tend to "dominate" the smaller one.

Avoid reusing potting mix. It may have pests or diseases in it which could cause plants to die or grow poorly. Also the potting mix's "structure" may have deteriorated significantly e.g. it may not drain water quickly anymore.

If you are putting pots of bromeliads into a landscape display, ensure water can drain away from the pots. Otherwise, if the pots' drainage holes "clog up", or the pot is sitting in constantly wet soil, the plants may rot.

You may wish to give some of the bromeliads e.g. *Guzmanias* in your shade house extra shade during the hottest part of the year (typically, mid November to March in Southern coastal Queensland).



Ae. Friederike with variegata



Aechmea 'Shelldancer'



Ae. Freiderike variegata



Aechmea Pink Rocket



Aechmea Gold Nugget



Ae 'Eileen'

## **OCTOBER 2004 FIELD DAY REPORT**

Around 200 people attended the Society's last field day for 2004. It was held at the Olive Branch, owned by Len and Olive Trevor, at Upper Kedron.

As well as members from the Bromeliad Society of Queensland, there were a large number of people attending from our "sister" societies on the Sunshine, and Gold, Coasts. Their presence was a major factor in the day's success.

As always at the Olive Branch, there was plenty to see, and a large range of bromeliads available for purchase.

Since the Society's last visit, another large bushouse has been erected, and the landscaped gardens, all of which feature bromeliads, have expanded considerably. A striking feature was the use of large bromeliads such as plants of *Aechmea blanchetiana* and *Alcantarea* species in the landscaped areas. They made excellent "feature" plants.

A highlight for many people was the large range of plants available for purchase. Over 250 varieties were on sale. While thanks are due to the people who supplied plants for sale, special mention should be made of the efforts of Nancy Kickbusch, Norma Poole, and Margaret Lyons who staffed the sales' table (it was very hectic for over an hour!), and the members who helped out in various ways in the sales' area.

After the sales' period, there was a talk on the outstanding bromeliad display at the Roma Street Parklands, while Cheryl Basic discussed some of the Hawaiian bromeliad hybridists.

Drawing of the lucky door prizes and raffle plants, all of which were donated by the Olive Branch, concluded the day's formal proceedings, Olive and Len then provided lunch.

The efforts of all those who helped in various ways on the day are appreciated.. However, special thanks are due to Len and Olive, their family, and the Olive Branch's staff for their efforts in making the day a success.

**Bob Reilly** 

## Vriesea fosteriana

It the April 2004 meeting of the Society, the "feature plants" for the meeting were the many forms of *Vriesea fosteriana* and its hybrids. More than 20 examples were on display. John Higgins and Olive Trevor led the discussion on these plants.

There are two botanically recognised varieties of this plant. They are: *V. fosteriana*, and *V. fosteriana* v. seideliana.

V. fosteriana is fairly easy to grow, and its decorative foliage makes it a popular plant. It grows best in a well-drained potting medium, and needs to be in a location where it receives filtered light. (Many people grow it successfully under medium-density shadecloth). The plant responds well to fortnightly applications of a liquid fertiliser such as Phostrogen. However, avoid fertilising when the temperature is likely to rise over 30 degrees Celsius, as "leaf burn" can occur in hot conditions.

The plant can be self-pollinated. The seedlings grown from the resulting seed often show a wide range of variation in leaf colouration. In turn, this has resulted in a large number of cultivars, many of which have not been formally registered with the Bromeliad Society International, coming into "circulation". In a seminal article on *V. fosteriana*, Derek Butcher, the Bromeliad Society International's Cultivar Registrar, discussed the likely origin of certain cultivars, and listed those on the register. (Butcher, 2003)

Some of the variations apparent between cultivars are:

- The leaves' colouration can range from nearly white, to creamyyellow, through to green; with horizontal, wavy, brown-red to nearly purple banding of varying widths.
- In some clones, the horizontal banding is virtually non-existent, and the leaves are "speckled" with brown/red spots. (An example is the cultivar known as 'Speckles').
- The width of a mature plant can range from 50 to nearly 200 centimetres, while the width of individual leaves can vary from 3 to about 10 centimetres.

Cultivars with predominantly white to cream/yellow leaf colouration, combined with brown/red to purple banding, include: 'Bianca', 'Golden Legend', 'Sweet Success', 'Vista', and 'White Lightning'.

#### Bromeliaceae

Ones with creamy/pale leaf colouration, combined with red to purple banding on their leaves, include: 'Big Red', and 'Red Chestnut'.

As mentioned previously, the cultivar called 'Speckles' has speckles rather than banding on its leaves. Len Trevor stated that all of the plants of this cultivar originated from one plant the Olive Branch imported. In fact, the imported plant nearly died before it could produce any offsets!

All of the *V. fosteriana* varieties and cultivars are worth growing. In southern Queensland, you should, with some persistence, be able to find the following plants: *var. seideliana*, 'Bianca', 'Red Chestnut', and 'Speckles'. (Others are available, but they are quite rare).

Finally, it is worth mentioning that *V. fosteriana* has been used extensively in hybridisation programs. It is often crossed with various clones of *V. platynmea*. In turn, the resulting hybrids have often been crossed amongst themselves, resulting in a range of hybrids with widely varying leaf colouration and size.

References

Butcher D. (2003) Vriesea fosteriana revisited. Journal of the Bromeliad Society, v 53(3), pp 133-137.

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Captions opposite page:

Top: Vriesea fosteriana 'Big Red" one of the more outstanding varieties that is much sought after.

Bottom: A couple of Vriesea fosteriana growing at Buchanan's Nursey at Wardell in Northern New South Wales.

**Bromeliad Tips:** 

Most bromeliads have the male (stamen) and female (stigma) reproductive elements in one flower. However, some plants have them in separate "flowers" on the one plant e.g. *Cryptanthus*, on most occasions. Others have them on separate plants. Examples include: *Hechtias* and *Aechmea marie-reginae*. The Latin term for this latter phenomenon is "dioecious", meaning "two houses".



Vriesea fosteriano 'Big Red'



#### SUN TOLERANT BROMELIADS -Part 2

People often ask which are the best bromeliads to grow in full sun. This can be a difficult question to answer, as it mainly depends on growing conditions. For example, bromeliads which may grow well in the full sun at Cairns or Hawaii, can become a "burnt offering" in southern Queensland. What causes this difference?

The first issue is what is meant by the term: "full sun". I take it to mean a plant which is fully exposed to the sun's rays for the entire day, throughout the year. However, when many people say their plants receive full sun all day, what they actually mean is that they have not provided their bromeliads with protection from the sun. This is a significant difference.

For example, in coastal southern Queensland, quite a few bromeliads can grow reasonably well in situations where they receive full sun in the morning, provided they have shade from a building or a wall in the afternoon (especially in summer). Some people consider these plants are growing in "full sun".

Locations, for example Cairns, which have high humidity at the hottest times of the year, have a wider range of bromeliads which can be grown in the full sun than those areas, such as southern coastal Queensland, which have periods of low humidity and high temperatures. For example, *Aechmea blanchetiana*, a large plant (usually with yellow-gold leaves and a long, arching flower spike), will grow well in Cairns in the full sun. The same plant will "burn" in southern Queensland, on those days which have a combination of temperatures exceeding 35 degrees Celsius and less than 40% humidity.

Areas having maximum temperatures that only very rarely exceed 30 degrees Celsius, for example, parts of New Zealand, have a wider range of bromeliads which can be grown in the full sun than those locations where summer temperatures periodically exceed 35 degrees Celsius.

Locations having strong (but not gale-force!) winds during periods of high temperatures, will also have a wider range of bromeliads which can be grown in the full sun, than those areas which do not have this combination.. For a given location, the following practices will increase the range of

bromeliads that can be grown without additional protection from the sun:

- Place the plant where it will receive shade from a wall or building on summer afternoons;
- Acclimatise the plant to the full sun by gradually increasing its
  exposure to the sun's rays over several months, staring in the
  cooler months of the year. (If the plant's leaves start to "bleach", it
  is receiving too much light.)
- Some bromeliads will, over several generations, gradually improve their sun-hardiness. So, while the first generation may look "sad and sorry", the third generation may look much better.
- For the larger bromeliads, growing them in the ground (but in a well-drained medium) may give better results than keeping them in pots.
   This occurs because the plant can develop a larger "root run", and thus obtain more moisture, than if it was grown in even a large pot.

Bromeliads likely to have some tolerance to full sun conditions nearly all have leaves edged with spines. So, avoid plants without spines such as nidulariums, vrieseas, guzmanias and the green-leaved tillandsias.

Bromeliads I have grown in full sun conditions, for the entire year, in southern coastal Queensland include several dyckias and hecthias, and a range of Orthophytums. Bromelias would also take these conditions. Most puyas can tolerate the full sun as well, but many appear prone to rotting and dying in hot, wet weather.

Bromeliads which can tolerate full sun during the cooler times of the year, and at least morning sun during summer include: many aechmeas, for example, blanchetiana, bracteata, disticantha, luddemaniana, maculata, mexicana, mulfordii, the many forms of nudicaulis, orlandiana, "Echidna", gamosepala, racinae, and recurvata. Some of the larger—growing neoregelias such as cruenta (or the many hybrids which have it as one of their parents) are also suitable.

Lists of plants such as these are only a starting point. The best advice is to try a range of bromeliads under your growing conditions. —Bob Reilly

The list of sun -tolerant bromeliads that appears below was supplied by Bruce Dunstan in response to a request for details of personal experiences in bromeliad sun tolerance that was made in an article "Tropical Gardening in the Subtropics" that appeared in a previous issue of Bromeliaceae

Aechmea callichroma

A. emmerichiae

A. mexicana

A. blanchetiana

A. Red mulfordii hybrid of blanchetiana and mulfordii,

Aechmea fendlerii Green Form

Aechmea nudicaulis

Aechmea eurycorymbus

Androlepis skinneri

Alcantarea imperialis

A.. Imperialis - Silver form (probably another sp.)

A. vinicolor

A. glazouiana

A. geniculata

A. extensa (may be another sp.)

Billbergia Halleluhja

Hohenbergia correia- araujoi

Neoregelia pascoaliana

N. cruenta

N. Gee Whiz

N. johannis 'De Rolf'

N. richteri

N. marmorata

N. correia- araujoi

N. compacta

N. Fireball

N. pauciflora

N. kautskii

Portea extensa

Portea leptantha

Vriesea ospinae var. Gruberi

Vriesea platynema Grey Form

## Greg Cuffe (pers. Observations)

To add to the above, I would like to include some comments on tolerance under the extreme conditions that applied to South East Queensland in February 2004, where the daily temperature exceeded 40 degrees celsius for three consecutive days. This was combined with very low humidity as well.

This type of damage was found to occur in most instances where damage was observed and for ease of reference . Burn can cause centre rot if serious or merely unsightly blotches on leaves that eventually causes an area of tissue to die.

I will refer to my experiences with some of the species that are mentioned in Bruce Dunstan's list.

Aechmea	mexicana
Aechmea	blanchetiana
Aechmea	nudicaulis

Severe burn-spot damage and bleaching Minor bleaching otherwise no damage Severe bleaching

Androi	lepis	skinneri
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Some bleaching and tip dieback

Alcantarea	imperialis
Alcantarea	vinicolour
Alcantarea	geniculata

Undamaged Severe burn spots Undamaged

Ne	oregelia pascoaliana
	cruenta
N.	Gee Whiz
N. 1	marmorata
N. 6	correia- araujoi
	compacta
	Fireball

Centre rot, severe bleaching —died Severe bleaching Some bleaching Some bleaching Some bleaching Some bleaching Severe bleaching

With the exception of *Neoregelia pascoaliana* which died, all other plants survived although certain of them took many months to recover. Of the rest, *Aechmea mexicana, Aechmea nudicaulis* and *Alcantarea vinicolour* were probably the next worst damaged. I kept a constant vigil on these plants during winter which was thankfully quite mild in my part of Brisbane. As soon as the weather warmed up all were repotted and fertilised and shook off the sustained damage.

It is a constant battle growing plants without the assistance of shade cloth but if nothing else, it keeps one challenged!

## YOU CAN'T KILL A BROMELIAD!

Oan't you? Well we did! We killed about \$800 worth..... and we felt very despondent, frustrated and lost. We felt lost because we didn't know why.

This all happened after we had been members of the Bromeliad Club for one year. We had just come back from an organized club bus trip to Coffs Harbour and Ballina where we saw and bought some lovely bromeliads. We were very excited about our new acquisitions.

Since I was on holidays I thought it would be a good time to repot all of our bromeliads. This was my first time repotting.

We decided to put all of our "very special " bromeliads into the side courtyard where we could sit and admire them while having coffee and cake. This area is an open area with some old shade cloth over the top.

Within one week some leaves started to curl. We thought the plants needed more water, but that didn't solve the problem. Within a couple of weeks more leaves were curling and changing colour. The leaves on one bromeliad changed to a luminous pink/red. My partner reckoned that I'd mixed up a bad batch of potting mix – so he made another batch and repotted the lot again.

However, the leaves started dropping off onto the floor and it was a distressing sight. We no longer enjoyed going into that area and found another spot to have our "cuppa".

We lost the lot! For months we asked various experienced members what the problem was – but no one had an answer. I might add that the psychological effects on us varied. Our confidence was wobbly. We didn't buy any more plants. We avoided even looking at the monthly sales tables at the meetings. I was concerned that my partner wouldn't want to continue to try and grow them or even not want to go to meetings. But we both enjoyed the meetings so much and the people in the club, that we persisted.

Then one night I was speaking to Peter Paros on the phone and lamenting our loss. Well, Peter is an Industrial Chemist, a man with an enquiring mind and he just kept asking questions. Then he said, "Is there something dripping on them?"

I told him that we had put old lattice panels over the top of the old shade cloth to provide extra shade. He replied that this was probably the cause as the plants had died so quickly due to the CCA treatment leaking out into the open cups of the bromeliads. This lattice was 20 years old! At last we had found the probable cause. Peter asked me to do a controlled experiment to prove the case and to show members of the society. Two

healthy neoregelias of the same type, health, size were placed in two locations. One was placed under the "dreaded lattice" and the other was placed under a shady tree. The one under the lattice was dead within 3 weeks. The other still lives.

I sought some information on CCA treated pine and found that CCA is copper, chrome and arsenic which is impregnated into the wood. Even though, initially, the wood preserving industry insisted that this process locked the chemicals into the timber, scientific evidence now shows that these chemicals do leach out into the environment...[ Hence the luminous pink bromeliad leaf was the result of drinking the copper].

CCA treated timber is no longer allowed to be used for children's playground equipment due to the leaching of chemicals.

It is illegal to burn CCA treated pine as the smoke contains toxic gases. However...it is a cheap building material – especially in white ant areas. With great care it can be used. It can be sealed with a good quality timber paint or with a special sealer. Ask at your local paint shop.

However....be wary of drilling holes in this timber, as water will run into the holes, collect the chemicals, then run along the outside and drip into your plants. [Yes, you guessed it. We found this out by experience too!]Look for black marks on the leaves where the poison has splashed onto the leaf. Remove immediately from that area, wash out the cups, refill with clean water and then keep your fingers crossed.

Post Script.....After the presentation of this information to the club last year some members told me about their own stories on "How To Kill a Bromeliad". So here are a few.

- The neighbours painted an interconnecting paling fence with creosote while our member was on holidays. She had bromeliads including tillandsias growing on her side of the fence. She returned from holidays to find dried relics.
- One new member kept his bromeliads inside the house as he'd been told that they liked shade and protection. They died! [Bromeliads must have light/sun for photosynthesis]
- One experienced member killed an entire shade house filled with plants when she mixed the wrong quantities of chemicals together for spraying.

So.....yes, you can kill a bromeliad, but hopefully, you can't kill enthusiasm, determination and dreams......

Anne McBurnie

#### OLDIES BUT GOLDIES

Gust as plant families such as bromeliads move in and out of "fashion", so to do individual bromeliads. In this article, I will describe 8 medium-sized, that is, plants which are 30 to 50 cm wide at maturity, neoregelias which have been available for over 10 years, but are still well worth growing when compared with newer arrivals.

First though, it is worth outlining their growing (cultural) requirements.

All of them grow well in pots, or small buckets. The containers should have a diameter of 150 to 200 mm. Potting mixtures used successfully include:

- Well composted pine bark to which a continuous release (over a period of at least nine months) fertiliser such as Nutricote or Osmocote is added when the plants/pups are potted;
- Pine bark chunks, (such as those used to grow cymbidium orchids in), treated with a special type of fertiliser available from the Bromeliad Society of Queensland. Combine one part charcoal with seven parts treated bark to form this potting mixture;
- A mixture of one part Peatmoss or Cocopeat combined with one part coarse sand. Add Nutricote or Osmocote to this mixture.

Care should be taken in applying liquid fertiliser, as excessive fertilisation results in the plants losing their symmetrical shape and, to some extent, their colouration.

Water the plants heavily once a week in winter, in the morning between 7am and 10am, if practical. During summer, water the plants heavily at least twice a week during the early morning (6am to 8am) or late afternoon (4pm to 6pm). (A heavy watering results in water flowing through the pot for several minutes. Water the surface of the pot, as well as the plant itself, to ensure all of the potting mixture is dampened).

These plants grow well under 50% shadecloth in autumn, winter and early spring and 75% shadecloth for the remainder of the year. They will also grow quite well in shaded positions in the garden, but it is important to avoid placing them where they will receive the full afternoon sun (especially in summer).

The only pest likely to cause some problems is scale. They can be treated

through the use of 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. They can be removed when one third to one half of the parent plant's size. The best time to remove pups is October to early December and mid February to the end of March. After the first "batch" of two or three pups is removed, more pups can often be induced by placing one or two teaspoons of continuous release fertiliser near the plant's base, while also giving it good growing conditions.

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

The plants described below are all hardy, and proven performers. They are obtainable from commercial bromeliad nurseries and appear periodically on the sales' table at the Society's monthly meetings, field days, and shows.

carolinae v. tricolor 'Perfecta' Perhaps the best of the various cultivars of carolinae v. tricolor. The green leaves, which flush pink in good light, have centrally-located white stripes of varying widths. At flowering, the plant's centre flushes a bright pink-red.

"Charm' This plant has numerous red leaves with green spotting. In strong light (but not full sun), the green spotting becomes less pronounced. It grows well in shaded conditions, and is more cold tolerant than most neoregelias. However, it will not take frost. This plant is highly recommended.

'Colour Parade' The plant's leaves have alternating red-brown and yellowgreen bands. The red bands are concentrated at the leaves' tips and the plant's centre.

concentrica v. albomarginata The plant's green leaves are edged with cream stripes of varying widths, but typically about 10 mm. The leaves have dark purple tips and ill-defined concentric "bands" of purple markings. At flowering, the plant's centre blushes a lavender-purple in colour.

concentrica X'Avalon' The plant has red-brown leaves with green banding and spots. The banding is more frequent near the plant's centre.

- 'Lambert's Pride' The plant has orange, to orange-red, leaves with red tips. Green to yellowish-green concentric banding is evident on the plant's upper leaves. This is quite a distinctive plant.
- 'Manoa Beauty' The plant has red leaves with yellow spotting and banding. The leaves have yellow-green longitudinal striping.
- 'Rose Blush' (sometimes sold as 'Rose Flush') The plant's light green leaves have red spotting/"spatters" concentrated near their red tips. The plant's centre blushes a lavender-rose at flowering.

I thank Olive Trevor for her help in preparing this article, and Doug Upton for taking the photographs.

## **Bob Reilly**

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## **Bromeliad Tips:**

You may consider buying a plant based on a description or a colour photograph of it. However, the plant you buy, while accurately named, may not closely resemble either the description or the colour photograph.

One reason this occurs is because there is usually considerable natural variation in both species and hybrids. For example, particular plants (known as clones) of one species may have an inflorescence twice the size of other clones. Similar variation can occur in foliage colour.

So, if possible, either buy a plant in flower or an offset from a flowering plant which you have seen.

Avoid watering bromeliads in the middle of hot summer days if you can. The suns' rays can be focused by the droplets of water onto the bromeliads' leaves, resulting in leaf burn and, subsequently, "bleached spots" on the leaf.

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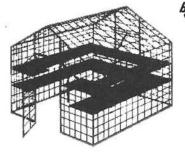
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