Far North Coast Bromeliad Study Group N.S.W.

Edition: July 2022

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477

Phone (02) 6683 4188

Study Group meets the third Thursday of each month

Next meeting August 18th 2022 at 11 a.m.

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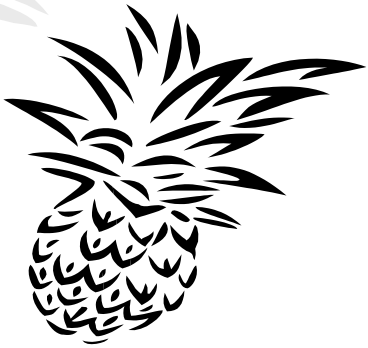
Life Members: Gary McAteer, Coral McAteer
Debbie Smith, Shirley Smith



Open Popular Vote

1st	Jennifer Laurie	*Neoregelia* 'Dr. Oeser Median'
2nd	John Crawford	x*Guzvriesea* 'Happa'
3rd	Michelle Hartwell	*Billbergia* 'Kolan Purple Devil'

Tillandsioideae

1st	Gary McAteer	*Tillandsia tectorum*
2nd	John Crawford	*Tillandsia bulbosa*

Decorative

1st	Helen Clewett	'Calming'

Judges Choice

1st	Gary McAteer	*Tillandsia tectorum*

Web Links for Checking Correct Identification and Spelling ?

Bromeliad Cultivar Register (BCR): http://registry.bsi.org/
Refer to this site for correct identification and spelling of your hybrid or cultivar.

The new Bromeliad Species Database (BSD): www.bsi.org
Refer to this resource for bromeliad species information.

New Bromeliad Taxon List: https://bromeliad.nl/taxonlist/
Refer to this site for latest species name changes and correct spelling.

Bromeliads in Australia (BinA) http://bromeliad.org.au/
Refer to this site for its Photo Index, Club Newsletters many with Table of Contents Index and there's Detective Derek Articles.

Keep these web sites set as desktop icons for quick reference access.

Where do I Find the Dates ?
www.bromeliad.org.au then click "Diary".
Check this site for regular updates of times, dates and addresses of meetings and shows in your area and around the country.

Meeting 16th June 2022

The meeting was opened at approximately 11.00 am
The 11 members present were welcomed.
Two apologies were received.

General Business

It has been quite a few years since we discussed the general rules and aims of our Group and those of most other Groups and Societies so that our newer members understand our obligations. That is, our obligation of being kind and thoughtful to other members, to share Bromeliad knowledge and information not only with fellow members of our Group but with all Bromeliad growers.

Over recent years since 2016 we've seen quite a few changes in the Bromeliad family due to DNA studies. Peter Waters of New Zealand compiled a list of the families and the genera noting the number of species in each genus. These changes can catch one off guard when compiling lists as Peter found. As his list was being published in the New Zealand Bromeliad Society Journal, April 2022 he was notified of more changes with another three genera to be added. Peter's list including the additional three genera is printed here on pages 14, 15 and 16.

Twice recently I've heard of growers asking "who or what is Skotak?" We often hear growers refer to some plants as "it's a Skotak". So what is a Skotak? It is a hybrid/s developed by Chester George Skotak who is a renowned Bromeliad hybridiser, born in Texas, USA and who has lived in Costa Rica since 1978.

By entering skotak as breeder into the Advanced Search box on the Bromeliad Cultivar Register (BCR), it shows 500 entries that Chester is responsible for. Some well known ones to name just a few are:
Aechmea 'Cracker Night', 'Falkland', 'Phat Pat', 'Pilfered', 'Short Tie Len'.
Alcantarea 'P.I.T.A.', 'Skotak's Big Bang'.
Ananas 'Mini Me', 'White Lightning'
Neoregelia 'Absolutely Fabulous', 'Captain Moxley', 'Garnish', 'Jaws', 'Predator'.

Chester has written a book on his travel adventures. After leading a few plant collecting expeditions throughout Central and South America he wrote his book titled 'Searching for Miss Fortuna: The Hunt for a Bromeliad', the search was for *Guzmania* 'Fortuna'. "An intriguing novel inspired by true events. This bizarre adventure laced with offbeat humour, odd characters, and vivid descriptions chronicles an obsession with collecting a rare plant". (reprinted from the book review)

Chester also has several plants named in his honour, one in particular of note being *Aechmea skotakii* which was found in Ecuador.

Show, Tell and Ask!

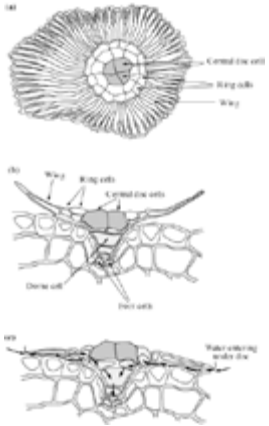
A query this month was “what is meant by gassing plants?”.
This could be in reference to either of two situations, one being plants are often gassed - treated with Methyl Bromide, the fumigant used on Bromeliads when imported into Australia. For a little more information on pest control refer to our FNCBSG Newsletter August 2018, Development of Pest Control by Les Higgins.

Alternatively when gassing of Bromeliads is mentioned it is often in regards to inducing plants into flower. This is done mostly by commercial growers who require large numbers of plants to be flowering at the same time for marketing purposes. For this purpose some popular growth regulators used are Florel or Ethrel, be sure to read the directions of use and follow them carefully. Another way to induce your plant into flower prematurely is “the apple in a bag method”. Ethylene gas is produced when the apple ripens and stimulates the Bromeliad into flower. Place your plant and an apple in a large clear plastic bag, seal the bag and leave for around 10 days after which time you remove the plant from the bag. If the apple has worked its magic you should see some results in three to four months, you may need to experiment with plant time spent in the bag.

Why induce a plant to flower? Apart for commercial purposes, it’s done for hybridising. Sometimes it’s done by growers who can’t wait to see a particular plant flower, perhaps a special plant had been in their collection for many years and impatience got the better of them! However there is the hybridiser who would like to pollinate two plants that flower at different times of the year. One way to achieve this is to freeze pollen from the first plant to flower of the two candidates for use on the second plant when it flowers (if you remember you’ve frozen pollen for the purpose!). A method some hybridisers use is to gas/induce both plants to encourage them to flower at the same time. This can be tricky as not all plants respond equally, you may need to experiment with treating a few plants at different intervals to gain your desired timing of flowering for pollination.

Experiment with different coloured shade cloths:
Red shade cloth can be used to promote/induce early blooming.
Blue shade cloth can assist in foliage growth.
Black shade cloth is neutral to the light we see.
White, sandstone, beige etc enhance the reds especially in Neoregelias.

Fly speck scale has been noticed to be attracted to some plants more so than others, if somebody can explain why please let us know. Treatments suggested were to use a systemic foliar insecticide such as Spectrum 200 SC, Confidor or Malathion. **Do not** use White Oil on Bromeliads. **Why not use white oil?** Many horticultural white oil products are petroleum oil based and work by blocking the breathing pores of insects, causing suffocation and death. These petroleum based oils when sprayed on Bromeliads block their breathing pores and can cause death. The oil wets the wing of the trichome and seals it closed, the trichomes are the scale found on the leaves of most Bromeliads which gives them their silvery sheen, they are the absorptive breathing organ of the plant. The problem with white oil is that it can take at least four days to break down in sunlight causing the plant to suffocate and die. Whereas vegetable oil products such as Canola white oil break down much quicker, one to one and a half days, it suffocates the pests without harming your plants.



Rob Smythes Canola white oil is safe, refer FNCBSG Newsletter April 2011, in our June 2014 Newsletter Aaron Smythe has a pictorial on how to make it.

Debbie’s beaming smile says it all about her *Tillandsia bulbosa*, yes it is something to be proud of. We first saw this plant from Debbie in 2012, albeit a much smaller clump. Ten years on I bet the neighbour she acquired her first plants from is quite envious of Debbie’s growing achievement of this magnificent specimen. Being very modest she still says she does nothing special for it other than leaving it hang on the fence to get rained on.

Tillandsia bulbosa Hooker, 1826, grows as an epiphyte, from near sea level to 1350 m altitude across Mexico, the West Indies through Central America to Ecuador and northern Brazil. As can be seen with Debbie’s specimen it grows in all directions which is referred to as being ageotropic. The absence of any tendency to grow in a particular direction relative to gravity. (Benzing)

Tillandsia somnians L. B. Smith 1961.

This is a species native to Peru where it grows in moist locations in narrow gullies between cliffs, it has also been found growing in Ecuador.

Tillandsia somnians has green leaves with a slight purplish tinge, it produces an elongated scape/stem with red bracts, the lax inflorescence has small purple flowers. John and his attentive apprentice (Verde the parrot) says it's an upper pupper, meaning it produces pups from the centre of the plant at the base of the scape. It also produces pups along the stem within the scape bracts as can be seen in the photos of John's plant. This reproductive method is referred to as being viviparous - reproducing from buds which form plantlets while still attached to the parent plant, or from seeds which germinate within the fruit. John finds this plant requires water a bit more often than most plants in his collection.

Albino Offsets/Pups

compiled by Ross Little

What is albinism ? Albinism is the lack of chlorophyll within the leaf, these large achlorophyllous zones are less vigorous than their unaffected counterparts, the latter employ the entire leaf to produce food. A strong healthy plant can give an albino offset/pup occasionally, if left attached to the parent plant it will continue to grow and may reproduce normal offsets. However if removed from the parent plant an all-albino plant will continue to grow albeit very slowly due to the lack of chlorophyll eventually becoming weaker as its food reserve runs out and it dies. Chlorophyll is the green pigment in plants which is necessary in the manufacture of food by plants.

The plant brought to our meeting was sporting an albino offset that shows signs of green in the lower portion of the leaves and a thin green stripe, both will aid in its continued growth. However it will never have strong vigorous growth as does the offset growing alongside it, but it may still give rise to a regular offset similar to its sibling.

Neoregelia
'Pink Shoes' unreg.
from Shane Zaghini

The parent plant was removed from these offsets for discussion purposes, once the 'normal' sibling is removed the albino plant will most likely die. Kayelene has offered to take the plants home and experiment with them. She will feed and care for them eventually potting them individually and report back to us.

Usually one would cut an albino offset off the parent plant and discard it to help encourage the growth of the preferred albomarginated plants.

Information gleaned from:
The Biology of the Bromeliads by David H. Benzing.

Neoregelia ‘Dr. Oeser Median’
1st Open Jennifer Laurie

‘Calming’
1st Decorative Helen Clewett

Tillandsia tectorum
1st Tillandsioideae
and
Judges Choice
Gary McAteer

x*Guzvriesea* ’Happa’
grown by
John Crawford

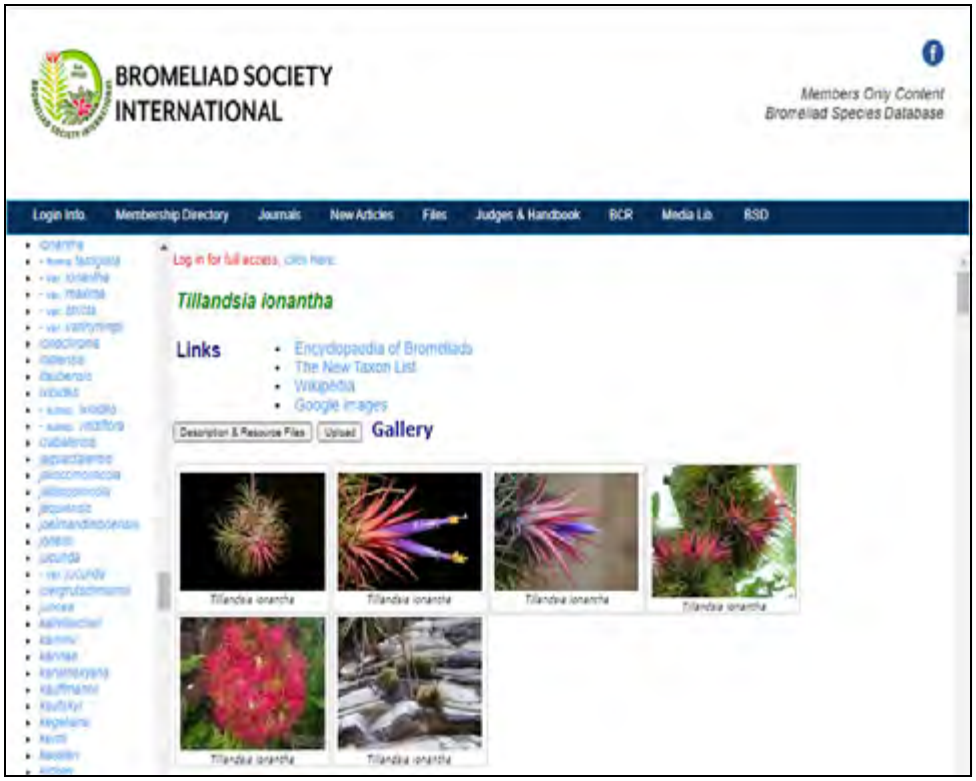
Neoregelia ’Cliff Siverd’
grown by Kayelene Guthrie

Billbergia ‘Kolan Purple Devil’
grown by Michelle Hartwell

‘Bee Mindful’
and
Tillandsia bulbosa grown by John Crawford

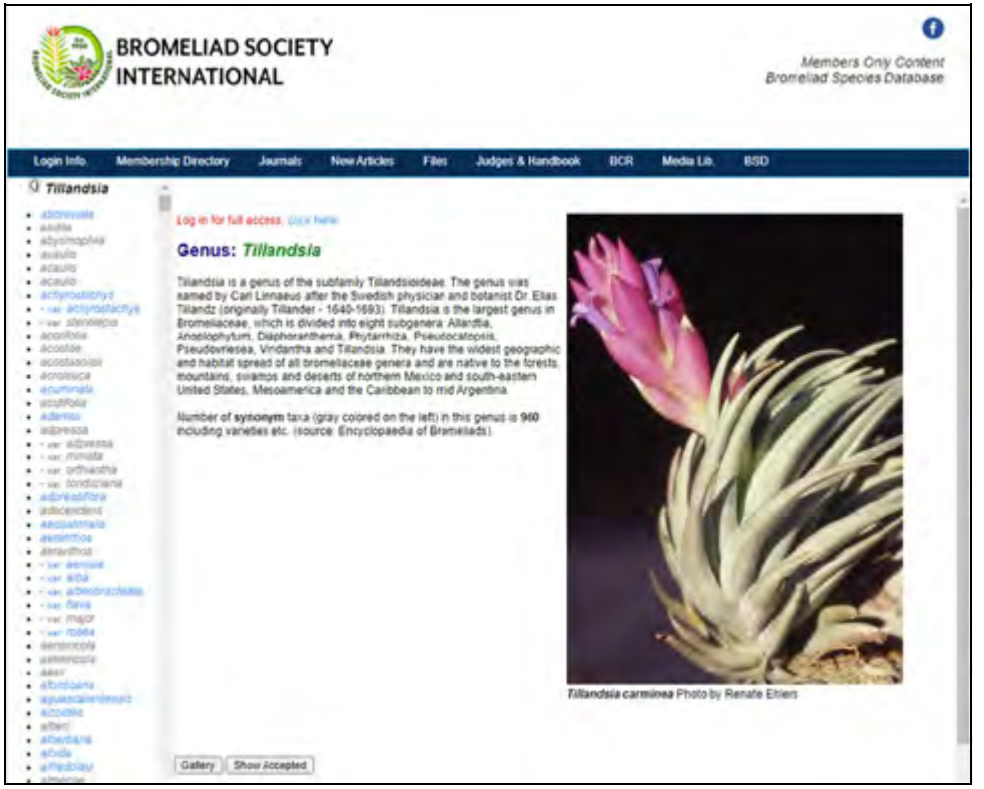
Photos by: Ross Little

The New BSI Bromeliad Species Database (BSD) Part 2:



A typical BSD Photo Gallery page, in this case for *Tillandsia ionantha.*
The photos can be clicked on to view larger size images, see the author's name and any notes or discussion comments that are added to the images. Note the two grey **'Description & Resource Files'** and **'Upload'** buttons, which allow easy access to the file archive section for *T. ionantha* and the instant uploading of new images by users.

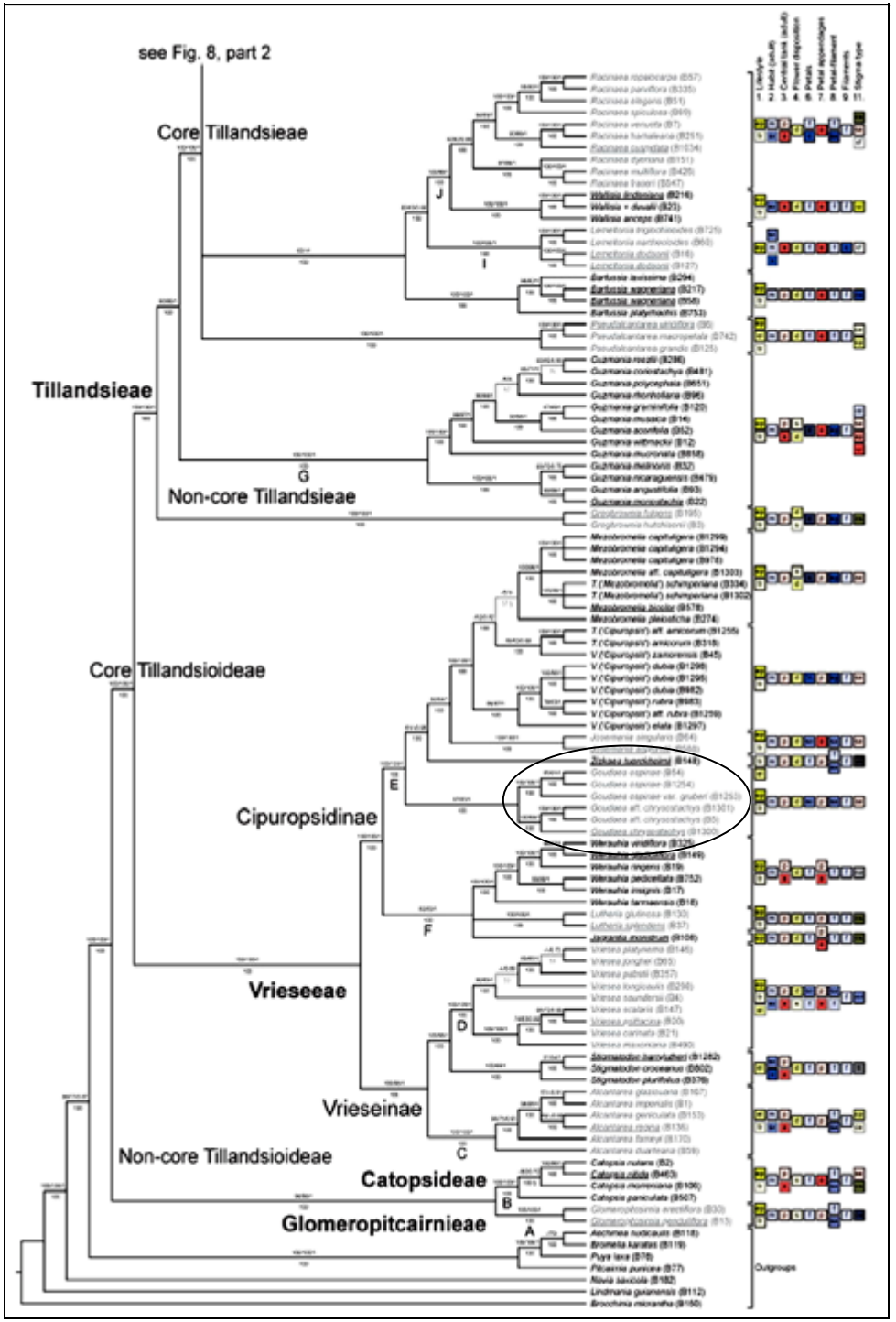
A number of other useful features are also included in the BSD. One is the **"Show Synonyms"** button that is located on each genus page. Clicking this button will show all "old" synonym names in black type-face within the taxon list menu on the left. Clicking on a black name will then link to a page listing the currently accepted name in blue, which can then also be clicked on to go to that current species page. This means locating old names and linking to new names is now a very quick and easy task, a must-have tool these days with so many recent reclassifications – and many more to come.



The *Tillandsia* genus page after the **"Show Synonyms"** button has been clicked. Note the old synonym names in black that have now appeared and can be clicked on to link to the currently accepted name.

How can you help the BSD grow?
We have purposely designed the BSD as a collaborative platform to encourage participation in building the database. As you will see, while every species has resource files loaded against them, there are still many that do not yet have gallery photos. This is where we need help, especially from members with extensive photo collections and knowledge of species, to start uploading and sharing images. Uploading is very simple and can be done at any time, there are no approvals or waiting times involved to see your photos in the BSD Galleries, they will appear instantly. The website will also remember your required upload details for the future, making multiple uploads quick and easy. So this is your invitation! Please give uploading a go whenever you have a nice species photo, particularly those that are rare or with few or no images loaded.

Graeme Barclay BSD Manager, BSI Director New Zealand



In our FNCBSG NSW Newsletters for May and June 2022 we published an article by Peter Tristram about finding *Goudaea ospinae* var. *gruberi* in its natural habitat. In Part 1 (May) of that article Peter explained "Taxonomically, the small genus of *Goudaea* sits within a new subtribe, *Cipuropsidinae*, in the new tribe, *Vrieseeae*, in the *Core Tillandsioideae* subfamily. More study is needed on the species in the proposed, closely-related genus, *Cipuropsis*, which includes some well-known species such as *Vriesea elata* and *Vriesea rubra*. The eastern Brazilian *Vriesea* and *Alcantarea* (and the new genus *Stigmatodon*) are clearly split from the Andean genera, including *Goudaea*, *Cipuropsis* and *Lutheria"*.

We have circled Goudaea to show how closely related it is with the rest of the genera on that evolutionary branch of the phylogenetic tree created by Barfuss et al in 2016. Hopefully the following explanation will help readers understand how to read a phylogenetic chart.

What is a Phylogenetic Tree?

A phylogenetic tree is a branching diagram, showing the inferred relationship between various biological species. Several characteristics such as external morphology, internal anatomy, biochemical pathways, behaviour, DNA and protein sequences, as well as the evidence of fossils are used during the generation of a phylogenetic tree. However, phylogenetic trees are hypotheses and do not indicate the exact relationships. The data obtained from DNA sequencing increases the reliability of the relationships in the tree.

How to Read a Phylogenetic Tree.

Important features that help in understanding a phylogenetic tree are:

- A phylogenetic tree is a branching diagram, showing the evolution of closely related species from their ancestor.
- It is composed of lines and branches.
- The root of the tree represents the common ancestor of several closely-related species.
- A line shows the propagation of a particular species over time. The length of a line represents the existence of the species over time.
- The branching of the line at a particular point shows the split of a lineage or speciation.
- The distance of the branches in the phylogenetic tree represents the amount of inferred evolutionary change.
- Each tip of the phylogenetic tree represents a unique species.
- From root to tips, the branching represents the descendant of species from the common ancestor.

● The phylogenies traces show the uniqueness of a particular species and the parts that it shares with the other related species during evolution.

● Ultimately each species has its own ancestor every time it splits as well as a common ancestor shared with other closely related species.

Conclusion

A phylogenetic tree is a branching diagram that represents the evolution of species. The lines of a phylogenetic tree represent the existence of a particular species over time. The branching represents speciation. The root of the phylogenetic tree represents the common ancestor while the roots at each branching represent an ancestor of the newly-formed species.

Reference:

1. "Understanding Phylogenies." *Understanding Evolution.*

2. Phylogenetic tree diagram reprinted from the 'Taxonomic Revision of the Bromeliaceae subfamily based on a multi-locus DNA sequence phylogeny and morphology' by Barfuss et al.

An up-to-date list of Bromeliad Families, Genera and Species.

Compiled by New Zealand Society Scientific Officer, Peter Waters, April 2022.

Family Names	Genus — 80 Genera	Species	Total
Brocchinioideae	Brocchinia	20	**20**
Lindmanioideae	Connelia	6	
	Lindmania	39	**45**
Hechtioideae	Hechtia	92	**92**
Puyoideae	Puya	228	**228**
Navioideae	Brewcaria	6	
	Cottendorfia	1	
	Navia	94	
	Sequencia	1	
	Steyerbromelia	9	**111**
Pitcairnioideae	Deuterocohnia	16	
	Dyckia	178	
	Encholirium	40	
	Fosterella	34	
	Pitcairnia	410	**678**

Family Names	Genus — 80 Genera	Species	Total
Tillandsioideae	Alcantarea	46	
	Barfussia	5	
	Catopsis	18	
	Cipuropsis	3	
	Glomeropitcairnia	2	
	Goudaea	2	
	Gregbrownia	4	
	Guzmania	214	
	Jagrantia	1	
	Josemania	5	
	Lemeltonia	7	
	Lutheria	4	
	Mezobromelia	6	
	Pseudalcantarea	3	
	Racinae	82	
	Stigmatadon	20	
	Tillandsia	716	
	Vriesea	231	
	Wallisia	5	
	Waltillia	2	
	Werauhia	96	
	Zizkaea	1	**1473**
Bromelioideae	Acanthostachys	3	
	Aechmea	243	
	Ananas	3	
	Androlepis	3	
	Araeococcus	4	
	Billbergia	63	
	Bromelia	70	
	Canistropsis	11	
	Canistrum	13	
	Cryptanthus	66	
	Deinacanthon	1	
	Disteganthus	4	
	Edmundoa	3	
	Eduandrea	1	
	Fascicularia	1	
	Fernseea	2	

Family Names	Genus — 80 Genera	Species	Total
Bromelioideae	Forzzaea	7	
	Greigia	36	
	Hohenbergia	52	
	Hohenbergiopsis	1	
	Hoplocryptanthus	9	
	Hylaeaicum	12	
	Karawata	7	
	Krenakanthus	1	
	Lapanthus	2	
	Lymania	10	
	Neoglaziovia	3	
	Neoregelia	113	
	Nidularium	47	
	Ochagavia	4	
	Orthocryptanthus	3	
	Orthophytum	67	
	Portea	8	
	Pseudaechmea	1	
	Pseudaraeococcus	6	
	Quesnelia	23	
	Rokautskyia	14	
	Ronnbergia	25	
	Sincoraea	11	
	Siqueiranthus	1	
	Ursulaea	2	
	Wittmackia	44	
	Wittrockia	7	**1007**
		Grand Total	**3654**

Reprinted from: Bromeliad, Journal of the Bromeliad Society of New Zealand, Vol.62 No.4, April 2022. May updates added.

The list Peter published in April 2022 lasted only one month before he received notice of three additional genera in the Bromelioideae section. The new ones published in the Journal of the Bromeliad Society of New Zealand Inc. Vol. 62 No.5, May 2022: Krenakanthus (1), Orthocryptanthus (3) and Siqueiranthus (1). This group are all in the Cryptanthoid complex, which covers Cryptanthus and Orthophytum types. They are published in a new article by Elton Leme and seven other botanists and is based on the morphology of recently discovered species, seed anatomy and improvements in molecular phylogeny. This brings the total number of genera to 80.