

Bromeliaceae



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Front Cover: *Billbergia* 'Windigig Special'

Rear Cover : *Tillandsia* 'Giant' (unregistered)

Photo by Ross Stenhouse

Photo by Ross Stenhouse

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

Society Diary

NEWS

REPORTS

EVENTS

PLANT OF THE MONTH PROGRAMME – 2006

JANUARY:	Aechmea, Alcantarea, Ananas, Androlepis, Areococcus, Ayensua.
FEBRUARY:	Billbergia, Brewcaria, Brocchinia, Bromelia.
MARCH:	Canistropsis, Canistrum, Catopsis, Deinacanthon, Deuterocohnia, Disteganthus, Dyckia.
APRIL:	Edundoa, Encholirium, Fascicularia, Fernseea, Fosterella, Glomeropitcairnia, 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.

CABOOLTURE & DISTRICT BROMELIAD SOCIETY

A new bromeliad society is being formed in the Caboolture/Bribie Island area.

Over 70 people attended its first meeting on 22 January 2006.

Meetings will be held on a monthly basis, on Sunday afternoons.

The meeting venue is the Ningi Community Hall, 1320 Bribie Island Road, Ningi.

For further information, please telephone Doug or Gwen Parkinson on 5497 5220.

A word from Derek Butcher - One the Editor Endorses

Plagiarism is a dirty word. The fcbs.org website is the biggest Bromeliad website and contains photo images of over 6000 bromeliads. These are there to help others identify plants and has been designed to be as accurate as possible. So many Group newsletters these days contain photographs which have been downloaded from this source and credit is given when credit is due. We have no worries about this action because we are all disseminating knowledge on Bromeliaceae. However, we have known for some

time that sellers on eBay in the USA also use the photos which get us annoyed. We clearly show that use of photos is not to be for financial gain. A daily check is now made and the photos are stripped from the eBay seller concerned. This plagiarism is now in Australia and we hope it is not done by members of the various Societies around Australia. I don't look at eBay plant sales because I would get a heart attack at the wrong names given but if any of you are aware of these practices please do bring them in to me.

SOCIETY PROJECTS UPDATE

(by Bob Reilly)

At the May 2005 general meeting of the Society, it was decided to reduce the Society's financial reserves to \$40,000/\$60,000. About \$40,000 is available to spend on activities consistent with the Society's objects (aims). People were asked to suggest projects on which this money could be spent.

At the November 2005 general meeting, it was decided to donate some books to our "kindred" (i.e. affiliated) societies that are not focused primarily on bromeliads. There are over 20 of these organisations ranging from orchid, through to horticultural, societies. They tend not to have bromeliad books in their libraries. All of these organisations have been supplied with a copy of *Bromeliads for the Contemporary Garden* and *Bromeliads: A Cultural Manual*. Their response has been very positive.

A set of bromeliad reference books will be donated to the State Library of Queensland in early/mid 2006. In turn, this library will make available these books, many of which cost over \$100, to libraries throughout Queensland for borrowing by their patrons. This will enable people who cannot travel to the Mt Coot-tha Botanic Gardens to use their bromeliad reference collection, to borrow these books. (Of course, members who can attend Society general meetings can borrow these books from our library).

The booklet titled: *Bromeliad Cultivation Notes* has also been supplied, free of charge, to members. Please give your copy to a friend who is interested in bromeliads, if you decide you do not wish to keep it. Additional copies can be purchased from the Society's library for \$7.50.

Other possible projects are being investigated. Additional ideas are welcome, but it is important that you nominate who is willing to do any work that may be involved.

CULTURAL NOTES

(by Bob Reilly)

The Society provides, free of charge, a double-sided, A4 page sized publication on growing bromeliads titled: *Cultural Notes*. If you would like some copies of these notes to give to your friends or distribute at garden clubs, shows etc, please email (bob.reilly@nrm.qld.gov.au), or telephone (07 3224 2898—work) me with your postal address and how many you would like of them, and they will be mailed to you.

AUSTRALIAN OPEN GARDEN SCHEME

If you participate in the Australian Open Garden Scheme, or you know someone who is in the scheme and has bromeliads in their garden, please let the editor know so that this information can be publicised in *Bromeliaceae*.

Please provide us with: the garden's location, when it is open, admission charges and a contact phone number in case people have any queries.

Welcome to the following new members

Klaus Querengasser, Barb Davies, Ken Wood, Mark Paul, Deborah Hurst, Jodie Mayse McQuinn, Doug & Gayle McQuinn, Kathleen Greenway, Keith & Ruby Ryde, Madge Jarvis, Nina Rehak, Patricia Sweeney, Melva Hatchman, Jason Drake, Birgit Rhode, Jean Ratcliffe, Ella Flaherty, Lyn & Don Eagle

CLASSIFICATION SYSTEM FOR GENERAL MEETINGS' MINI SHOW/ POPULAR VOTE

1. Advanced

· Des Anderson, Cheryl Basic, Dorothy Cutcliffe, Yves Daniel, Barry Genn, Lindsay Gerchow, John Higgins, Peter Paroz, Bob Paulsen, Mike Symmons, Olive Trevor, Doug & Joy Upton, (*Comment: these people have been "grandfathered" into this category, based on their mini show success in previous years*) plus

· People who win the highest number of points in the Intermediate section of the Mini Shows in any two years.

2. Intermediate

· People, other than the Advanced growers, who have won the highest number of points in the Novice section of the Mini Shows in any year.

3. Novice

· All other growers

Note: A person's "classification" for the Mini Shows is also used for the Popular Vote.

Society Members approve Major Project

At its general meeting, held on the 18th January, the members approved the production of a book suitable for beginners in the world of Bromeliads.

Work on 'The Book' has been underway for a while now as the project was worked up to see if it would be a viable entity.

It will comprise about 60 pages of text and 40 pages of colour photos.

"The Book" is intended to be a valuable resource for the novice/intermediate grower, and as a reference covering a wide range of topics.

ANNUAL SUBSCRIPTION

Membership fees (\$15-Single, \$20-Family, \$30-Overseas) are due and payable on the 1st January 2006. Prompt payment will greatly assist the Treasurer and Secretary. Members who have not paid their annual fees, will not receive any further copies of *Bromeliaceae* after the January-February 2006 edition.

Please post your subscription to:

The Secretary
Bromeliad Society of Queensland
PO Box 565
Fortitude Valley, Brisbane Q.4006

Karen Murday
Secretary

Lyn Hudson Elected BSI Director

With regards to the Bromeliad Society International, and being a Director representing Australia. "Thank you" to the members who voted me into this position.

Over my two-year term I plan to inform all members of Bromeliad Society International benefits and keep you up to date with any matters of interest.

All ideas for any changes to your society (BSI) and their provisions are welcome and I will represent your interests to the Society.

Feel free to contact me by telephone or email. Come to San Diego in June, you will have a wonderful time, guaranteed!

regards
Lyn Hudson

The Editor's Desk

by Ross Stenhouse

Some interesting reading this issue if you are like me and having problems with the high light intensity and bright sun burning your plants. Rob Smythe's article provides a very professional and insightful view on the issues associated with light. I have noticed that some of the plants I have received for photographing have been affected by sun, so it's not just the beginners like me who get caught.

Bob Reilly's article on *Catopsis* makes interesting reading, I was surprised to find that the small young plants I had been photographing were 4 years old.

Peter Paroz has selected a number of questions and answers from past issues of the BSI Journal. These questions were chosen by Peter as being of interest to the beginner. Having attended most of the beginners classes held at the societies monthly meeting, I think these questions and answers will prove valuable to the newer members.

I have tried my hand at writing a couple of smaller articles which I hope you find of interest. Of particular interest to many are the photographs. It's a lot of fun and a lot of hard work producing high quality images. I hope you enjoy what you see.

BROMELIACEAE

Editor	Ross Stenhouse
Photography	see code
Mail Out	R & B Pugh
Contributors	Bob Reilly Derek Butcher Rob Smythe Peter Peroz

Photographers Code

RS : Ross Stenhouse
RSm: Rob Smythe
DU: Doug Upton
BB : Beryl Batchelor

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

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

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

The BSQ web page can be accessed at w.w.w.bromsqueensland.com

Bromeliaceae Copy Deadlines

Mar/Apr.....February 5th, 2006

May/JunApril 5th, 2006

Please forward all copy and photographs to:

The Editor, 15 Timbarra Crescent, Jindalee, Qld 4075

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

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

On the trail

Questions by Ross Stenhouse,
answers by Derek Butcher

Question: I am very new to the world of Bromeliads, however I have quite a number of examples of *Neoregelia spectabilis*, they have been in my yard for about 25 years where they were growing pretty much in isolation from other Neos. I have recently been told that the plant that most people call a *Neoregelia spectabilis*, is not the species, rather a hybrid. What is the story? Are these examples of the species or are they a hybrid or cultivar?

Answer: What is a cultivar. It can be a form of a species and not necessarily a hybrid. A species is generally made up of many forms that are considered to be within the parameters of the written description.

Without a photo of the plant in flower plus one of under its leaves I can't make comment. Clones of 'true' species come and go in captivity which is what Harry Luther warned me about when I was on the search for species *Neoregelia* in Australia some 10 years ago.

He based his comments on what happened in gardens in Florida. I experienced the same problems only acquiring plants from people I knew had been imported especially from Brazil and - where in Brazil! I believe that the true *N. spectabilis* is in Australia just as I believe that the true *N. caroliniae* is here too.

Why don't you get the person making such claims to write an article on the subject. This would allay some of my fears that most Bromeliad Brisbaneites do not worry about plant identity.

We cannot be too dogmatic on its identity other than what is in Smith & Downs and even that is based on shaky grounds.

Perhaps, one of these days Elton Leme will write a book on *Neoregelia* subgenus *Neoregelia* so we can see the current Brazilian thinking. In the meantime voicing comments of the differences in what is grown under this name will at least get others thinking.

Question: But what about my *Neo. Spectabilis*, what are its chances of being an example of the species?

Answer: Your old *N. spectabilis* could well be correct because in those days many were growing species. ten years ago I used to think it was easy to identify *Tillandsia* because we mostly grew plant imports from the wild or offsets of such. Seed raising is great but few follow the saying of Bill Morris whose motto which was you MUST always analyse your results. So many accept the name on the seed packet and errors are perpetuated.

Ross's additional comments:

The point Derek is making is that plant identity is important. That even if you do your own hybridisation, unless you are extremely careful, you can only be sure of the mother, you cannot be 100% sure of the pollen parent, because of factors like ants and insects. Even with a line of plants grown from repeated offsets, it is likely that a cultivar will result as people will favour a particular form of plant.

Snippet from the Bromeliad Conference in Brisbane October 2005

(Reprinted from the November 2005 issue of "Bromeliad", The journal of the Bromeliad Society of New Zealand)

- It does rain in Brisbane - the day the Kiwis arrived, the 6-month drought broke with 3 days of rain and amazing thunderstorms. They also have a stunning display of purple jacaranda trees, everywhere.

Web Sites

An increasing number of people in Australia have the Internet connection available in their homes, recent figures put the numbers as being 40% of all homes, or about 4 million homes. Another interesting fact is that an increasing number of people are relying on the net as their prime source of information.

For that reason, the society has its own web site at

<http://www.bromsqueensland.com>

Other societies also have sites. I learnt of a good site from reading Caloosahatchee Bromeliad Societies magazine "Caloosahatchee Meristem". The site referred to is for the Bromeliad Society of San Francisco at:

<http://www.sfbromeliad.org>

I had a look at the site and found it interesting and definitely worth a look.

See a Members Garden

At the October, 2005, meeting of the society the call was put out to members who were prepared to have fellow members visit them and have a look at their garden. These garden owners should be able to answer many of the questions that the newer members may have, or simply show how things are done.

If you are prepared to have fellow members pay you a visit please contact the societies Secretary or the Editor

We now have two members on the list:

- **Carmel Cullen,**
Ipswich Area,
Ph. (07) 3201 6524
- **Nancy Kickbusch,**
The Gap, Brisbane
Ph. (07) 3300 1704

BOOKS FOR SALE

The society has the following books for sale:

- A Bromeliad Glossary (1998 edition) by the Bromeliad Society International (BSI) \$13
- A Guide to Beautiful Neoregelias by Shane Zaghini \$20
- Bromeliads: A Cultural Manual by BSI \$5
- Bromeliads: Next Generation by Shane Zaghini \$33
- Bromeliads for the Contemporary Garden by Andrew Steens \$36
- Growing Bromeliads by the Bromeliad Society of Australia \$22
- Judges Handbook by BSI \$34
- The Red-Flowered Tillandsias from Brazil by Renate Ehlers \$25
- Bromeliad Cultivation Notes by Lynn Hudson \$7.50
- Back copies of *Bromeliaceae* (2005 editions) \$4
- Label-marking pencils \$3
- Tillandsia Handbook by Hideo Shimizu & Hirouli Takizawa \$66
- The Book of Bromeliads (and Hawaiian Tropical Flowers) by Ronald Parhurst \$77

Post and package extra. Unfortunately, we cannot supply overseas' orders.

Please telephone the Librarian, Mrs Evelyn Rees (07 3355 0432), to order books.

Orthophytum 'Warren Loose'



RS

Orthophytum 'Warren Loose'



RS

RS



Orthophytum 'Warren Loose' Leaf

RS



Offset growing from base of Pot

Orthophytum 'Warren Loose' Revisited

by Ross Stenhouse

The handling characteristics of *Orthophytum* 'Warren Loose' could easily be described as severe. I have been handling quite a number of plants whilst photographing them and 'Warren Loose' always manages to wound me. However, in the plant's favour is it's splendour.

This plant has been 'looking good' for the nine months of so I have had it on loan from Bob Reilly. The plant is very popular and is widely grown.

This plant is terrestrial in it's nature. By that I mean it is grown in a sand mixture, rather than the open bark and charcoal mixture we use for many of the other species bromeliads. The photographs opposite show inflorescence and flowers.

The plant has small white flowers about 3-4 mm in diameter. These flowers close up in the evening. New flowers seem to grow fairly regularly, but there is not a lot at one time, maybe about 2 or 3.

The texture of the leaves is very interesting. They are 'furry' in feel and look and very stiff with 'gotya' spines along their edges.

Orthophytum 'Warren Loose' is a cultivar of *Orthophytum gurkenii*. Apparently in 1987 Bob Whitman grew seed from *Orthophytum gurkenii* and had a varied bunch of seedlings. Allegedly, in 1996 he named one really scurfy leaved one after his boyfriend Warren Loose. It is believed that he named it so as a memorial.

The plant produces offsets a number of ways; the photograph opposite shows just how determined the plant can be to further it's genes It's not often that an offset decides to grow through the bottom of the pot. Offsets are more conventionally thrown from the

base of the plant at the ground line and also the inflorescence heads. Derek Butcher advises that "Regarding offsetting, the ones from the base of the plant - invariably on underground stolons (or are they rhizomes?) are the easiest to propagate. The ones that occur adventitiously in the inflorescence are more of a challenge"

Orthophytum gurkenii. is described as "solitary with short, thick caudex, the sterile plants mostly up to 15 cm. tall and 25 cm. in diameter, larger in shade, somewhat smaller in the wild, especially when in full sun, the leaves suberect to spreading. Flowering plant 90 cm. tall leaves to 25 cm. long and 4.5 cm. wide, shallowly and broadly canaliculate, spreading, arching recurved or the uppermost on the inflorescence deflexed, with a distinct sheath enfolding the stem, the blades broadly triangular-attenuate, laxly spinose with teeth up to 2.5 mm. long, deep purplish or purplish brown, irregularly and sparsely white lepidote beneath, above white lepidote in straight, wavy, or irregular to jagged lines mostly 2- 3 mm. wide extending to the margins or nearly (zebra-striped), alternating with glabrous zones about 5 mm. wide" (Hutchison: 1983)

I would like to thank Derek Butcher for his assistance in preparing this article. The photographs were taken by myself.

References

ORTHOPHYTUM GURKENII P. C. Hutchison, *Phytologia*, 52(6):373-5. 1983

Cultivar: A plant produced in cultivation as opposed to one growing in habitat: a horticultural clone or strain. A plant type within a cultivated species that has recognisably different characteristics.

Scurf: The hairs of an epidermis when stellate or scalew-like.

Rhizome: an underground root-bearing stem, the apex of which progressively sends up leafy shoots.



Neoregelias and Light.

by Rob Smythe MSc

Question #1: To be asked what is the best level of shade cloth to grow neoregelias under does not sound too difficult a question.

Answer: In the Townsville region in my opinion, the best neoregelias, colour wise, are grown under 50% shade cloth. These are grown by Pat Coutts under a moderate fertilizer deficit. They are fertilized only once, and that is during potting.

Question #2: What colour mesh? This was the next question. I am not sure of the answer to this as I do not use mesh but use my trees for shade. I will suggest some things to consider.

Warning

If you like to think things through, like mind teasers, like answering questions with more questions and don't mind a bit of fuzzy science—read on.

If you are bored stiff with such interests skip directly to 'Outcomes'.

Something about shade for bromeliads that is better than a guess.

I will come back to question one in detail later on. In answer to question 2.

I can see light coming to plants in a bush house by two different mechanisms.

#1 Light passing through holes created in the mesh only. This light would appear white and probably this mechanism only exists for black mesh.

#2 As above but additional light passes through the material of the mesh as well. We see this as coloured or white mesh.

This raises the question. Is there any advantage using one colour over another?

White-mesh obviously transmits a balance of colours and absorbs some of the heat and UV radiation. This would be most suit-

able where low shade is required.

Green-mesh: It absorbs the photo synthetically useful light and transmits the green light which is of no use to the plant. This would be useful where you are over loading the plant with useful light. See discussion further on. I have just given you the reason why plants appear green, they throw green light back at you as they can't use it. It is useful to you though as it helps you see your way around in otherwise high shade.

Other Colours: So if on the other hand you wanted shade cloth removing useless radiation such as UV, Green light and heat while transmitting the most useful light for your plant you would want orange/red or blue or even a mixture of the two as these light frequencies are optimal for absorption by chlorophyll-a and hence photosynthesis. I think I would give orange/red and blue a miss and go for 'off white'. This off-white mixture of the above light colours, would look OK. Sorry, not the place to argue that orange/red and blue light of similar intensities when mixed actually appears whitish rather than blackish as you would find using your paint box colours. Take the word of a person who majored in chemistry and physics and specialized in Atomic Absorption Spectroscopy and still had to look up the World Book Encyclopaedia for this answer. If you are stubborn like me and don't want to be brushed aside just slowly turn your green gun down on your TV while looking at a white image (kidding but it would prove a point though not improving your popularity with the family).

Answer to question one continued.

Now getting back to the first question, I ask my self, is there an objective answer rather than my subjective answer? I warn you before I get too deeply into this, where I fail to achieve the perfect answer, that maybe you should take the above answer as gospel. The



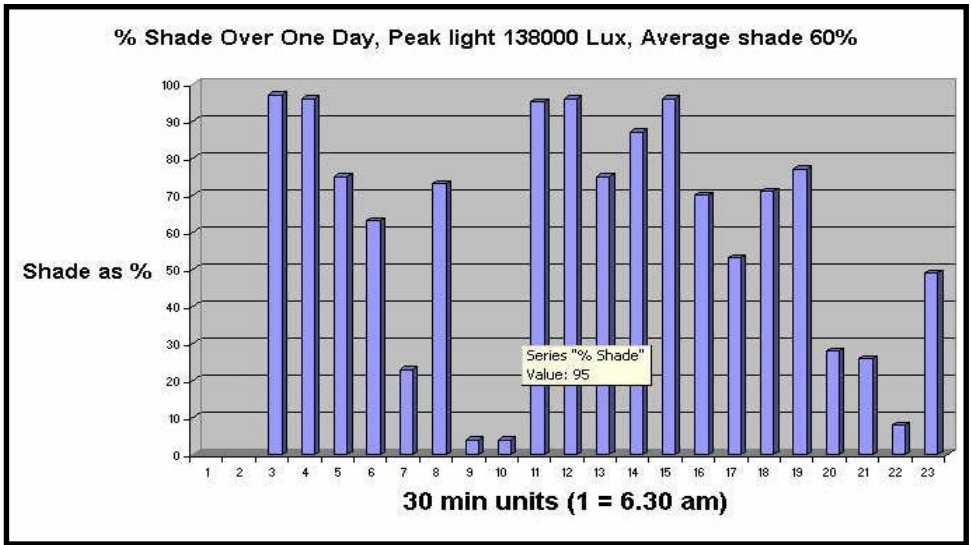


Figure #1

first thing I looked into was my own garden. All plants grow in the same soil and watered on sprinkler days. Some very large plants are grown in virtually empty pots once they are big enough to go into 10 inch pots. There is probably enough fertilizer in the soil for optimum growth. They occasionally would suffer from water stress. Remember I am in the Dry Tropics. The ones in empty pots would have some fertilizer stress. Any fertilizer they get is from the wells. The pots mainly contain foam to stabilize the plants

I have carried out some experimental work looking at the best growing and the best colouring regions in my garden. I looked around my garden and found firstly where the Neos coloured up best. Here I had the following Neos. growing, 'Coconut Ice' 'Ferny Grove', 'Red Veil', 'Paula', 'Enchantment', 'Orange Sun', 'Georges Prince', 'Serendipity Girl', 'Flesh', 'Blood Plum', 'Red Pride' and some of my own 'Roy's Rogue' hybrids. I took light intensity (flux) readings every half hour as the sun passed overhead. The highest reading of light impinging on Neo

Serendipity Girl was recorded. The collected data is shown in figure #1.

This data was collected every half hour over a period from 7.30 am to 5.30 pm.

The shade averages out at 60 % which suggests 50% shade cloth would be better than 75%. As this data stands this second answer is in agreement with my original, subjective, answer.

Most vigorous plants.

Over several years, a large selection of my plants, have been conditioned to many hours of full tropical sun. I chose for my experiment what I believed were the biggest, healthiest (best grown) if not necessarily the most coloured plants in the garden. Plants in this, best grown, group are the following Neoregelias: 'Gee Whiz', Princess Grace x Gee Whiz, 'Barbarian', 'Red Gold', 'Morrisoniana', 'Georges Prince', 'Samoa Chief', *cruenta*, and to my knowledge, an as yet unnamed plant called N. Brazil which was made famous in a photo with Grace Goode's hand appearing so small in comparison to the plant. These are growing in the

ground. These are separated by a pathway from the ones receiving maximum sun so are still in a high light area. The higher light side gets full tropical summer sun from 10 am to 3.30 pm. The (best grown) group has only one hour of full sun due to receiving shade from a palm tree and a tree fern. I have monitored the light intensity (flux) in detail, see figure #2. I measured the light falling on to one plant N. 'Morrisoniana' (I believe that name stands, some call it N. Rosy Morn), a well coloured up plant growing amongst this (best grown) group. As this plant was fairly large I got some variation of reading over the plant. I recorded the highest value. The data for this and the previous experiment was recorded half hourly over three days from Dec 4th to 6th 2005 (Dec 10th the sun is directly overhead in Townsville). The data is presented below and coincidentally the average shade was also found to be 60%. The sudden drops in light intensities are due to the wood of tree branches coming between the plant and the sun.

Again this value of 60 % might suggest that 50% rather than 75% shade cloth would be the better choice. So far the three answers are all the same.

Unfortunately the above calculations are flawed. You can not average shade values in this way. Plants don't see it as simple linear mathematics. They can only use so much flux of sunlight and the remainder is wasted. From here on the science gets a bit messy. To be precise I would need the facilities of a very advanced lab not just my little pocket size fluxmeter in order to scratch out an exact answer. If you just wanted to grow *Till pueblensis* in your bush house, later I will give you a reasonable answer but extrapolating research done on this plant to neoregelias might be a little tentative.

The comment above about not being able to average shade levels comes from work by

Benzing and Renfrow¹. They found that with *Till pueblensis* once light levels impinging on a leaf reached around 5300 foot candles (F-C), higher levels of light did not give higher levels of photosynthesis. So by way of an example let me explain why averaging data as I collected is not really valid. Averaging, we would say, two hours of light at 5300 foot candles is the same as one hour at 10,600 ft candles plus one hour in the dark. This is not at all how the plant sees it. The metabolic outcome is very different. The first produces twice the amount of sugar as in the second case. The light intensity in case two is twice what the above plant can cope with so it only utilizes half of it. Take my word that there is even a second reason that averaging does not work. I warn you that this is a mental teaser but I will spare you reason number 2 Every time I dig up new information I find two more holes to fill. I used findings of the above authors¹ to create this example. To reiterate their findings, for *T.pueblensis* experiencing above 5300 Foot Candle Power of light, the extra light has no further use in photosynthesis. Today I was lucky enough to find a plant, in Townsville, called *T.pueblensis*. I have also found literature stating *T. fasciculata* reflects around 50 % of incident light. I did a quick trip around my limited supply of tillandsias and got a reading up to 66% reflection for *T.usenoides* and around 10 to 15 % for my *neoregelias*. *T. pueblensis* gave a reflectance of 10%. I should not have been so surprised as this is a greenish plant from high altitude. This data I thought would give me the connection I wanted so that I could extrapolate existing data¹ known for *Tills*. and apply it to *Neos*. but low and behold I dug yet another hole.

I thought in my travels to going nowhere, that I had the desired cross over point. Unfortunately it is another case of comparing apples and oranges. The trichomes of grey

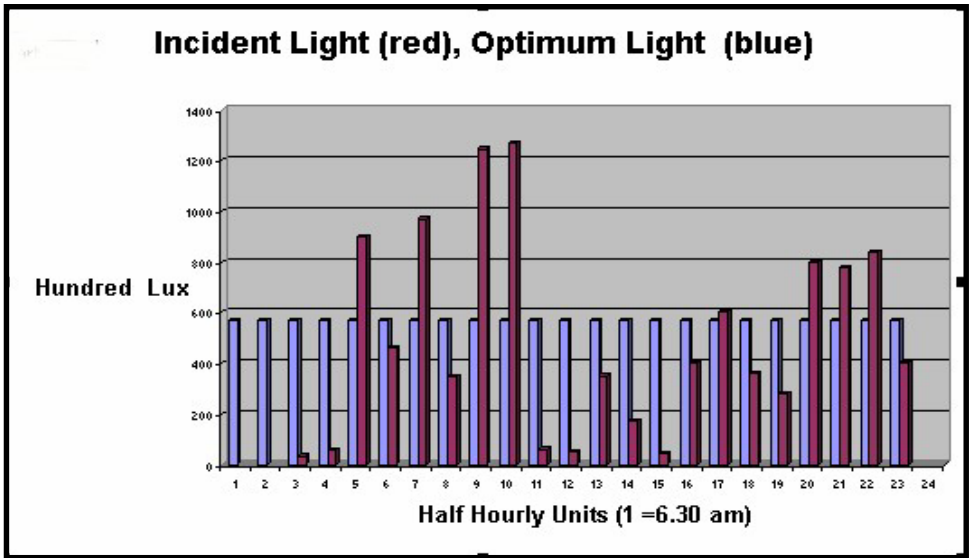


Figure #2

tills. are reflecting primarily white light whereas my neoregelias are reflecting the unwanted green light and *T.pueblensis* would be somewhere in between. My flux meter is at it's most sensitive in the green area while in the region where chlorophyll-a functions best the meter is virtually useless. So really I can't compare white light reflection quantitatively with green light reflection. That is why earlier I said I would need access to a very sophisticated laboratory. Fortunately the readings are fairly low at 10% reflectance for Neos and *T.pueblensis*. To move on I will assume the reflected light is all unwanted green light.

So far I have not been able to answer question #1 absolutely accurately but we must be getting close. We will explore the data that I have recorded as there is better to come.

The diagram (Figure #2) shows my own recorded data from the previously described experiment using my 'best grown' group of plants. The blue columns are my calculated and optimal levels of light for neoregelia growth (57,000 lux, 5,300 FC) see ¹. This fig-

ure could be up to 10% too high. The red columns represent the light flux impinging on my plant of *N. Morrisoniana*, and is recorded every half hour throughout the day. I think for the fourth time I can predict (but now with some accuracy) that optimal level of light would be achieved with 50% shade cloth. This is obvious from figure two where you can see that maximum light (no shade) is twice the predicted optimum light level.

I rest my case on recommending 50% shade cloth for growing Neoregelias.

Other interesting questions.

Figure #2 shows 8 half hour blocks equaling or exceeding the maximum useful range and probably another totalled 5 to 6 half hour block equivalent for the bits and pieces that are lower than the optimum flux. This means that my own personal best growing area gets the equivalent of about 7 hours of a day of optimum or higher light. Doesn't answer any of the questions put to me but does precipitate another couple of unanswered questions.

The research ¹ and my data concentrates on the exposed leaf surface. How much do



Known as Neoregelia 'Odean Head' or more widely Neoregelia 'Mister Odean'

RS



Tillandsia leiboldiana

RS

the self-shaded lower leaf surfaces contribute to overall photosynthesis? Measuring one plant *Neo Champsers* I found about 10% of light was reflected and about 80% absorbed by the leaf with 10 % transmitted. Going through the next leaf down 25% was transmitted. This tells me three things.

1) There could be quite significant photosynthesis going on in the first shaded leaf.

2) As % transmission is increasing as we move towards base of the plant we may be seeing only photo synthetically useless light (green) being involved.

3) We are not comparing apples with oranges as much as I thought. A thick sparsely leaved non-transparent *Till.* Plant equates nicely with a transparent multi layered *Neoregelia*

Further questions arising.

T. pueblensis is a C_3 plant which means its pores (stomata) are open and processing light and carbon dioxide during daylight hours. Closed at night. Fairly easy to monitor in the lab. *Neoregelias* are CAM plants and they open their pores at night absorbing and converting carbon dioxide. Pores close in the morning and concurrently light is needed to reconvert stored chemicals back to carbon dioxide which then undergoes photosynthesis to form sugars and other organics via the same Calvin-Benson cycle as found with the C_3 mechanism.

New questions arise, none of which I can answer using the above data.

Q1) What limits the photo synthesis to 5300 F-C in the mentioned *Tillandsia*? Was it set by the rate of diffusion of carbon dioxide into the plant or a rate limiting chemical step in the process leading to sugar?

Q2) Since with the *Neoregelia* carbon dioxide products are all locked inside the vacuole of the leaf during the night, how many hours of light at optimum level are needed to process the stored nightly supply? My best

grown plants suggest that this figure would be 7 hours or less. Research that I uncovered subsequent to my experimentation, confirms this ². This new data suggests to me that for a CAM plant (non bromeliad) that after a night temperature of 15C the plant starts to uptake carbon dioxide again after 8 hours of light dropping to about 5 hours with a night temperature of 36 C. Townsville's night temperatures are hovering around the mid twenties and their data ² suggests about 6 to 7 hours of light would be enough.

Q3) Is the Light Saturation Point (the level of light above which photosynthesis stops increasing) the same for both types of plants (C_3 , CAM)? I would expect not, as CAM plants have the extra step of needing light to break down the night's storage of malic acid and other stored organics.

Q4) Who has the time, the money and the qualifications and youth to do a PhD on Light Saturation in Bromeliads?

OUTCOMES

Shade cloth

In summary all the above says is that if you need to reduce very bright light, say 90% shade, use green mesh unless you can see well in the dark. If you are struggling for enough light (eg need 30% can only buy 50%) go for one of the off-white colours.

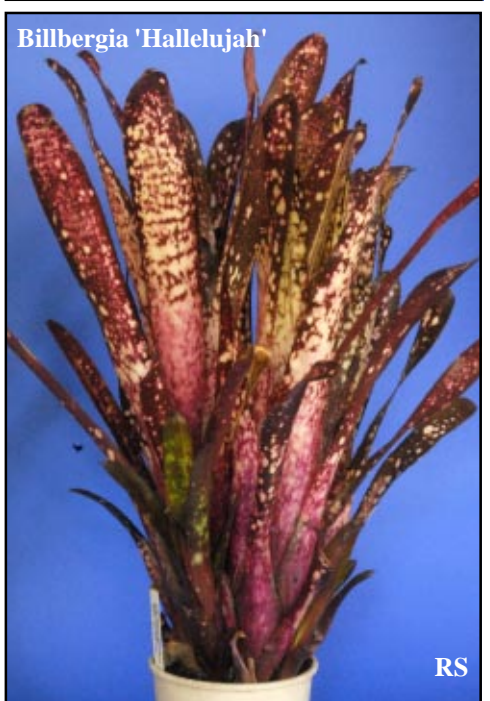
Optimum light requirements/ shade for some bromeliads

Today is a bright clear summers day in the tropics with a full light intensity of 12,500 FC.

If you are growing your plants under light limiting conditions i.e. adequate fertilizer, moisture available and no heat stress my findings and calculations suggest you will get optimum growth as follows:

A) *Till pueblensis* needs a constant 5300 FC ¹ of light all day so shade should be 60 %. Cloth available 50%.

B) *Guzmania linguata* needs 1500 FC ¹



of light so shade should be 88% maximum. I say maximum as I have not factored in utilization of lower leaves for photosynthesis. *G. lingulate* is a C_3 plant but some guzmanias are CAM plants, so my suggestion has conditions if you extend it to other guzmanias.

C) Neoregelias as for *Till pueblensis* with one other consideration. The Till is basically a green plant while the Neoregelia is brightly coloured. Extra light or extra stress or both would be required for optimum colour with Neoregelias.

My learned opinion after all this is: To grow Neoregelias to their best use no more than 50% shade cloth with fertilizer stress and at least 6 to 7 hours per day of optimum or higher light intensities. Temperature? I would like to keep my plants under 35C but don't think that will be possible in the tropics. We have had one day at 41C without obvious damage. I have measured temperatures in the hottest area of my garden adjoining paving. I was amazed that water temperatures in the wells were as high as 43C, leaf temperatures were up to 39C, ambient temp 33C. These of course are very hardened plants but not bleached. How do they as CAM plants with all pores closed during the day survive this heat? Maybe this is why they carry a pool of water. Protect from drying winds and keep wells topped up are other condition for growing neoregelias well. A special recommendation for the dry tropics. CAM plants need cold nights to absorb carbon dioxide and hence to photosynthesise. We don't have these conditions in summer so keep the plants well watered especially in the evenings. Stomata are known to open up with cooling. They will open at times, going against the rules in CAM plants, if there is no water stress³.

The amazing bromeliads

Bromeliads are amazingly adaptive. I have areas where the shade is 99% in my garden. Grey leaf tills have germinated in

there and they are an iridescent green and looking extremely healthy. I have ferns and guzmanias also growing in this very low light area. The guzmanias look to be struggling. They survive but don't flower. Now to the other extreme, I have quite a lot in Neoregelias growing in full tropical sun during the hottest times of the day. It has taken suitable plants (about 20 *concentrica/cruenta* types) about 2 years to adapt. N. 'Beetroot', N. 'A Perfect Score', N. 'Tossed Salad', Neo 'Gee Whiz', Neo. 'Isabel' (sport), Neo. 'Bruiser', Neo 'Hagar' and various *N. concentrica* species and all are actually thriving. N. 'Stars and Bars' is not as attractive due to yellow carotene colouring but I will give it another year. Some plants, N. 'Rosatina', N. 'Princess Di', N. 'Princess Grace', N. 'Lilac Dream', N. Rio Grande (name not be registered), N. 'Heart Music' and N. 'Bruiser' started colouring but faded. They are now the carotenoid green/yellow. It is early December and day temperatures are around 33 C, full tropical sun reaches these plants around 10 am and drops off sharply after 4 pm. That is 6 hours and many of these plants have taken only two years to adjust. Many bleached the first summer, none yet this summer. I must admit that in another more shaded area, another N. 'Beetroot' also of flowering size, has a much richer purple and is less blue blush in the centre but has less pronounced banding. This second plant is growing in about 70% of full sun light for the same period.

Unfortunately, living in the tropics the sun is not always to the north or directly overhead as it is when I am writing this. I have shade to the south so soon some of these plants will go into shade. They have had intense light since last summer and are hardened. This upcoming period of softening in full shade will be followed by sudden summer sun exposure as the sun moves back north. This will be the testing time for these

BROMELIADS XIII CONFERENCE – COMPETITION RESULTS

(Compiled by Bob Reilly)

plants. Only a wet season might protect them. It will confound my southern visitors once more. This garden is very wide, probably 4 metres. They will ask, “Why are the plants on the northern side and in full sun doing so well while the ones to the back are showing signs of stress? Next year there should be no problem as I will have two tree ferns in for horizontal shade. Paw paws make good temporary shade. The current vertical shade to the south will no longer be a problem.

As a final note, I would like to mention that the presence of carotenoid pigmentation, mentioned above, does detract from the sharpness of colours but it is not harming the plant. Beta-carotene in fact does just the opposite. It absorbs very much the same radiation frequencies that the blue part (high energy part) of the light spectrum that alpha-chlorophyll absorbs. You can consider it as a plants sunscreen protecting chlorophyll from over exposure. This is why green plants conditioned to high light survive while soft ones burn and succumb. As long as chlorophyll survives the yellow carotene pigment can take over some of the chlorophyll’s role of trapping light energy to allow photosynthesis. It can’t do it on its own. Any school botany book will satisfy your search for further knowledge in this area as it is the same for most other plants.

1 Benzing, D. H. *And Renfrow. Bot. Gaz* 132(1) 19-30 1971

2 Neales, T. F. *Australian Journal of Biological Sciences* 26:705-714, 1973)

3 Hartsock, T.L. and Nobel, P. S. *Nature* 262:574-576.

• Note: Units of light intensity (flux)—two different sets of units are popular. For conversion —1 Foot Candle = 10.76 Lux

Stoma: Any of the various small apertures, especially a minute orifice in the leaves; a breathing pore (pl. stomata).

The competition was generally conducted in accordance with the procedures and rules outlined in the Bromeliad Society International’s (BSI) publication titled: *Handbook for Judges, Exhibitors and Affiliates* (2nd edition, and as subsequently amended by the BSI)

The competition classes were:

- Class 1: Medium Neoregelias
- Class 2: Miniature Neoregelias
- Class 3: Terrestrials
- Class 4: Tillandsias
- Class 5: Other flowering bromeliads
- Class 6: Other foliage bromeliads

A modified version of the BSI Handbook’s “Merit Judging” Scale was used, namely:

Award	Points
Award of Merit	95-100
Highly Commended	90-94
Commended	85-89

Prizes were also awarded for Champion Foliage Bromeliad and Champion Flowering Bromeliad.

18 registrants entered a total of 69 bromeliads into the competition.

A Warning

“While Tillandsias do not have spiny leaves, the basal leaves on some species are stout, sharply pointed and capable of inflicting a nasty puncture wound, especially when dried off. Handle with care”.

Sent in by Peter Peroz, from BSQ January meeting, spoken during cultural notes.

Class 1: Medium Neoregelias

Award of Merit	<i>Neo.</i> 'Johannis de Rolf'	B & A Kable
Award of Merit	<i>Neo.</i> 'Kawika'	C Basic
Highly commended	<i>Neo.</i> 'Painted Delight'	J Catlan
Commended	<i>Neo.</i> johannis 'De Rolf'	Lyn Grubb
Commended	<i>Neo.</i> 'Georges Prince'	G & N Aizlewood
Commended	<i>Neo.</i> 'Blushing Bride'	R J Paulsen

Class 2: Miniature Neoregelias

Award of Merit	<i>Neo.</i> 'Rosella'	C Basic
Highly commended	<i>Neo.</i> 'Flirtation'	D Cutcliffe
Highly commended	<i>Neo.</i> bahiana	R J Paulsen
Highly commended	<i>Neo.</i> 'Pheasant'	R J Paulsen

Class 3: Terrestrials

Award of Merit	<i>Deutorocohnia brevifolia</i>	John Higgins
Award of Merit	<i>Dyckia</i> 'Dragons Tooth' (unreg)	J Catlan
Award of Merit	<i>Dyckia brevifolia</i>	R J Paulsen
Highly commended	<i>Dyckia</i> 'Cherry Coke'	R J Paulsen

Class 4: Tillandsia

Award of Merit	<i>T. tectorum</i>	R Cross
Award of Merit	<i>T. ionantha</i>	D & J Upton
Highly commended	<i>T. streptophylla</i>	Lyn Grubb
Highly commended	<i>T. ionantha</i> 'Pink Champagne'	D & J Upton
Highly commended	<i>T. ehlersiana</i>	R Reilly
Highly commended	<i>T. ehlersiana</i>	P Coutts
Highly commended	<i>T. streptophylla</i>	P Coutts
Commended	<i>T. fasciculata</i>	R J Paulsen

Class 5: Other flowering bromeliads

Award of Merit	<i>Ae. tessmannii</i> 'red form'	G & N Aizlewood
Award of Merit	<i>Bill.</i> 'Fandango'	G & N Aizlewood
Highly commended	<i>Acanthostachys strobilacea</i>	Gwen & Doug Pakinson
Highly commended	<i>Guz.</i> 'Lantra Star' (unreg)	R & M Dilling
Highly commended	<i>Guz.</i> 'Attilla'	R & M Dilling
Commended	<i>Ae. nudicaulis</i>	Lyn Grubb
Commended	<i>Guz. cabererae</i>	P Tristram
Commended	<i>Vr.</i> 'Tiger Tim'	P Tristram
Commended	<i>Ae. capixabae</i>	P Tristram
Commended	<i>Guz.</i> 'Intro'	R & M Dilling
Commended	<i>Vr. fosteriana</i> 'Megan' (unreg)	R & M Dilling

Class 6: Other foliage bromeliads

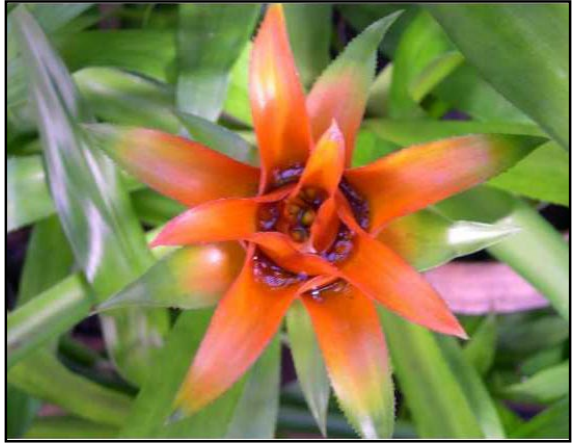
Award of Merit	<i>Vr. fenestralis</i>	G & N Aizlewood
Award of Merit	<i>Quesnelia</i> 'Tim Plowman'	D Cutcliffe
Highly commended	<i>Vr. fosteriana seideliana var. rubra</i>	B & A Kable
Highly commended	<i>Vr. gigantea var. seideliana</i>	B & A Kable
Commended	<i>Bill.</i> 'Hallelujah'	Lyn Grubb
Commended	<i>Neophytum</i> 'Galactic Warrior'	B & A Kable

Champion Bromeliads

Champion Foliage Bromeliad	<i>Neo.</i> 'Johannis de Rolf'	B & A Kable
Champion Flowering Bromeliad	<i>Ae. tessmannii</i> 'red form'	G & N Aizlewood



Canistropsis billbergioides
'Citron'



Canistropsis billbergioides
'Persimmon'



Canistropsis billbergioides
'Tutti Frutti'

CANISTROPSIS

(by Andrew Steens)

Editorial comment (Bob Reilly) Re-printed, with permission of the Bromeliad Society of New Zealand, from Bromeliad, September 2005, v.45(9), pp 4-7. Canistropsis is a genus closely related to Nidularium, and once was part of it. In this article, Andrew Steens, a prominent New Zealand bromeliad grower, discusses some Canistropsis species, and hybrids. Canistropsis plants, with the exception of billbergioides and seidelii, are rarely seen in Queensland collections.

The *Canistropsis* genus includes some of my favourite Bromeliads, as well as some of the plainest bromeliads. This is a fairly recently formed genus, once part of *Nidularium*, now a genus in their own right. Approximately 12 species make up this genus, of which only 1 species is commonly grown. The first species found was *Canistropsis burchellii* in 1826, the last was *Canistropsis simulans* in 1985.

The more attractive members are equally showy as some of the smaller *Guzmania*, but are much more adaptable in the garden. The others are mostly very nondescript plants and are therefore not often seen in collections.

All the plants in this genus prefer heavy shade, quickly looking stressed if they are exposed to too much light. This characteristic derives from their origins in Brazil, where they are mostly confined to the Atlantic coast forests, and mostly at or near ground level. The centre of distribution of this genus is the state of Rio de Janeiro, where 8 of the 12 species can be found. This coastal environment results in *Canistropsis* having a fairly high degree of tolerance to salt laden coastal winds, and a reasonable degree of cold toler-

ance. Mostly, they prefer moist conditions, as the Brazilian Atlantic forests are mostly rainforests, and heavily crisscrossed with rivers and streams.

Given these environmental conditions, they are ideal for indoor environments, and are also excellent for growing in shady gardens throughout the temperate and subtropical zones. Most of them flower in mid winter, bringing some much-needed colour to the garden and as the flowers are so bright, they really stand out in the shade.

Canistropsis albiflora

This is the most tender of the *Canistropsis* species, with very fragile green leaves that are adapted to very wet environments. It is rare in the wild and in cultivation as a result. It grows exclusively as an epiphyte, scrambling on long stolons through shrubs.

Canistropsis billbergioides

This is one of the best *Canistropsis* species for cultivating. This species spreads via short stolons, which can grow along the ground or move up a support such as a tree fern trunk. One plant will produce 1-3 pups per year, so you soon have a good size clump to work with. This species is ideal as indoor pot plants, and many thousands of the variety Citron is produced in Europe and the USA each year for this purpose.

All of the 10 or so cultivars of this species have been recently renamed.

- APRICOT Deep yellow orange bracts, green leaves.
- BLOOD ORANGE Reddish orange bracts, green leaves.
- CITRON Yellow bracts, green leaves.
- GUAVA Rose bracts, green leaves.
- LEMON Light yellow bracts, green leaves.
- MULBERRY Dark orange/mulberry bracts, reddish leaves on both sides.

Guzmania 'Limonas'



RS

Guzmania 'Candy Strip'



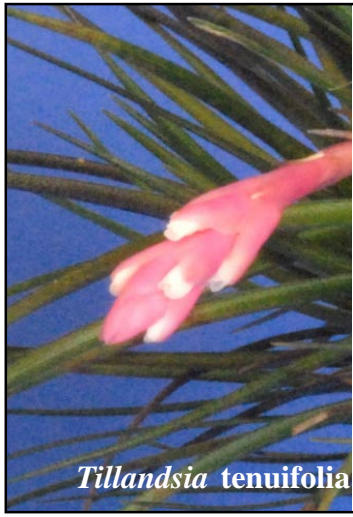
RS

Aechmea fasciata (hybrid)



RS

Tillandsia tenuifolia





- PERSIMMON Orange bracts, green leaves.
- TAMARILLO Orange flushed mulberry bracts, rusty leaves on both sides.
- TUTTI FRUTTI Orange flushed mulberry bracts, green leaves.

The most common variety in Australasia is 'Persimmon' which is bright orange, 'Citron' is much more common in the USA and Europe, with its' lemon yellow bracts. It is slightly smaller and more tender than 'Persimmon'.

'Tutti Frutti' is slightly larger than 'Persimmon', with a stunning flower which changes from burnt orange when young to a deep mulberry red as it ages.

Even more beautiful is the cultivar 'Guava', which has pinkish red flower bracts. Unfortunately, this cultivar is not commonly available.

The slowest growing cultivar would have to be *Canistropsis billbergioides* 'Plum' which is also one of the most striking. Small rosettes of deep 'Black Doris' type plum coloured leaves are topped with the same colour star shaped flower spikes. The colour fades to green if any direct sunlight reaches these plants.

Canistropsis billbergioides f. azurea

This is a separate variety from those described above, as unlike the normal white petalled types, this has blue petals, which look stunning with the large showy orange bracts. This form is still rare in cultivation, even though it is probably the most beautiful. Unfortunately, as it comes from the same area as *Canistropsis pulcherrima* it is also likely to be endangered in the wild.

Canistropsis burchellii

A small plant with dusty green leaves on top and deep burgundy below. The light lavender flowers are nestled deep in the centre of

the cup much like a *Neoregelia*. Although fairly nondescript, it can be useful as a groundcover for very shady areas of the garden.

Canistropsis correia-araujoii

Elton Leme and other experts consider this to be most likely an intergeneric hybrid with a *Neoregelia*. This is due to the inner leaves flushing maroon at flowering. However, until proven, it remains a species in its own right.

Canistropsis elata

This lovely small species has wine coloured leaves and dark wine coloured bracts. Possibly extinct in its native habitat, due to housing developments.

Canistropsis exigua

The flower head on this striking species is held well above the foliage. It has bright red bracts and clusters of prominent white petals. The overall effect is of a *Canistrum* type flower, but held on typical *Canistropsis* rosettes. Rare in the wild and in cultivation.

Canistropsis 'Tangerine'

A cross between *Canistropsis billbergioides* 'Red Leaf' x *azurea*) which has reddish-green leaves on top and wine red below. The inflorescence is a showy star-shaped head of orange-red bracts.

Canistropsis marceloi

This *Canistropsis* species is very similar to *burchellii*, but with a red inflorescence and white petals. Originates from forest floor environments, sometimes on rocks or fallen logs.

Canistropsis microps

A small but attractive *Canistropsis* species, with red bracts. It is typically found growing in leaf litter on the rain forest floor, or scrambling over logs, rocks and the base of trees. Not often seen in cultivation. Apart from the species, there are two recognised forms, *pallida*, with green bracts, and *bicensis* with bronze coloured leaves.



A selection of Photographs from Conference 2005

Canistropsis pulcherrima

A very beautiful canistropsis with intense lilac pink bracts. It is probably extinct in the wild, due to coastal development. Also not common in cultivation.

Canistropsis seidelii

Shiny green leaves form an open rosette similar to *Canistropsis billbergioides*. The flower spike has the appearance of a *guzmania*, with layers of bright yellow, star shaped bracts clustered up the stem. Very beautiful. There are other colour forms, including red, dark red and greenish flower bracts.

Canistropsis selloana

The virtually spineless green leaves give a grass like appearance similar to many *pitcairnia*, and it is only the typical *Canistropsis* flower spike that gives it away. As with many *pitcairnia*s, it is almost always found in areas that are wet, such as stream banks. This requirement for wet habitats means that it is difficult to cultivate and becoming rare in the wild.

Canistropsis simulans

This *Canistropsis* species is also very similar to *burchellii*, with green leaves that are wine coloured underneath.

Registered - Unregistered

After some of the plant names in this journal you may see the code (unreg). This means that the plant name is not registered, The name may be in common use, however being unregistered may result in the same name being registered for a completely different plant species/cultivar/hybrid.

The result - confusion. We are trying to do our bit by highlighting when we are aware that the name used is unregistered and thus likely to cause confusion in this globalised world. Derek Butcher would love to hear from people interested in registering their hybrids and cultivars.

GROWING NIDULARIUMS

(by Bob Reilly)

Many growers have one or two *nidulariums*, or their close relatives, *Canistropsis* species, hidden away in a corner of their garden, or under a bench in their shadehouse. However, there are many *nidularium* species and hybrids which are rarely seen. This is a pity, given their elegant shape, colourful inflorescence, and, in some cases, their attractively marked foliage.

The genus *Nidularium* was described in 1854 by Charles-Antoine Lemaire, a French botanist. Following a major review of the genus by Dr. Elton Leme, (Leme, 2000), 45 species are currently recognised. There would be at least a similar number of hybrids. However, fewer hybrids than species appear in most Australian collections.

Nidulariums typically have a flat to semi-erect rosette, with a “tank” in the plant’s centre. The tank stores a limited amount of water which helps meet the plant’s moisture requirements. The leaves are typically green, and have inconspicuous spines (a distinct plus!) on their edges. Unfortunately, the leaves are, generally speaking, relatively easy to damage, so care is needed in handling these plants.

These plants grow well in pots or small buckets. Typically, the containers have a diameter of 140 to 200 mm. 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;
- Pine bark chunks, such as those used to grow cymbidiums in, treated with a special type of fertiliser available from the Soci-

ety. Combine one part charcoal with six parts treated bark to form this potting mixture;

- A mixture of one part Peatmoss or Cocopeat and one part coarse river sand. Add Nutricote or Osmocote to this mixture.

Generally speaking, nidulariums respond positively to liquid fertiliser. If you decide to use a liquid fertiliser, a brand such as Phos-trogen (N:P:K ratio is 14 : 4.4 : 22.5), which has relatively low amounts of nitrogen in it, may give the best results.

These plants are “shady characters”. They like more shade than any other bromeliad genus. During summer, they like to be grown under the equivalent of 90% density shadecloth, and 70% for the balance of the year.

Some people grow the plants under benches to provide more shade. However, while the light levels are generally good, the plant’s leaves tend to get damaged for a variety of reasons. Consequently, this approach is not recommended if you are trying to produce high quality plants.

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

Nidulariums must be protected from frost.

These plants readily produce pups, which will grow into flowering plants in 12 to 24 months’ time, if they are removed when they are one third to one half of the parent’s plant size. Avoid removing pups in late autumn or winter, as they can rot during the colder weather.

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.

Most of the plants described in the balance of this article are readily available from bromeliad nurseries and at the Society’s meetings, field days, and shows.

There is debate about the correct names for some of these plants. I have used the names under which they are commonly sold in southern Queensland.

- ***antoineanum*** (some botanists consider this plant is the species, *terminale*). About 20, 6 cm wide, green leaves form a 60 cm wide flat rosette. The 10 to 15 cm wide, star-shaped, inflorescence is mauve-purple in colour. (The clones I have seen appear mauve-purple at all times, but there are forms where the colour of the inflorescence changes from plum-red to mauve-purple, as flowering progresses.)

- **‘Chantrieri’** Around 20, 5 cm wide, leaves form a semi-erect rosette about 60 cm across. When grown under 70% density shadecloth throughout the year, the green leaves become suffused with light pink. It has a 10 cm wide, “lolly-pink”, star-shaped inflorescence.

- ***fulgens*** About 30, 5 cm wide, leaves form a flat rosette approximately 70 cm across. The light green leaves have dark green mottling, and pronounced (for a nidularium!) spines. The 15 cm wide, star-shaped, orange-red inflorescence is level with the top of the plant’s leaves. There is a form with an orange inflorescence.

- ***innocentii*** A large number of varieties and cultivars of this species are available. Some of the more commonly encountered ones are:

- **‘albo-marginata’** About 20, 7 cm wide, form an open, semi-erect rosette about 80 cm across. The green leaves have cream margins, and thin white stripes elsewhere. At flowering, a 15 cm wide, pink-tipped, star-shaped inflorescence forms in the plant’s centre.

- **var. *lineatum*** Around 15, 7 cm wide, leaves form a 50 cm wide flat rosette. The light green leaves have numerous, thin, white stripes. A 15 cm wide, red-tipped, star-shaped inflorescence forms in the plant's centre. This plant can be difficult to grow well.

- **'Nana'** About 20, 4 cm wide, leaves form a 40 cm wide flat rosette. The leaves' lower surfaces are dark purple, while the upper surfaces are a lighter purple suffused with green. The 10 cm wide, dark red, star-shaped inflorescence rises well above the plant's leaves. This plant may be best grown in a 100 mm pot.

- **var. *striatum*** Around 30, 5 cm wide, leaves form a semi-erect rosette about 60 cm across. The light green leaves have creamy-yellow stripes, particularly near the plant's centre. The stripes appear to "fade" as the individual leaves "age". At flowering, a 15 cm wide, pink, star-shaped inflorescence forms in the plant's centre.

- **var. *wittmackianum*** This plant is now named *N. longiflorum*.

'Leprosa' (incorrectly labelled as *regeloides* 'Spotty' in some collections), About 15, 5 cm wide, leaves form a 60 cm wide open rosette. The light green leaves have faint, dark green markings. The 15 cm wide, star-shaped inflorescence is pink, with dark pink spotting.

- ***longiflorum*** Around 30, 8 cm wide, green leaves form an 80 cm wide, flat rosette. The 15 cm wide, red-tipped, circular inflorescence rises just above the plant's leaves. This plant is one of my favourites.

- **'Miranda'** About 30, 6 cm wide, leaves form a semi-erect rosette approximately 90 cm across. The light green leaves have pale yellow stripes, of varying widths, in their centres. The 12 cm wide, pink, cup-shaped inflorescence rises above the plant's central leaves, but not the outer ones.

- **'Nat de Leon'** Around 20, 5 cm wide,

leaves form a semi-erect rosette which "flattens out" at flowering. The purple-red leaves have faint, dark green spotting. At flowering, a red, star-shaped inflorescence is formed in the plant's inner leaves.

- ***procerum*** Numerous, 3 cm wide, green leaves form a semi-erect rosette about 70 cm across. A 10 to 15 cm wide, red, star-shaped inflorescence rises above the plant's leaves.

- **'Ruby Lee'** About 20, 6 cm wide, leaves form a flat rosette around 60 cm across. The leaves' lower surfaces are plum-red, while the upper surfaces are green with many thin, purple and white stripes. At flowering, a red, star-shaped inflorescence "nestles" in the plant's inner leaves. This plant is relatively easy to grow, and looks spectacular at flowering time.

- ***rutilans*** Around 15, 5 cm wide, leaves form a 50 cm wide, flat, open rosette. The yellow-green leaves have dark green spots. At flowering, a 12 cm wide, pink-red, star-shaped inflorescence is formed.

A variegated form also exists. The plant's lower leaves have white stripes of varying widths. Other aspects are similar to the non-variegated form.

species (ex June Buchanan - No 4102. This could be a form of *N. procerum*). About 20, 4 cm wide, bronze-green leaves form a flat, open rosette approximately 80 cm across. The 20 cm wide, red, star-shaped inflorescence rises just above the plant's leaves.

Acknowledgements I thank Doug Upton for taking the photographs used to illustrate this article.

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DU

'Nat de Leon'



DU

Nidularium innocenti v *lineatum*



DU

Nidularium rutilans variegata



DU

Nidularium innocenti cv *Nana*



DU

Nidularium rutilans

WHY GROW NIDULARIUMS?

(by Art Hyland)

Editorial comment (Bob Reilly) Reprinted, with permission of the Bromeliad Society International, from the Journal of The Bromeliad Society, 1997, volume 47(4), pp 164-165. In this article, a grower from Florida describes how he grows nidulariums. Amongst other matters, he makes some valuable points about the differences in cultural conditions needed by nidulariums and the much more commonly seen neoregelias. In the article, he refers to Smith & Downs, which is a standard text on bromeliad taxonomy.

In 1950, I was given a bromeliad. It was love at first sight, and I'm still hooked. The blamed things are habit-forming. In the years since, I have collected many varieties from a number of genera in all three sub-families. As I have grown older, and perhaps wiser, I have decided to limit myself to specializing in one genus, along with a few favorites from other genera I've amassed over the years.

The genus I selected was *Nidularium*. Why choose such an under-utilized group of plants? The reasons follow:

1. It's a small genus so I can hope to obtain representatives of all the species.
2. All species enjoy living where I do in Central Florida.
3. They are relatively colorful plants and are dependable bloomers.
4. They are easy to grow and therefore allow me to go off fishing.

In fact, the plants are so great I can't help wondering why everyone isn't growing them? After speaking to many people, I have come to the conclusion that most believe they should be grown much like neoregelias since they are closely related to them genetically, according to Smith & Downs. They are also

closely related to *Cryptanthus*, also according to Smith & Downs, and as a matter of fact, they prefer cultural conditions more akin to those used for *Cryptanthus* than *Neoregelia*. They do not appreciate being treated like a neoregelia.

Nids need high humidity and fairly moist conditions. Neos grow best on the dry side. Neos need generally very high levels of light, while nids tolerate and thrive on the lowest light levels of any bromeliad genus. Nids respond to steady fertilization, but neos will often lose colour if fed at the same rate. Neos like to be slightly under-potted, while nids prefer ample space for their roots because they are mostly terrestrial. As with all general rules, however, I am sure there are some exceptions.

I have taken these factors into consideration in growing my own plants. My potting medium is primarily peat to which I add perlite and partially composted pine bark chips. I also add potash and triple superphosphate at the time of mixing and at potting time. I add an additional 1/2 teaspoon of time release 14-14-14 [*N-P-K Ed*] per gallon of medium. During the growing season, I feed with 15-30-15 at 1/4 label strength on a weekly basis.

My yard is virtually covered with oak trees, so I have low light conditions. The potted plants are grown on benches under 30% shade cloth to protect them from falling oak leaves and acorns. Those growing out in the landscape are treated to oak leaf removal via a portable blower. We usually have sufficient rainfall here in Central Florida to keep my nids happy but if it has not rained for a week or so, I water thoroughly and make certain that all of the cups of the plants overflow. Since my plants are grown outdoors, I have good air circulation thereby limiting the potential for scale infestation.

During the winter, I move all my potted collection into a 16 by 24 feet greenhouse



Nidularium innocentii 'Robert Reilly'



Nidularium innocentii v *striatum*



Nidularium 'Leopardium'



Nidularium 'Leprosa'



Nidularium 'Miranda'



Nidularium longiflorum

which I cover with plastic. Here the plants are on benches and shelves. Most of the time I keep the east end of the greenhouse open for air circulation, but if freezing temperatures are expected, I seal it and use artificial heating. I have to do this an average of about five nights a year.

I have asked myself the title question because someone once asked me why I took such an interest in nidulariums. The only response I could come up with then was, "because I like them". As I gave more thought to the question, and realized what some of the practical reasons were, I thought I would share them along with my cultural methods so that perhaps a few more growers and hobbyists would become more interested in these fascinating plants.

Presently, I am compiling a list of species, forms, varieties and hybrids. This is an annual chore to assist me in my search for new plants. I truly feel that if you start growing these plants, you too will become a fan.

BEGINNER'S CORNER

There is a saying that there are no new jokes; just ones that you haven't heard. A similar situation exists regarding the cultivation of bromeliads. There is a wealth of information in our library. The following information has been reprinted from BSI Journals from the early nineties. *Peter Peroz*

Questions & Answers

Conducted by Derek Butcher

Q. What should I use as a potting mix? Everyone I ask gives me a different answer.

A. It appears that you have been speaking to the same people I speak to. I have seen bromeliads grown successfully (by others) in mud, clay, water, rocks, any old wood chips. For the beginner, we recommend mixing commercial potting mix with commercial orchid mix. If you come from a wet, warm area then put in more of the orchid mix. If

from a dry, warm area then put in less of the orchid mix.

The mix needs to be varied for the kind of plant. For example, true terrestrial plants such as puyas, dyckias, and hechtias need a heavier mix. Most epiphytic plants, which have grey, silvery leaves, such as most tillandsias and some vrieseas, need to be kept away from potting mixes. All other bromeliads come in between with various preferences.

Remember, we are trying to give optimum conditions in the growing period so take care if you have cold, wet winters.

The really keen bromeliad collector generally spends much more money on new plants than on potting mixes and generally spends a great deal of time checking on what favourite materials can be bought locally at the cheapest rate. If you are still not sure, then join the nearest bromeliad society and see for yourself.!

The key elements to remember are:

- Learn where the plant originated and think how you can provide similar conditions. At least, did it grow on the ground, on rocks, or as an air plant? If a rock grower, consider that it may have enjoyed a steady seepage of moisture around its roots.

- Most bromeliads prefer a fresh, good-smelling mix even if they can't smell.

- Pups should be given enough support to hold them firmly in the potting mix or on the bark or tree fern that you use for mounting tillandsias.

Q. How long have bromeliads been cultivated?

A. The pineapple was nurtured in the central Americas for perhaps hundreds of years before Christopher Columbus discovered the New World. Whilst the New World was being colonized there seemed little time to spend on cultivating bromeliads. However, there was a craze for exotic plants in Europe and we know that in 1776 *Guzmania*

lingulata was available. This was followed by *Cryptanthus undulatus* in 1827, *Aechmea fasciata* in 1828, and *Vriesea splendens* in the 1840s. By the 1890s over 300 kinds of bromeliads were in cultivation. There was a flurry of hybridization through the turn of the 20th century but bromeliad growing remained a mainly European pastime. The formation of this society in **1950** seemed to act as a catalyst for a phenomenal increase in interest in this plant family.

So, some bromeliads have been around for many years. Perhaps it would be worthwhile trying to trace the oldest surviving clone. Perhaps botanical gardens would inspect their records and write to us.

Q. Is *Dyckia* both a succulent and a bromeliad?

A. *Dyckia* certainly has succulent leaves in the same way that a steak can be succulent—nice and juicy inside. Succulent is, however, an adjective with no botanical reference, whereas bromeliad is a noun based on the botanical v~ord Bromeliaceae. So a dyckia can be called a succulent bromeliad.

There are a few bromeliads that conserve moisture within the leaf, whereas many have evolved the cup formation of leaves to conserve moisture within the plant. Bromeliads that are accepted as being succulent are all terrestrial. *Dyckia* and *Hechtia* are the main examples. Needless to say, you would grow these plants as you would members of the cactus family. To finish on a provocative note, I have had the misfortune to knock off leaf tips of tillandsias such as *T. ixioides* and would consider those leaves to be quite succulent.

Questions & Answers

Conducted by Bob Heer and Tom Montgomery

Q. Do you ever fertilize bromeliads? If so, which ones should you fertilize, and which not?

A. **On page 81 of the book** by Dr. David Benzing, *The Biology of The Bromeliads*, is the following statement, “Almost all cultured plants will grow faster and become larger if given supplemental nutrients over and above those quantities available to them in nature. Bromeliads are no exception.” The term fertilizer is usually taken to mean various proportions of the three essential elements for plant growth: nitrogen, phosphorus, and potassium. This is represented on fertilizer containers by an abbreviation such as 10-10-10. This same commercial product may or may not contain the so-called trace elements that are also vital to a plant’s well-being. The atmosphere is also responsible for other nutrients, such as oxygen, carbon, and hydrogen. Nor should the essential water be overlooked. Consequently, we should seek to supply bromeliads with the nutrients they require and to supply those nutrients in the correct quantities. At different stages of their lives, bromeliads require different amounts of the essential elements. The various functions of these, as well as the trace elements, would require more than the space we have available here. As to which genera need what, the answer would comprise a small book. To answer in part, this could be a guide: neoregelias and aechmeas need to have all the plant nutrients, except nitrogen. They will find their own. Terrestrials, such as dyckias, hechtias, puyas, pitcairnia, and cryptanthus respond well to a balanced fertilizer, even somewhat higher in nitrogen. The genera that produce spectacular inflorescences, such as guzmanias, nidulariums, vrieseas and tillandsias, benefit from a balanced fertilizer with emphasis on potassium (potash) as they approach the blooming stage. Remember that the nutrients cannot be absorbed unless they are dissolved in a slightly acid solution. If your water is alkaline, you must acidify it for best results. This is a gross over-simplification of

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a very complex subject.

Q. Some of my tilliandsias are dying. Is some wood not compatible for mounting?

A. Two types of wood come to mind, lumber treated with a wood preservative and coastal driftwood. Wood treated with a preservative or painted with a toxic paint cannot be salvaged. Coastal driftwood can be soaked in fresh water to remove the salts. Use a container large enough to submerge the wood completely, weight it down, cover with water, changing the water and rinsing the wood every three days for two weeks. Any seasoned hard wood should be all right, although some soft wood, such as pine or eucalyptus, could be suspect.

Q. What can I use for a potting mix when I can't buy tree fern or bark?

A. Epiphytic bromeliads, that is those that grow above the ground on another plant for support, can be grown in almost anything that is nontoxic and allows the root area to drain quickly. The greatest need of the epiphytes is a stable base. With proper care they will do nicely in such nonnutritive substances as broken safety glass, pea gravel, crushed granite (although this does have some nutritive value), lava rock and haydite. One very successful medium that many people use from choice is coarse perlite topped with about an inch of gravel to help prevent it from being washed out of the pot. This material, when properly fed and watered, produces amazing root development.

Q. Can bromeliads be grown in just perlite?

A. Perlite makes a very good medium for growing bromeliads as stated above. The main problem with any growing medium is to determine the moisture and nutrient requirements. Perlite is nontoxic although it does release some fluoride ions and should

Jennie Ridley's Shadehouse

Hi Ross,

You mentioned in the latest Bromeliaceae that you wanted pictures of shadehouses. I have recently built a new house on land where all the trees were cleared and needed protection for several hundred broms I transported from my last address. I contacted Peters Glen who advertise in your journal and they travelled about 2 hours to erect a shadehouse for me (photos attached). They were marvellous. It measures 6.2m X 3.65m and has 50% shadeloth on wall and 70% on the roof. My plants are loving it - trouble is I've run out of room already.

Cheers,

Jennie Ridley,

Highfields, Via Toowoomba.

(Photographs opposite)

not be used with fluoride-sensitive plants. Obtain the larger, pellet-type, sometimes known as agricultural perlite, and then sift it through one-eighth inch hardware cloth while using a face mask or respirator. The fine dust is believed to be carcinogenic, thus it is usually dampened before use, but is impossible to sift when wet. Sifting removes the fine particles and some of the dust. Reserve the fine particles to add to some other type mix and use the larger particles as the medium for growing in pure perlite. It will be necessary to occlude the drainage holes with screen or gravel. Then, using the dampened perlite, pot as usual, filling up to the dirt line, (that is the ring about three-quarters to one inch from the top of the pot), do not pack. Top with pea gravel or some material to prevent washing. This is an artificial way of growing and you have complete control over what nutrients the

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Jennie Ridley's Shadehouse

Growing Catopsis

by Rob Reilly

“...The genus *Catopsis* is not well represented in Australia...” This statement was made in the March-April 1977 edition of *Bromeleter*, and is still true today. This is a pity, as the plants, while not particularly striking, possess a quiet charm and simple elegance.

The genus was described in 1864, and the word “catopsis” is derived from the Greek word meaning view. It probably refers to the fact that, in their natural habitat, they are usually found growing on trees. (However, they also sometimes grow on rocks).

They are usually found growing with tillandsias and vrieseas in Florida, Mexico, the Greater Antilles, the West Indies, Trinidad, Central America, and northern South America. There are 18 species and no registered hybrids.

Andreas (2005) aptly summarises a number of the plants’ attributes:

“...The leaves are soft, spineless, and often described as waxy with “chalky” scurfing (the powdery substance often visible on bromeliad leaves). The flowers are white or yellow, the inflorescences are simple or branched, erect or pendant. The seed capsules of some catopsis turn yellow or orange, and stay in colour for some time...”

Some catopsis species are dioecious. This means the male and female “elements” of a “normal” flower are on separate plants. Thus, a given plant will have either the pollen-bearing elements, or those resulting in seed production, but not both. Some species, for example, *C. morreniana*, are usually dioecious, but have some instances of “perfect” (that is, flowers with both male and female elements) flowering plants. The reverse arrangement also exists, for example, with *C. berteriana*.

In other cases, for example *C. nutans*, whole populations (groups of plants in a specific location) are either entirely dioecious or perfect-flowered.

In their natural habitat, catopsis generally grow in dense shade, or, more rarely, in filtered light. I find they grow well under medium density (70%) shade cloth.

They like high humidity, and respond well to being watered three times a week in summer and once or twice a week in winter. (As the plants are often grown in small pots—see below—and have very thin leaves that do not store much water, it is important to pay attention to watering, as they can dry out quite quickly).

The plants can be grown in pots or on mounts similar to those used for most grey-leaved tillandsias. Under my growing conditions, I find they grow best in 110 to 140 mm pots, as they are less demanding in terms of their watering requirements. This arises as the potting mixture retains moisture between waterings.

The following potting mixtures have been used successfully:

- 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 are potted.
- Small pine bark chunks (such as those used to grow cymbidium orchids in) treated with a special type of fertiliser available from the Society. Combine 1 part charcoal with 6 parts treated bark to form this potting mixture.
- A mixture of 1 part peatmoss or Copeat combined with 1 part coarse sand. Add Nutricote or Osmocote to this mixture when the plants are potted.

They appreciate receiving, on a weekly or fortnightly basis, a weak (one quarter to one half the recommended strength for in-



Catopsis floribunda - seedlings

RS



Catopsis subulata

DU



Catopsis nutans

RS

door plants) foliar fertiliser such as Phostrogen.

Grasshoppers are usually the biggest pest problem, as they can make a “meal” of the plants’ leaves. An effective way of killing grasshoppers, is to catch them early in the morning when they are sluggish and squash them!

Six species are described in this article. They can be bought from some of the Society’s tillandsia specialists, and occasionally, at its Autumn or Spring shows.

C. beteroniana About 15 glaucous, yellow-green leaves form an upright, vase-like, rosette. The leaves are 30 to 40 cm long, and have a “chalky” appearance at their base. The erect, branching, inflorescence can reach a height of 90 cm, and has small, fragrant flowers with white petals.

Some people have speculated that this plant is carnivorous, in that insects are attracted into the plant’s centre and then cannot escape. They die, with their nutrients being absorbed by the plant as they decompose. Benzing (2000) in his major work, *Bromeliaceae: Profile of an Adaptive Radiation*, is unconvinced by this argument, but concedes it may be accurate. (The case is much stronger for two other bromeliads, namely, *Brochinia reducta* and *hechtioides*).

C. compacta Around 20 leaves form an urn-shaped rosette about 40 cm high. The green leaves’ surfaces are heavily covered in a silvery “scurf”. The erect, multi-branched inflorescence rises well above the plant’s leaves. The flowers have white petals.

This is my personal favourite amongst the catopsis.

C. floribunda Over 20 leaves form a semi-erect rosette about 25 cm high. On mature plants, the shiny green leaves are light brown at their base. The multi-branched, semi-pendant, inflorescence has flowers with white petals.

C. nutans About 10 leaves form a semi-erect rosette approximately 20 cm high. The green leaves have a light silvery scurfing on both surfaces, although this is more pronounced towards their base. The flowers on the multi-branched inflorescence have bright yellow petals.

C. sessiflora Around 10 leaves form an erect rosette about 15 cm high. The light green leaves are covered with silvery scurf. The inflorescence is either simple or multi-branched. Its flowers have white petals.

This plant readily forms a clump.

C. subulata About 10 leaves form a bottle-shaped rosette, approximately 20 cm high. The green leaves have light grey scurfing on both surfaces. The multi-branched inflorescence rises well above the plant’s leaves. The flowers have white petals.

These plants can be readily propagated from either offsets (pups) or seed.

Pups can be removed when they are a third to a half of the parent plant’s size, during the period October to March. Pot them in the same mixture that you use for mature plants. They will normally flower within 12 months.

Catopsis can be grown from seed in a similar manner to that used for grey-leaved tillandsias. However, this is a slow process. For example, the three centimetres high *C. floribunda* seedlings in the photograph on p.41 are four years old! So, I would only recommend this method if you wanted many plants or were unable to obtain a plant or pup of that particular species. (Seed is often available from the seed banks run by the Bromeliad Society International or the Bromeliad Society of Australia).

Acknowledgements I thank Doug Upton and Ross Stenhouse for taking the photographs used to illustrate this article.

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Catopsis sessiflora (Closeup of Flowers)

RS



Catopsis sessiflora

RS



Catopsis compacta

DU

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plant receives through the roots as well as moisture. Bromeliad roots seem to thrive in well watered perlite, producing a mass of fine white roots throughout the pot. As this material absorbs a great amount of water, it remains moist for some time, yet the particles hold their size very well. It does not permit voids to form, yet allows air to penetrate the root ball.

Q. How often should you water?

A. Frequency of watering should never be based on a time factor. When you should water is based on dryness of the mix or potting medium for potted plants. Mounted or suspended plants are another matter; as the exposed roots are less susceptible to rot, the main consideration is that the foliage and roots do dry out between waterings. Thus, in hot, dry conditions, daily or even more frequent watering can be tolerated but not necessarily required or desired.

Your own growing objectives have to be considered. Are you trying for a small, compact plant or a larger, lush growth? In potted specimens it is not wise to rewater until the mix is relatively well dried out. The exception being those terrestrials that are being grown with continuous water and fertilizer. Factors that affect the rate of drying in any selected pot will include the composition of the mix, temperature, humidity, circulation, sun exposure, the size of the root development within the pot, and even the manner in

which the drainage holes are arranged and their size. Many of these factors vary greatly when the placement of the pot, in even a small greenhouse, is considered.

Every growing area consists of many microclimates, regardless if it be indoors or out. All of this results in widely varying drying time. Recognition of varying needs by individual species, even within the same genera, and the variegated plant which may differ from its plain brother, is a must. Perhaps it would be safe to say that it's better, or at least safer, to err on the dry side rather than the wet. An additional water-related problem that must not be overlooked is the possibility of stagnation in tank type bromeliads and the disaster that is almost sure to follow. If all variables are carefully considered, the problem is probably unsolvable. Therefore, a good rule of thumb is to water once a week, more or less.

Q. What is a cultivar?

A. [supplied by Dr. R.W. Read] Regardless of origin a plant is a cultivar if distinguishable (worthy of recognition) from other members of its species or grex, wild or not.

Patented Broms

In the Jan/Feb 2000 edition of this journal was a report on the patenting of a hybrid *Aechmea* 'Friederike' - US patent No. 5872 by Cornelius Bak in 1987. The patent meant that the plant could not be sold in the USA without the express approval of Cornelius Bak.

The editor of the day speculated if any Australian Bromeliad grower had patented their hybrids. There was further speculation on what effect widespread patenting would have on an interest such as ours.

It certainly would prevent a lot of the activities which we take for granted and as a right.

***Billbergia* ‘Windigig Special’**

by Derek Butcher

A delightful and cheerful *Billbergia* has been in Australia as ‘Windigig x speciosa’ since at least the formation of the BSA in 1960 and yet has never been properly identified. I have been waiting forever for some inkling of an idea to come from California now I am firmly entrenched in the wonders of the World Wide Web. But alas, all seems dead.

In 1977 in the Journal of the Bromeliad Society page 121, Victoria Padilla had a photograph which had this caption “A hybrid of the old European cross known as B. ‘Wendii’” In my investigation of *Billbergia* ‘Windii’ and ‘Theodore L Mead’ (which I proved to my own satisfaction are identical) this photograph was brought into the equation! But it looks nothing like *Billbergia* ‘Windii’ and perhaps the caption should have said “An unnamed hybrid from the old European cross B. ‘Windii’ “ In any event this too is misleading because in my experience all hybrids with B. ‘Windii’ in their makeup show the traits of the ubiquitous *B. nutans*! This trait is not apparent from the photograph.

Anyway, this plant is a ‘dead ringer’ for our little hybrid. It clearly has links with *Billbergia amoena* in its many forms and has even been misidentified with *Billbergia nana*. So if you do have a plant called *Billbergia nana* I would suggest you check its credentials..

Our plant can be described as having a tight tube of leaves to 20cm high where the leaves are only 3cm wide, green with a few white spots and barring, and sometimes with a pinkish hue. The erect scape exceeds the leaf tube and the 3-4 large, red scape bracts

Continued on page 48

Letters to the Editor

With reference to the Bromeliad Culture Notes Booklet. Thank You to all who contacted me when they received a copy of my booklet.

Some said it was a nice Christmas present but it was not from me - it was from your Queensland Bromeliad Society Inc., one for each member.

They purchased them from me and posted them to each of you. I had telephone calls and emails, it was great to hear from you, some I had not met or spoken to before this time. Thanks to those who alerted me to the spelling and typing errors - the fifth printing should be ok.

It all began as subject notes for the Bromeliad Workshops I devised - a full day of show and tell bromeliads, mainly for persons new to bromeliad cultivation.

The workshops have been successful with most attendees being more confident about growing our favourite plants - especially discovering it is mainly common sense!

Happy & confident growing,
Lynn Hudson

Hi ,

My name is Norm Bailey, President of the Glasshouse Country Friends of Bromeliads. Recently we located a var. pineapple which we thought may be usable in your mag.

regards

Norm Bailey

Thanks Norm, I have printed your photo on page 20 in this issue. I must admit, the first thought that crossed my mind is that someone put together an image using Photoshop to fool me. I guess it represents a bromeliad put together by a committee

Ed..

January 2006 - Minishow Results

Advanced

Class 1 First	L. & O. Trevor	<i>Aechmea fascata</i> 'Morgana'
Second	L. & O. Trevor	<i>Aechmea</i> 'Eileen'
Class 2 First	L. & O. Trevor	<i>Vriesea fenstralis x hieroglyphica</i>
Second	L. & O. Trevor	<i>Vriesea</i> 'Apollo'
Class 4 First	B. Cross	<i>Tillandsia jalisco faciulata monticola</i>
Second	L. & O. Trevor	<i>Billbergia</i> Hybrid

Intermediate

Class 1 First	B. & A. Kable	<i>Aechmea frederika</i>
Second	B. & A. Kable	<i>Aechmea aquilega</i>
Class 2 First	B. & A. Kable	<i>Vriesea fosteriana</i>
Second	L. Grubb	<i>Vriesea siedelinan var rubra</i>
Class 4 First	L. Grubb	<i>Guzmania</i> 'Lyndal' (unreg)
Second	C. & N. Aizlewood	<i>Tillandsia jalisco faciulata monticola</i>

Novice

Class 1 First	A. McBurnie/P. Beard	<i>Aechmea blanchetiana</i>
Class 3 First	A. McBurnie/P. Beard	<i>Dyckia breviflora</i>
Class 4 First	A. McBurnie/P. Beard	<i>Neoregelia</i> 'Lovely Lady'

November 2005 - Popular Vote

Advanced

First	J. Higgins	<i>Aechmea zebrina</i>
Second	D. & J. Upton	<i>Tillandsia tectorum</i>

Intermediate

First	G. & N. Aizlewood	<i>Tillandsia streptophylla</i>
Second	B. & A. Kable	<i>Vriesea hieroglyphica</i>

Novice

First	L. Grubb	<i>Neoregelia</i> 'Two Tone'
Second	G. Stay	<i>Aechmea biflora</i>

For Year 2005 - Popular Vote

Advanced

First	J. Higgins	24 points
Second	D. & J. Upton	9 points

Intermediate

First	B. & A. Kable	15.5 points
Second	G. & N. Aizlewood	13.5 points

Novice

First	Lyn Grubb	24.5 points
Second	B. & J. Batchelor	6 points

Competition Schedule for 2006

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.

Note 2: Class 1 (April), Class 2 (July) and Class 3 (October) provide for plants from these subfamilies not elsewhere included in the Mini Show schedule.

CALENDAR OF EVENTS: JANUARY – MARCH 2006

(compiled by Bob Reilly)

16 February **Society Annual General Meeting. Venue: Uniting Church Hall 52 Merthyr Road, New Farm.**

- Beginners Class topic: Fertilising bromeliads. Discussion leader: Peter Paroz. Commences 7.30pm.
- Main meeting topic: Society's Annual General Meeting followed by a slide evening presented by Doug Upton.
- Popular vote: Any genus: species or hybrid.
- Plant of the month: species and hybrids from the following genera: Billbergia, Brewcaria, Brocchinia, Bromelia.

4-5 March **Society's Autumn show and sale of bromeliads at Mt Coot-tha Botanic Gardens. Over 500 varieties/hybrids will be on sale. Saturday (4th) 8am-4pm, Sunday (5th) 9am-3pm. Admission: \$3-adults, children under 14 free if accompanied by an adult.** If you wish to sell plants, please let Nancy Kickbusch know (telephone 3300 1704) by 20 February, so she can make sure some space is available for you.

16 March **Society general meeting. Venue: Uniting Church Hall, 52 Merthyr Rd New Farm.**

- Beginners' class topic: Growing guzmanias. Discussion leader: Olive Trevor. Commences 7.30pm.
- Main meeting topic: Variegation in bromeliads. Please bring along any of these plants you may have. Discussion leader: Bob Reilly.
- Popular vote: Any genus: species or hybrid.
- Plant of the month: species and hybrids from the following genera: Canistropsis, Canistrum, Catopsis, Deinacanthon, Deuterocohnia, Disteganthus, Dyckia.

Continued from page 45

hold their colour for some time. The inflorescence has only 4-5 flowers which are green but tipped with bright blue on both the sepals and petals. If you want to see these in colour then try <http://fcbs.org> on the internet.

So, the plant we knew as 'Windigig x speciosa' is now named 'Windigig Special'.

As you know, Cultivars can only be listed by name and not by formula which is the reason for this slight change in name. If, by any chance, you do know any more history about

this mystery please let me know.

I would like to thank our plant-name proof reader Derek Butcher for his help in (a) identifying the plant (Billbergia 'Windigig Special')t on the front cover of this edition and (b) for submitting the article about the plant. I found it very interesting to finally track down the correct name for a plant I have had for a while but couldn't identify. - Ed.

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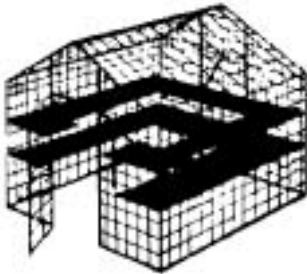
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