

Bromeliaceae



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The Bromeliad Society of Queensland Inc.

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GENERAL MEETINGS OF THE Society are held on the 3rd Thursday of each month except for December, at the Uniting Hall, 52 Merthyr Road, New Farm, Brisbane, commencing 7:30 pm.

ANNUAL GENERAL MEETING is held immediately before the February General Meeting

Front Cover: *Aechmea strip on strip*

Rear Cover: Display of Neoregelias taken at show

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CALENDAR OF EVENTS

July Meeting	17 th July, Uniting Church, Merthyr Road, New Farm
August Meeting	21 st Aug, Uniting Church, Merthyr Road, New Farm
The Ekka -	8 th – 17 th August, RNA Brisbane Display
September Meeting	18 th Sept, Uniting Church, Merthyr Road, New Farm
October	18 th – 19 th - The Spring Show Set up will be on Friday 17 th Oct

Australasian Conference 16 to 19 April 2015

For those who like to plan a fair distance ahead, the next Australasian Conference (Bromsmatta) will be held in Parramatta.

A Perfumed Addition for your Garden

By John Olsen

The most commonly cultivated bromeliads tend to be those with a showy inflorescence. Large *Aechmea* such as *Aechmea chantinii*, *tessmannii*, and *manzanaresiana* have colourful bracts which make them attractive to cultivate. Similarly the various *Guzmania* species and the enormous number of hybrids also have brilliantly coloured inflorescences. These attract us as gardeners but in their habitat these are the features which attract their pollinators- almost always birds for the colourful ones. Birds are far ranging visitors in habitat and distribute pollen to well separated individual plants. The pay-off for the birds is nectar and sometimes edible pollen.

A lesser number of bromeliad species rely on perfume to attract pollinators. Those perfumed plants which rely on bats for pollination tend to be unpleasantly perfumed. Those which rely on insects tend to be pleasantly perfumed. Benzing uses 3 *Billbergia* species to illustrate this. *Billbergia eloisiae* is bird pollinated and has large red-pink bracts. *Billbergia horrida* is much less colourful but perfumed to attract its insect pollinators. *Billbergia robert-readii* has a white/grey inflorescence and uses a rank odour to attract bats.

There are a number of *Tillandsia* species which are perfumed. These include *T. crocata*, *streptocarpa*, *straminea*, *duratii*, *reichenbachii*. There are others but in many cases a sensitive nose is needed to discern any perfume. There are many discussions among growers as to whether a plant's flowers are perfumed which in most cases are merely reflections of olfactory capacity.

Of these options *T. duratii* is a standout addition to your garden. See Photo 1. Isley states "*For plant size, shape, and durability in combination with the bloom size and longevity of its blooming cycle, T. duratii is in a class by itself. It has the distinction of producing the most fragrant flowers over the longest period of any of the xeric tillandsias.*"

The flowers are strongly perfumed. In the absence of breezes a plant can fill a space with its perfume. Unlike many other scented plants you don't have to press your nose to the flower to notice the perfume. The flowering period extends over some weeks in March to May. The *Alcantareas* largely open one or two spindly flowers a day over a long period, *T. duratii* has many flowers open at once and individually they are long lasting.

The flowers have three large mostly lilac petals with a white throat to the corolla as shown in Photo 2. There are colour variations of yellow to yellow-brown found in habitat but you will be hard pressed to find someone with another coloured plant on offer.

T. duratii is an easy plant to grow in SEQ. It enjoys good light and warmth and good air circulation. I have plants under 50% shade cloth and also some in the open garden getting direct sun for part of the day. Others grow them in full sun here in Brisbane. Place them high in the shadehouse for best results but leave room for the inflorescence. My first plant pushed a spike up to the shade cloth and then went through the shade cloth for a further

40cm. Half the inflorescence was under the cloth and half above. Interestingly the section exposed developed seed pods while the insect free zone below had none.

Seedlings of *T duratii* have small roots which they use to anchor while very small. Photo 3. As the plant grows no further roots are created. *T duratii* curls the tips of the growing leaves and by so doing fixes the plant to its host. In habitat it grows in the crowns of trees and uses the curled leaves to attach to the upper twigs and branches. It grows upwards and pushes its inflorescence above the tree to maintain exposure to pollinators, wind and rain.

T duratii is found in the drier areas of western Bolivia, northern Argentina, and eastern Paraguay known as the Great Chaco. It is also found in the Andean foothills of Argentina and southern Brazil (2). It ranges in elevations from 200-3500m.

There are 2 forms of *T duratii* – *T duratii v. duratii* and *T duratii v. saxitilis*. These are distinguished by the form of the inflorescence. *T Duratii v. duratii* has spikes which are erect and tight against the rachis (the central spine of the inflorescence). The spikes of *T duratii v. saxitilis* curve out from the rachis and create a more spreading inflorescence. Normally the more desirable plants are harder to obtain but *T duratii v. saxitilis* is more commonly available and probably a more showy form.

Hanging baskets have long been adopted as a form of vertical garden. With large green walls and suspended pots, there is a huge range of plant choice. My preference in hanging baskets is to select bromeliads with pendant forms of inflorescences such as

- Aechmeas – *contracta*, *filifolia*, and *weilbachii*
- Vrieseas – *guttata*, *scalaris*, and *simplex*
- Tillandsia – *leiboldiana*. Photo 4

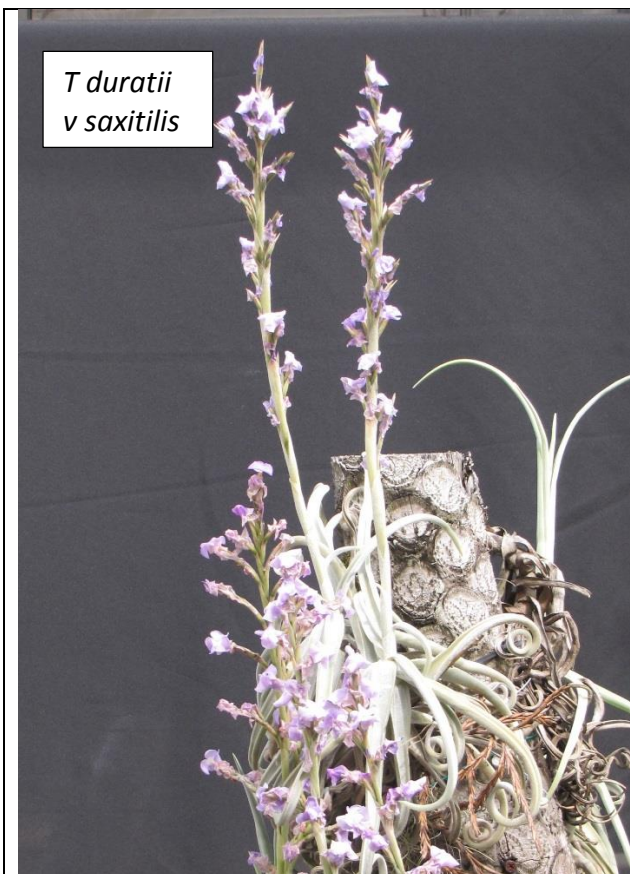




Photo 3



Tillandsia duratii var
duratii (Photo Bob
Hudson)

How to Remove an “Upper PuP

By Herb Plever

This article is based on an article by Herb Plever, published in the New York Bromeliad Society newsletter *Bromeliana*, February 2012, Volume 49, No. 2; supplemented with some SEQ experience and photos.

A few tillandsias are stingy in producing offsets and will put up only one pup after flowering, no matter how strong they are or how much they are fertilized. But most other bromeliads will produce at least two offsets and usually many more than that. However, *Guzmania sanguinea* and *Vriesea splendens* (and most of its cultivars such as V. Hera or V. Splenriet) if left on their own will produce only one pup after flowering, and it will come up along the side of the inflorescence in the central reservoir. Instead of emerging from a leaf axil or from the base of the parent plant, these “upper” pups come up at the top of the plant. We don’t know what evolutionary benefit these plants gained from adapting to a single upper pup, but, of course, we do not know their evolutionary history eons ago. Suffice it to say that natural selection was, as always, operative during this development - even if it might have been overcome by other physical factors. These plants are called “upper puppers”, and they are the only two broms I know of that have this habit. { *V. elata* and *V. ospinae* are others – Ed}. You can leave the upper pup to grow on while the parent plant dies back. Eventually the upper pup will replace the parent, BUT since it is growing on top of the stem of the parent it will be somewhat out of the pot and the succeeding generation will be more so. The alternative is to remove the upper pup and re-pot it. An additional advantage is that stingy *Guzmania sanguinea* and *Vriesea splendens* may produce basal offsets when the upper pup is removed. Surgical removal of the pup must be done with care as its base is fragile and may snap off if outward pressure is applied. So it is important to be able to visualize the base before any cutting is done. A very sharp knife is mandatory.

STEP 1-Since the pup came up along the side of the inflorescence it will have a definite lean to that side. Orient the pot so that the leaning side is facing you.

PHOTO 1 - Note the leaning side. → →



STEP 2 - Strip the parental leaves that are covering the pup by separating them in the centre lengthwise. You will then be able to visualize the entire base of the pup, as shown in Photo 2, right.

PHOTO 2 - Pup base revealed → →



STEP 3 - Make a horizontal cut below the pup base and downward vertical cuts on each side of the base to below the base and into the parent. Then place the sharp knife between the pup and the parent with the blade slightly angled toward the parent. A smooth downward cut all the way down will free the pup from its parent. Do not apply any outward pressure on the pup while cutting down to free it. If the knife is really sharp you won't need to push or apply pressure as the blade will do the work. When this pup came free from the parent I was happy to see that the base was intact and that it was showing roots at the bottom. Now that the pup is free from the parent, we must take additional steps to assure that it will remain healthy, free from infection and to prepare for its eventual safe potting in a medium.

PHOTO 3 - Freed base showing roots →



STEP 4 - The base of the pup and the cut part of the parent are now vulnerable to infection from both fungus and bacteria. If you have a fungicide powder (or Rotone which has a fungicide) dust the base of the pup and the cut side of the parent. In the alternative, swab some alcohol on those areas and then lightly spray them with Safer's Soap solution. These areas will not be safe until the tissue there has hardened and callused, and until then the pup should not be potted. This will take 3 to 5 days. (Ed: This is a step which in warmer months can be omitted in SEQ but not without some risk!)

STEP 5 - During this period I like to suspend the pup in air so the base is not touching anything. I accomplish this by hanging the pup in a clean yogurt container with the leaves hanging over the top circumference. I also occasionally lightly spray the base with Safer's Soap. A short cut is to use a mesh pot as shown by Photo 4, right. PHOTO 4 - Pup suspended in container →



STEP 6 - When the base of the pup has sufficiently callused, place the pup in a medium in which it will rapidly grow roots and establish itself to grow on its own. The area around the base should be consistently moist but not wet. In that area I would place presoaked pieces of peat moss (or sphagnum moss) that will retain moisture for a reasonable period. You can drop some potting soil into the hole to fill up the spaces, as rooting is encouraged when the base is more tightly surrounded by the medium. To keep the pup stabilized and immovable during this initial period, I place two strips of masking tape overlapping across the top of the pot to tightly firm up the pup. This temporary brace should be removed when the pup is stabilized with its own roots. See Photo 5, right.

PHOTO 5 - Pup potted and stabilized 5 days later. →



Ed: I also had a *Guzmania sanguinea tricolour* with double upper pups to separate.

The photos 6-10 show that process.

Photo 6 right shows the plant with two well-formed upper pups.

Photo 7 below shows the bases of the pups with the outer leaves stripped back. It also reveals the small 3rd pup squeezed between the two larger pups.

Photo 8 shows the incision to remove a pup, and the pup revealed in Photo 9.

Photo 10 shows the potted pup with a variant of stabilisation; using disposable wooden chopsticks which are stronger than skewers and can be bought in bulk in Chinatown.





Above Photos 7 through to 10

Snippets on Growth

1. The growth rate of bromeliads and tillandsias in particular is established very early in the life of the plant. It is then very difficult to “bring on” a slow growing plant with additional care such as more nutrients, added light etc. There are benefits in feeding and warming developing seed and seedlings.
2. Growth is determined by the nutrient or nutrients in scarce supply. For example, if the Nitrogen and Potassium needs of the plant are exceeded but the Phosphorus requirements are not met, the scarce nutrient will determine progress.

The Way We Were

By Peter Paroz

About a year after the Society was formed (January 1967), the Committee decided that a display in the RNA show would be an excellent way of promoting bromeliads and the Society.

Representations were made to the convenor of the Horticultural Hall, one Tom Schofield; RNA Chief Steward, a long time bromeliad grower and keen supporter of BSQ.

In those days, the Horticultural Hall was part of a long narrow building fronting Gregory Terrace with entry to the horticultural exhibits from Alexandra Street. The building had apparently been developed in two stages as the floor was on two levels with a short concrete ramp connecting the levels at each end. The section at the Gregory Terrace end was used predominately for woollen products with a regular catwalk and models displaying woollen garments. There were minor craft displays opposite the woollen displays and catwalk.

The competition for space in the Horticultural section was very keen, most exhibitors were regulars having long standing allocated spaces. The only available space was a long narrow one about 10 feet by 5 against a wall at the northern end of the horticultural section.

The space also included the slope between the two levels; there was a low brick wall topped with a 4x4 inch lattice.

My recollection is that the first display was a bamboo structure engineered by Barclay Binnie: but no photos to verify this have survived.

I was on duty on the last Saturday shift of this Show and remember a lady who was waiting for the plants to be sold off at the end of the last day; as for the fruit exhibits. Most insistent and not convinced that I was not there to get the lot!!

For the second year, we had additional space but on the other side of the doorway; a split display.

The top photo from the Society records shows the exhibit in 1969. Still in the same area with the sloping floor. The lattice and brickwork have been hidden by a stylised mural of a distant forest scene on a light cotton sheet. This was painted by Len Butt and proved to be a very effective background.



Photo 1969

The second photo shows the exhibit in 1978. By this time, BSQ had graduated to a larger display against a side wall in the NW corner; much easier to manage than the sloping site.



Photo 1979

My thanks to Michael O'Dea for assistance in providing details of the Hall.

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(Ed: the following article comprises editorial comment and extracts from BSI journals listed below with extracts from the Australian DoE site in relation to CITES. Further material from personal email correspondence is also included)

It is fair to say that while collectors of bromeliad species are in part responsible for the removal of plants from the wild there is not a big thrust on the part of societies to deal with conservation issues. In part, these are big issues and are of a wider concern and need action internationally. However, the recent catchcry of the conservation movements is to think globally and act locally. This article draws material from various sources to illustrate the global situation and dares to make some suggestions for local action.

The objects for which the Bromeliad Society of Queensland is established are:

- (a) To promote good fellowship among all people interested in Bromeliad culture and in horticulture generally.*
- (b) To further the knowledge and advancement of all that pertains to Bromeliads, including their natural history, cultivation and hybridisation.*
- (c) To disseminate knowledge of Bromeliads and carry out educational and research activities into all aspects of Bromeliaceae.*

Interestingly conservation is not a specific BSQ objective but could be interpreted as a part of Objective (b).

The initial 1951 issue of the BSI Journal (JBS 1 (1)) reports on the establishment of the BSI and some 63 years ago set out the aims relating to conservation as follows:

The aims and objectives of the Society are numerous. They will grow and become more obvious as we develop and as each individual broadens in his experiences. There must be active contributions from many, not just from the few.

1. Conservation

Every effort will be made to form a conservation program in order to preserve the native bromeliads in the different countries where they grow in the wild. Florida already has a state law protecting its bromeliads and orchids as well as other wild plants. Our honorary trustee, Dr. F. C. Hoehne has done much along this line in Brazil.

In 2010, the then Editor of the BSI Journal (Andrew Flower) put the BSI effort in conservation into stark perspective in his closing Editorial (JBS 60(6)). An abbreviated version is as follows:

One of the purposes of the BSI is to promote and maintain interest in the preservation of bromeliads. We now have a “conservation fund” set up, in 2008, to which you have been invited to contribute:

2008 conservation contributions \$595

2009 conservation contributions \$182

2010 conservation contributions \$313

That is not a lot of interest in contributing to the BSI conservation fund.

*In this Journal in 2008 I offered to donate to the conservation fund 5% of my nursery's sales of seed-grown endangered species to the BSI conservation fund if the BSI would put a list of qualifying species for this purpose on its website. There was not a single response to me. I'm pretty small commercially, but since then I have shipped hundreds of *T. kammii*, *T. hondurensis*, and *T. xerographica*. It is apparent there is not a lot of interest in receiving contributions to conservation, either.*

The BSI Conservation Chair has been vacant for many months.

The BSI does not generate operating profits sufficient to fund significant conservation efforts - a recent grant of \$500 to the German Bromeliad Society for ex-situ conservation effectively halved our conservation funds received over the past three years. Your Journal is a significant force in bromeliad conservation in virtue of its continuing publication of new species and their habitats, and highlighting instances where native populations are endangered. Don't let this go!

*We can dream of getting out and becoming a force helping conserve bromeliads in their native habitats, but we have little money to do this. I think that the only way we will encourage more conservation funding will be to initiate specific projects that donors can contribute to. For example, please read the article on page 267 outlining the shocking destruction of *Tillandsia xerographica* plants by commercial operators in Guatemala. A European mission to Guatemala in 2002-3 tried to help the situation - perhaps BSI could go down and monitor the current situation? There are many conservation projects going on in South America, perhaps someone could recommend some that BSI could align itself with?*

CITES

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in wild animals and plants does not threaten their survival.

CITES was drafted in 1963 after a meeting of members of IUCN (The International Union for Conservation of Nature) and entered into force on 1 July 1975.

Countries (referred to as parties) adhere voluntarily to the CITES agreement. Although CITES is legally binding on the parties it does not take the place of national laws but rather provides a framework for domestic legislation. There are now over 175 parties to CITES. Australia became a party in 1976.

CITES and Australian law

CITES is enforceable under Australian national environment law - the *Environment Protection and Biodiversity Conservation Act 1999*.

CITES places species into three categories (appendices) based on their conservation status and the risk from trade. Appendix I contains species threatened with extinction. Appendix II contains species needing protection internationally. Appendix III lists species protected in one country. The three CITES appendices are combined into a single list in Australia called "The guide to the list of CITES species", which clearly identifies the conditions or restrictions that apply to each specimen, the appendix under which it has been listed and the date of listing.

The Australian Government environment minister may apply stricter domestic measures to identify CITES species. These measures result in particular species or products being regulated more strictly than provided by their CITES classification. For example, a specimen that is listed in CITES Appendix II may be treated as if it were listed under Appendix I.

The management authority for CITES in Australia is the Australian Government Department of the Environment. Scientific authorities provide scientific advice and recommendations to the management authorities.

Bromeliads in CITES lists

Despite several bromeliad species being either extinct or possibly extinct in the wild, only a handful of tillandsias are listed. Further, that list has recently been reduced by removal of three species. Listed species are *T. harrisii*, *T. kammii*, *T. mauryana*, *T. xerographica*. These are listed as endemic to one or other of Guatemala, Honduras, Mexico, and El Salvador. Species recently removed from the list are all Brazilian plants – *T. sprengeliana*, *T. kautskyi*, *Tsucrei*. Removal ostensibly relates to the ease with which these species can be propagated from seed, and the export bans now in place on all plant material from Brazil. Certainly *T. sprengeliana* and *T. kautskyi* are available locally with at least a couple of plants of each on the rack at our recent shows. BSQ members Neville Ryan and Barry Genn have propagated both from seed. In 2013 a request came to Australia tillandsia growers to send seed of *T. kautskyi* to Brazil to assist enlarging their populations.

Enforcement

Member countries are responsible for enforcing CITES. Most investigations are done by the Environment Department and the Australian Customs and Border Protection Service or the Australian Federal Police. Importation of plants to Australia is also controlled with a list of permitted species for importation. This list is referred to as ICON and all CITES species are on the list of permitted imports.

CITES Effectiveness

The effectiveness of the convention is questionable. Poverty and involvement of organised crime are major factors in illegal international trade. The CITES website contains a report on elephant populations and trade in ivory from a major research project. This highlights that even for a major programme targeting illegal trade, CITES has had some small successes:

Geneva, 13 June 2014 – Over 20,000 African elephants were poached across the continent in 2013 according to a report released today by the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Although the sharp upward trend in illegal elephant killing observed since the mid-2000s, which had peaked in 2011, is levelling off, poaching levels remain alarmingly high and continue to far exceed the natural elephant population growth rates, resulting in a further decline in elephant populations across Africa.

The report also shows a clear increase in the number of large seizures of ivory (shipments over 500 kg) made in 2013, before the ivory left the African continent. For the first time, the number of such seizures made in Africa exceeded those made in Asia. Just three

African countries — Kenya, Tanzania and Uganda — accounted for 80% of those seizures. Large-scale ivory seizures are indicative of transnational organized crime being involved in the illicit ivory trade.

In relation to trade in wild collected bromeliads, CITES in combination with national import/export controls may have had more success than achieved for elephants. The example of trade in *T. xerographica* from Guatemala provides anecdotal evidence of a shift in behaviour.

JBS 60(6) contains a report of an investigation into trade in *T. xerographica* from a 2003 Dutch CITES Commission (Originally published in *Die Bromelie* 2005(2): 57–60, translated by Uwe Scharf.)

***Tillandsia xerographica* in Guatemala by Lieselotte Hromadnik**

Summary

Tillandsia xerographica is one of seven *Tillandsia* species protected by the CITES convention. In recent years, after discovering imports containing plants extracted from the natural habitat, the EU plant commission put a ban on the import of this species. In 2003 a Dutch CITES commission travelled to Guatemala to gain information about the status of *T. xerographica* in nature and in *Tillandsia* nurseries. The author, known as a bromeliad specialist, was asked to join this commission. Seven of 22 nurseries licensed to produce *T. xerographica* were visited by the commission. Unfortunately, only a few nurseries were able to demonstrate the amount of produced *T. xerographica* could be covered by their stock of mother-plants. Trading of illegally collected specimens was still frequent. In the habitat of *T. xerographica* the University of Guatemala did a screening survey in the last two years. The results showed an average population density of one to seven plants per km². *T. xerographica* has to be classified as extremely threatened by extinction. Massive in-situ and ex-situ protection programs like bringing back seeds into nature could possibly prevent this.

Tillandsia xerographica was added to the Appendix II of CITES (in total seven species of *Tillandsia*) because the natural population of this decorative species is now threatened after being collected for some tens of years for commercial purposes in Guatemala.

Officially, 190 tons of tillandsias were exported from Guatemala in 1996. The Netherlands were the leading exporter worldwide, followed by the USA and Japan, where the largest quantities went to. In the years 1999 and 2003 a large amount of plants collected in the wild were discovered in several huge import posts of some thousand *Tillandsia xerographica* plants that were declared as artificially propagated. These plants were confiscated. In August 2003 the plant committee of the EU put a ban on imports of this species.

There is evidence of changes to the regime of export and import of Guatemalan plants which anecdotally at least suggests this level of exploitation has been reduced if not controlled. An additional factor is likely to be the lack of significant wild populations remaining to satisfy the trade. The stock of plants in nurseries exceeds the scarcely distributed individuals in habitat. Hromadnik reports:

The only known distribution area of T. xerographica is a dry area in the valley of Rio Motagua on the foot of the Sierra de las Minas. Here (we guess) the largest amount of the remaining individuals of T. xerographica in Guatemala is located: 80 to 100 big plants and a high number of juvenile plants, next to a number of other Tillandsia species.

In the case of Australia, the requirement of a phytosanitary certificate issued in the exporting country is an effective means of reducing export of wild collected plants. European imports require the presence of a cataphyll at the base. Cataphylls are the first leaves made by a new pup/shoot and is only evidence that it is not directly from the wild, at least the shoot has been grown from a mother plant (stock). Development of techniques to improve yield of offsets has led to relaxation of the absolute bans imposed earlier by the EU. The techniques are briefly described in JBS 60(6):

First, the stock of mother plants is treated to produce flowers very early. This is stopped by another agent. To replace the suppressed flower, the mother plant produces many offsets, which can be cut off relatively early. By optimal shading, irrigation, fertilisation and regular treatment with fungicides and pesticides every individual of the 3,000 to 60,000 mother plants is able to give a further three generations of offsets (8–10 are mentioned), which grow within just 1.5 to 3 years into masses of perfectly built, clone-like plants ready to export. 20 to 30% of them are kept as additional mother plants. In that way, the productivity is increased by 300%, but even here a number of 17 mother plants is necessary to export one plant per month.

The presence of organised crime in the Guatemalan trade is still suggested with tales of “knee capping” of individuals still circulating in emails I receive. There is also scepticism that the productivity claims based on chemical treatment of mother plants are overstated by the Guatemalan producers. Other anecdotal evidence suggests that the registration of export licences has brought a degree of control of Guatemalan exports. Production from seed in other countries has also grown dramatically and reduced pressure in countries where the species is endemic.

Acting Locally

It is somewhat depressing to see the global situation and for BSQ to make a big difference would be like “shifting Mt Everest with a teaspoon”.

So what can be done at our local level?

Firstly we have some responsibility to preserve the availability of species plants. BSQ has sought to promote growth of species by introduction of a special Championship award for Best Species Plant at our Shows.

We could do more to encourage the propagation of rarer species. It would be useful to know what chemical processes are actually involved in the treatment described above to increase yields. It is suggested the research has been done in a German University. Maybe a reader can enlighten us in a subsequent issue.

The increasing focus on hybrids and intergenerics as the source of new and interesting plants reduces pressure on wild collected species plants. Again our show schedules have been modified to give recognition of grower's own hybrids.

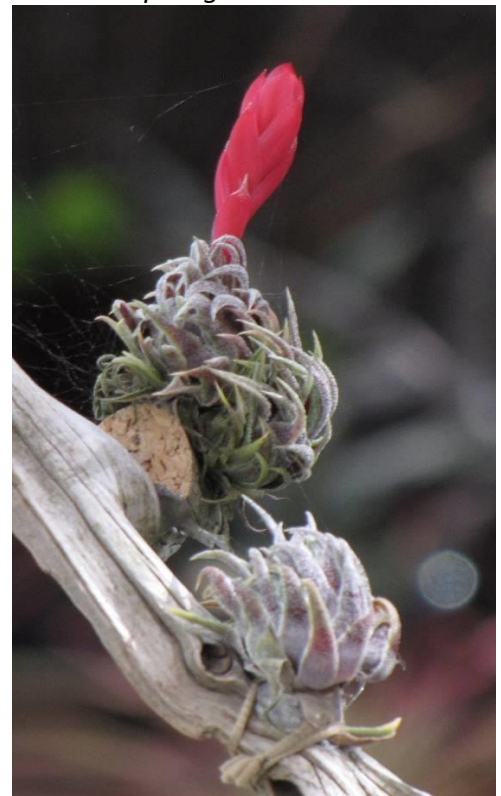
Raising plants from seed can be promoted. Compared to animal preservation, the capacity to collect and store seed is a key difference in preserving plants. As noted earlier, some of our members have been involved in raising stock of plants which were CITES listed- *T. sprengeliana* and *T. kautskyi*. Achieving germination often requires acquiring pollen from unrelated clones. BSQ could be a "marriage broker" to sponsor the introduction of potential parents. BSQ could also go further and ensure seed is distributed to growers with skills to bring seed to fully grown plants. I am aware that in the case of new breeds of wheat, seed has been distributed to key growers with provisos on the pricing of resale of the next generation.

Our Australian growers could be a source of seed to transfer back to habitat. The earlier request from Brazil for *T. kautskyi* seed shows there is interest in such approaches in the Americas.

Promote discussion on the issues and ethics of wild collection as a conservation measure. Habitat destruction is a major issue and we have many species widely grown in horticulture which are now unknown in the wild. Wild collection is also known to have been the driver of some extinctions, but habitat destruction seems to be a bigger driver of extinctions in the wild. Collection of some specimens for horticulture may be the only options for continuing a species. How that question is decided and by whom are key philosophical questions.



Left: *Tillandsia xerographica* in JBS60(6). Photo by Andrew Flower.
Below: *T. sprengeliana*





T kautskyi



T sucrei



T harrisii



A confiscated large scale shipment of *T. xerographica* – photo by Eric Gouda



Plant base without cataphyll - *photo by Eric Gouda*



Plant base with cataphyll - *photo by Eric Gouda*

Ednundoa lindenii that nearly was *Edmundoa fragrans*

By Derek Butcher, July 2014

Most Bromeliad growers accepted the new genus *Edmundoa* proposed by Elton Leme (1997) because it was well presented and was logical. Some, like Kew Gardens <http://apps.kew.org/wcsp/qsearch.do;jsessionid> (checked 26 July 2014) are not convinced. When reading *Die Bromelie* 2: 78. 2013 I saw reference to a *Canistrum fragrans* (Linden) Mabb., which started me asking questions. Thanks to Eric Gouda and Leo Dijkgraaf I was able to obtain the article by D J Mabberley (1990). To think there was a publication mentioning Bromeliads in 1990 that I had missed! Most of his changes were simple and have been noted in the New Bromeliad Taxon List <http://botu07.bio.uu.nl/bcg/taxonList.php> but the one referring to *Canistrum fragrans* needed some checking. For example no mention was made of *Canistrum fragrans* (Linden) Mabb. in *Canistrum – Bromeliads Atlantic Forest*. 46. 1997.

We were able to get a copy of Linden's actual catalogue 1862 where you could buy *Guzmania fragrans* for 25 francs. This is just a list with no indication as to what the plant looked like. Further investigation was needed because we had to rely on subsequent writers to possibly identify what plants they referred to. Leo was able to find references by Morren who in *Belg. Hort.* 29:168 (1879) and in *Index Bibliographique* (1887) says this is *Canistrum eburneum* E.Morren. Baker in *Handbook* (1889) page 69 shows: *G. fragrans* Hort Linden = *Aechmea eburnea* Baker.

If we refer to *Flora Neotropica* (1979) we find; *G. fragrans* Hort ex Baker = *G. monostachia*, and *G. fragrans* Linden Hort ex Regel = *Canistrum lindenii*. The reference to *G. monostachia* can be explained because Baker in *Handbook* (1889:152) under *G. tricolor* (a synonym of *G. monostachia*) we find '*G. maculata*, *grandis* and *fragrans* are fine garden varieties'. All three are in Linden's catalogue under *Guzmania* but we know that when Morren was describing *Canistrum roseum* in *Belgique Horticole* 33:195 (1883) in the last sentence Morren says it is deplorable and a gross error in nomenclature that several *Canistrum* in cultivation are called *Guzmania*! Regrettably, he did not specify the plants concerned. In the circumstances it does seem reasonable to follow Morren in interpreting *Guzmania fragrans* as a *Canistrum* rather than Baker in treating it as a *Guzmania*. If we follow D J Mabberley (1990), we find *Guzmania fragrans* LINDEN, *Cat.* 17: 4 (1862) = *Canistrum fragrans* (LINDEN) Mabb. comb. nov. (Bromeliaceae). Type ('clonotype', selected here):*Belg. Hort.* 29 (1879) t. 13
Syn.: *Nidularium lindenii* REGEL, *Ind. Sem. Hort. Petrop.* 1868 (1869) 78. *nom. superfl. pro praec.*

C. lindenii (REGEL) Mez in *MART.*, *Fl. Bras.* 3. 3 (1891) 256

However, this is not acceptable under the ICN rules (no description and type are provided) according to Eric Gouda and Gea Zilstra of the Utrecht University and *Edmundoa lindenii* prevails.



Above:
Edumdoea lindenii rosea
Left:
Edumdoea lindenii

References

Baker, J. G. (1889) *Handbook of the Bromeliaceae*. George Bell & Sons, London UK, 243 pp.

Leme E.M.C. (1997) *Canistrum – Bromeliads of the Atlantic Forest*. 46.

Mabberley, D.J. (1990) The significance of the three independent 'Kew' editions of JOHNSON'S Gardener's Dictionary. *Feddes Repertorium* 101(5-6): 263–276.

Tillandsia Workshop – 16 March 2014

By Barbara Murray



Peter Tristram – the Key Note Speaker for the day, opened with a discussion on the *Tillandsia* taxonomy and where it is in 2014. He outlined the traditional taxon begun in the 1770's by Linnaeus which is based on the inflorescence and floral characters.

The latest changes are the result of DNA testing (phylogenetics). This testing is easily done using computers.

The sub-families, Bromelioideae, Tillandsioideae, and Pitcairnioideae have been retained and Puyoideae, Navioideae, Hechtioideae, Lindmanioideae and Brocchinioideae have been added. This makes 8 sub-families.

The Tillandsioideae family will now morph into the genera *Tillandsia*, *Lemeltonia*, *Rothowia* (to be renamed), *Josemania*, *Racinaea*, *Guzmania*, *Cipuriopsis/Mezobromelia* clade, *Werauhia*, *Alcantarea*, *Vriesea*, *Catopsis* and *Glomeropitcairnia*.

Rothowia will include *Tillandsia wagneriana*, *Tillandsia platyrachis* and *Tillandsia laxissima*. *Rothowia* is a temporary name). *Josemania* is proposed as a new genus with DNA studies grouping plants like *Tillandsia cyanea*, *Tillandsia umbellata* and *Tillandsia lindenii* together but separate from the other *Tillandsia*. Another change is that *Tillandsia dyeriana*, *Tillandsia venusta* and *Tillandsia hamaleana* are proposed to move to *Racinaea*.

Brocchinia are the oldest species of bromeliads. Bromeliads are types of grass that have evolved.

The newest language is CLADE – this describes species that have common ancestors and are closely related. Peter suggested it replaces the language clumpers and splitters.

When the papers are published and permissions granted I assume there will be articles and charts explaining the changes. Peter had an overhead of a colour coded map that went from earliest discovered and proceeded to divide into sub family and then the Pitcairnioideae sub families, the genus, then clades and by then I stopped taking notes!

Alan Pythian showed a *Tillandsia jalisco-monticola* which he feeds high potassium when it begins to spike. John and Neville both showed attractive selections of their *Tillandsias*.

George Stamatis had a diverse selection of Tillandsias that had been hybridized by Arden, Koide and Isley. He grows his plants under white 50% shade cloth but has noticed that the high summer temperatures for the last 2 years have stressed the plants. George is considering using extra shade cloth for those extremely hot days. He foliar feeds monthly and uses 12 month slow release. He withholds fertiliser to get the best colour. To get plants through winter he feeds half the recommended dose one week and then uses Seasol the second week. It was suggested that foliar feeding begins on Father's Day and ends on Mother's Day.

Barry Genn showed his plants that were interesting crosses. Barry also foliar feeds but irregularly.

Chris Larsen explained what a Tillnut is and invited potential Tillnuts to attend a session in Albury August 23 2014 for 2½ days of Tillandsia discussion.



Bruce Dunstan then showed and talked about the plants he saw in Columbia on his last few trips.



Peter Tristram concluded the middle session with his Andreas collection photos from Germany.



After lunch, Greg Aizlewood delivered a practical session outlining the problems he has encountered in raising seed to adulthood. He puts coconut fibre (which has been microwaved to kill weeds and bugs) into containers, places the seed on the top, sprays with an anti-fungal spray, seals the lid in place and then leaves the seed to germinate. As Greg believes it is important to warm the seeds from the bottom he places the containers on

warming mats. Once the seeds are around 15mm, he takes off the lid, fertilisers with half strength, punches holes in the bottom of the container and then puts the container, water and a rubber hose into a clear bag. He showed his latest invention and so far has found that it meets all his needs.

Peter Paroz is experimenting with growing his silver leaf tillandsias epiphytically. He showed his Pedro Seed Sandwich which is an experiment to see if he can raise seeds faster than the old method. If it fails he will think of it as Peter's Folly! Peter puts peat moss in one half and manure in the other. He adds calcium separately.



A 'Silent Auction with a sting' ended the day. The last 3 to record a bid on each lot were able to be in the bidding for the final ownership.

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In the last edition we wrote about losing knowledge of plants and techniques, and the need to preserve them for future generations. The same can be said of people. There are only a very few of the early members still active in the society, and many current members don't know the scale of the contributions that these older members partook in.

This article is about one of those members, Peter Paroz. Peter missed the first meeting of the society which was held in January 1967; but was elected vice-president 'ex absentia' on the first committee; and has been a member since.

Society Tales, Facts, Successes, and Fun Tit Bits

This is Peter's story as told by him:

Contributions of written articles. More than 100 since 1964, some Notes, others substantial articles; and mostly for BSQ *Bromeliaceae*. Some for BSA, the Ipswich Brom Society and the South Coast Brom & Succulent Society. A number reprinted in other Brom Society newsletters. About 20 of the articles with timeless information have been reprinted. The topics have been many and varied; in latter times concentrating on plant nutrition.

Member of the BSI Board, Director Outer Regions 1982-84. The first Australian to be a member of the BSI board. Around this time, a number of experienced growers Len Butt, Michael O'Dea and myself were elected as Judges of the Society. My position on the BSI board introduced me to Valerie Steckler who was instrumental in encouraging the formation of and advising on the presentation of judging classes using the BSI Judges handbook; to begin training other BSQ Members.

Awarded Life Membership in 1984. Vice President in the first BSQ committee. Two stints as President. Editor of *Bromeliaceae* on two occasions 1979-83 and 1999-2003. Researched, compiled and edited the 25 yr. History of BSQ 'The First Twenty Five Years 1967 – 1992.

My first introduction to bromeliads as a school boy was a 'torch lily' in my grandfather's bush house; and a 'tartan lily' in my mother's garden. Many years later, I found these to be *Billbergia pyramidalis* and *Billbergia nutans*. When we moved into our house at Boondall in 1963, I acquired a book on house plants which included a short chapter on bromeliads. I was captivated by a photo of *Tillandsia lindenii*. I joined the RHS and met a couple of bromeliad grower, Len Butt and Tom Scholfield. I also joined BSA and was appointed Qld Interstate Vice- President.

At that time, my work commitments required that I attend meetings in Sydney twice a year. This enabled me to meet up with, and visit, a few Sydney bromelians including Olwyn Ferris.

My first plants purchased were *Nidularium fulgens*, *Vr. Carinata* and *Aechmea fasciata*. The *Aechmea* did not survive too long as one of my children put brickies loam in the vase! Through BSA, I found that one of their members, Steve Erskine, lived at Northgate, and we became great friends; joining BSQ when it was formed and attended many meetings together.

In the mid 60's, the range of bromeliads locally available was small. A lot of plant activity was by plant exchange rather than sales. I became interested in seed raising as a means of acquiring additional plants. My interest is mostly for species; only a few hybrids. My early attempts at growing tillandsia seed failed. It was not until I got fresh seed that I realised that my failures were due to old seed, not my technique. I devised my own version of Dr. Oeser's 'bundle of sticks' technique using melaleuca twigs.

My main interest is *Tillandsia* species; but I have grown many other genera over the years. I have raised bromeliads from seed; mostly tillandsias, some *Aechmea* and *Vriesea*. I have also produced and registered a couple of hybrids with another on the way.



Our visit to Peter's garden was a wonder to us. He is a respected *Tillandsia* grower and we expected a garden dominated by tillandsias, but were pleasantly surprised with the colour and variety of other plants in his garden. Especially the lovely older *Camellia* bushes, which were in full bloom and an absolute picture of colour. The court yard was dominated by a mature specimen of *Lepidozamia hopei*; with a staghorn, *Platycerium superbum*, attached. Many bushes around the garden were covered in self-seeded tillandsias.

Peter still actively contributes to the Society, and following on from the publication of the first 25 years of the society he is now seeking to publish a history of the *Bromeliaceae* magazine as part of the 50 year celebration of the BSQ.

The history starts;

“At the inaugural meeting of BSQ on the evening of Australia Day 1967, a resolution was adopted to produce a monthly publication titled *Bromeliaceae* for the dissemination of information to members. The initial issues were laboriously typed in quadruplicate (using carbon paper): and the print quality varied depending on which copy you got.....”

The history, if it follows Peter’s previous standard, should be worth waiting for!



Points Scored for Competition Plants

Autumn and Spring Shows

By Narelle Aizlewood

PURPLE RIBBON - AWARD OF MERIT	-	95 – 100
BLUE RIBBON		90 – 100
RED RIBBON		85 – 89

Plants are scored differently depending on whether the specimens are single or multiple or Blooming or Foliage.

Points are allocated as below:

Single or Multiple “Blooming”	
Cultural Perfection	30
Conformation	20
Colour and Marking	20
Inflorescence	20
Maturity	10
Total	100

Single or Multiple “Foliage”	
Cultural Perfection	30
Conformation	30
Colour and Marking	30
Maturity	10
Total	100

Horticultural Displays are also split into “Blooming” and “Foliage” categories with their appropriate scoring points as are “Decorative Containers”, and “Artistic Arrangements” are all judged with their relevant scoring points.

Entries that are judged for the Head Table include Champion Plant, Reserve Champion Plant, Best Bromelioideae, Best Tillandsioideae, and Best Pitcairnioideae, together with Best Cryptanthus, Best Novice and Best Species.

All plants scoring purple ribbons in all these categories, Tillandsioideae, Pitcarinioideae, and Bromelioideae, Cryptanthus Novice and Species are presented to the complete panel of Judges who in turn determine the best plant by “process of elimination”.

Champion and Reserve Champion are chosen from the Best Tillandsioideae, Best Pitcairnioideae and Best Bromelioideae in the Horticultural Section.

Competition Schedule for 2014

- January - MINI SHOW**
Class 1 – Aechmea species & hybrids
Class 2 – Vriesea species & hybrids
Class 3 – Dyckia species & hybrids
- February - POPULAR VOTE – any genus species & hybrids + novelty bromeliad display**
- March - POPULAR VOTE**
- April - MINI SHOW**
Class 1 – Bromelioideae not listed elsewhere in Schedule, species & Hybrids
(*Acanthostachys, Ananas, Androlepis, Araecoccus, Bromelia, Canistropsis, Canistrum, Edumdoea, Fascicularia, Hohenbergia, Hohenbergiopsis, Neoglaziovia, Nidularium, Ochagavia, Orthophytum, Portea, Quesnelia, Ursulaea, Wittrockia*)
Class 2 – Guzmania species & hybrids
Class 3 – Pitcairnia species & hybrids
Class 4 – any other flowering bromeliad species & hybrids
- May - POPULAR VOTE**
- June - POPULAR VOTE**
- July - MINI SHOW**
Class 1 – Billbergia
Class 2 – Tillandsioideae not listed elsewhere in Schedule, species & hybrids
(*Alcantarea, Catopsis, Mezobromelia, Racinaea, Werauhia*)
Class 3 – Neoregelia up to 200mm diameter when mature, species & hybrids
Class 4 – any other flowering bromeliad species & hybrids
- August - POPULAR VOTE**
- September - POPULAR VOTE**
- October - MINI SHOW**
Class 1 – Neoregelia over 200mm diameter when mature, species & hybrids
Class 2 – Tillandsia species & hybrids
Class 3 – Pitcairnioideae not listed elsewhere in Schedule, species & hybrids
(*Brocchinioideae, Lindmanioideae, Hechtioideae (= Hechtia), Puyoideae (= Puya), Navioideae, Pitcairnioideae (= Deuterocohnia, Encholirium, Fosterella)*)
Class 4 – any other flowering bromeliad species & hybrids
- November - POPULAR VOTE**
- December - No competition - Christmas Party**

