

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

Edition: July 2020

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477
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Study Group meets the third Thursday of each month

Next meeting 20th August 2020 at 11 a.m.

To be advised

Editorial Team:

Ross Little

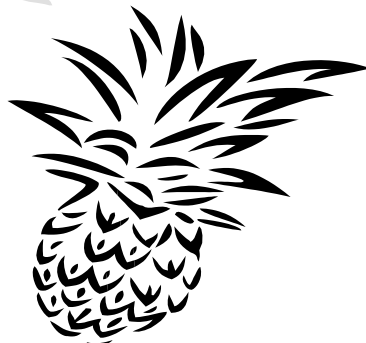
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Statements and opinions expressed in articles are those of the authors and are not necessarily endorsed by the Group.
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Meeting 18th June 2020

There was no meeting in June due to corona virus Covid-19.
Take care, stay safe and well everybody in these dire times.

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There are three ways to work this puzzle:

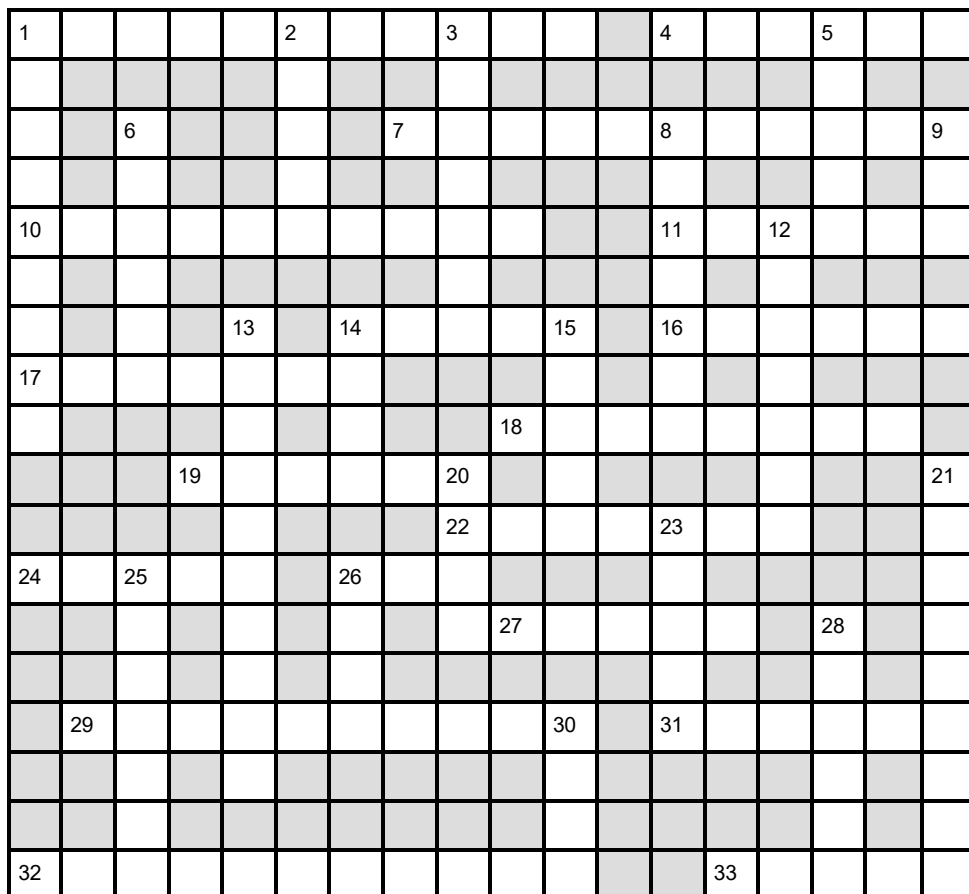
1: For the sharpie – use only the definitions.

It is not fair to use the BSI Glossary.

2: For the learner – if you are stumped by the definitions, try to match the terms listed with the definitions. If you are still stumped refer to the BSI Glossary.

3: If you really just don't want to think about it, work it in Kriss Kross fashion, fitting the terms in place by number of letters etc.

Ed: Or you could cheat and refer to the solution on page 14.



BUD	SCAPE	STIGMA	PLASTIDS
EYE	SEPAL	STOLON	CYTOPLASM
CELL	STYLE	TISSUE	ORGANELLE
NODE	XYLEM	ASEXUAL	DISTICHOUS
SION	APICAL	MITOSIS	PERIGYNOUS
BRACT	EMBRYO	OSMOSIS	PISTILLATE
CAYLX	ENTIRE	PEDICEL	POLLINATION
CLASS	NERVES	SESSILE	CHLOROPLAST
OVARY	SHEATH	SPECIES	DETERMINATE

ACROSS

- 1 A type of placid which stores pigments and food. It contains chlorophyll, developed only in the cells exposed to light. -----s are the centre of photosynthesis and starch formation.
- 4 At the apex or top of growing tip.
- 7 Definite cessation of growth at the apex or main axis. Said of inflorescence when the terminal flower opens first and so terminates further elongation of the floral axis.
- 10 Referring to flower parts borne or arising from around the ovary. The ovary position is superior.
- 11 A fundamental structural unit of an organ; an aggregation of cells with a specific function.
- 14 The outer-most case of a flower (the collective term for all the sepals).
- 16 Any protective leaflike structure which envelops the stem; the flattened covering which protects the developing inflorescence.
- 17 Attached directly by the base; not stalked. Flowers rest directly on the stem.
- 18 An organelle that stores food and pigments. Example: chloro----- stores chlorophyll; chromo----- stores a pigment except green and gives colours to flower and fruits; and leuco-----, which stores starch but no pigments.
- 19 A shoot that bends to the ground and takes root; a horizontal stem at or below the surface of the ground that gives rise to a new plant at its tip.
- 22 The tendency of water to diffuse through a semi-permeable membrane, such as a cell membrane, from a solution of lower concentration to a solution of higher concentration.
- 24 One of the separate leaves of a calyx; they are flower parts which surround or contain the petals.

- 26 The rudimentary or beginning stalk of a shoot, flower or leaf before expanding.
- 27 The plantlet in the seed.
- 29 Arranged in two ranks, as the flower spikes of many vrieseas.
- 31 Margins not in any way indented; whole. ----- leaves have smooth edges.
- 32 The mechanical or physical operation of transferring pollen from stamen to pistil.
- 33 The stem of the inflorescence.

DOWN

- 1 The matrix in which cell organelles are located.
- 2 The part of the pistil which contains the ovules (young seeds).
- 3 Sexless; without sex, such as in vegetative propagation.
- 5 A group of related orders. The name ends in -opsida.
- 6 Slender ribs or veins, particularly if not branched. -----(ed) means that the veins are plainly showing.
- 8 The divisions of a cell nucleus into two daughter nuclei.
- 9 The marked centre of a flower; a bud especially when in propagation.
- 12 A group of plants which have one or more characteristics in common which definitely separate it from any other group.
- 13 Of a flower having pistils and no stamen; female.
- 14 One of the ultimate compartments of which plants are composed; structural unit.
- 15 The water carrying vascular tissues which form the wood of a plant.
- 20 A joint where a leaf is bourn or maybe bourn.
- 21 A subcellular body located in the cytoplasm.
- 23 Elongated part of the pistil between the ovary and stigma.
- 25 The support or stem of a single flower; stem of one flower in a cluster.
- 26 A modified leaf associated with the flowering part of a plant involving size and often colour
- 28 The top of the female portion of a flower which receives pollen from the anther.
- 30 A descendent.

Growing Ananas for Seed - How a New Pineapple is Made

by Chester George Skotak 2020

A great majority of *Ananas comosus* varieties (pineapples) are self-incompatible, they will not self-seed. There are some minor species (mostly all of the spiny *Ananas* species) which are self-fertile (they produce seed without outside influence) and produce vast quantities of seed (Angiosperms took over the planet!). The more commercial varieties of *Ananas comosus* (there are exceptions) do not self-seed, we must do it for them, first thing in the morning and prevent hummingbirds and bees from getting to the flowers first.

Out crossing with another varietal plant of *Ananas* is the only way to produce seed of interesting, commercial pineapples and at the same time an opportunity to produce new genotypes to work with in the future.

Oddly enough, if the inflorescence is not pollinated by another plant (*Ananas*), the pineapple plant will still develop a fleshy, edible fruit.



Chester Skotak and Matilde Ramirez showing some of their handy results.



Matilde Ramirez with Danilo Rodriguez hand pollinating *Ananas comosus*.
All the *Ananas* on this farm are experimental.

photos by Chester Skotak

A pineapple which develops with no seed formation (self-incompatibility) but still makes a fruit is called a partenocarple fruit.

Another example are bananas, fruit but no seeds.

Tillandsia rauhii

by Drew Maywald and John Crawford

Tillandsia rauhii is a huge plant more than a metre tall with the leaves more than 1.2 metres across. Native to Northern Peru, *Tillandsia rauhii*, grows in steep rocky gorges. The plant grows in cracks and fissures in the rocks and is quite upright and difficult to access in nature. *Tillandsia rauhii* has large, evergreen funnel like leaves forming a rosette.



The flowering plants are around 2 metres long but curve down towards the river and streams in the gorges in habitat. This cliff dweller takes years to flower when grown from seed.



BSI Journal 1991 - photo by Werner Rauh

The pendant inflorescence on John's plant above, like those in habitat, also curves down and because of the weight of the inflorescence care needs to be taken to ensure that the plant doesn't tip over if it is planted in a pot and not planted in the ground.

Tillandsia rauhii was first described by Lyman Bradford Smith in 1958.

Type is in the U. S. National Herbarium, collected on vertical cliff walls below Florida in the valley of the Rio Sana, Department of Piura, Peru, alt. 700 meters, in 1956, by W. Rauh (P-379).

Isotype is in the Botanical Institute of the University, Heidelberg, Germany.

According to Derek Butcher, after the seeds ripen the whole plant begins to die slowly, as is the case with many other big rock tillandsias. Vegetative propagation takes place before flowering with the help of the many basal adventitious offsets produced out of unusual or abnormal places, such as some roots or buds, or from stems or leaves. Post-floral offsets do not occur.



Tillandsia rauhii produces greyish white, cylindrical flower spikes attached to a rigid, thick rhizome like base. In the photo above there are 14 curved flower spikes. *Tillandsia rauhii* produces small exquisite, tubular, violet flowers and will flower for many months.

Tillandsia rauhii is an amazing large Tillandsia that looks quite ordinary until it flowers, and then the full beauty and strength of the pendular flower spike with its 15 mm violet flowers is quite outstanding. It is pollinated by humming birds in nature. This plant is too large to bring to the FNCBSG NSW meeting for **Show, Tell and Ask!** but is something that we want to share with all our members.

References:

- Butcher, Derek, "*Tillandsia rauhii*"
- Rauh, Werner, "Additional Remarks on *Tillandsia rauhii* and Description of a New Species." BSI Journal Vol.41, No.2, March-April 1991.
- Wikipedia

Glossary:

Type: The originally collected plant from which a botanical description is written.

Isotype: A duplicate specimen of the holotype.

Holotype: The one specimen or illustration used by the author or designated by the author as the nomenclatural type.

A **nomenclatural type** specimen is a herbarium sheet(s) or illustration to which the name of a taxon (species, genus, subspecies, variety, etc.) is permanently assigned. The name may be currently accepted as valid and in use for a particular plant entity or treated as a synonymous name.

In botanical nomenclature: type (typus, **nomenclatural type**), "is that element to which the name of a taxon is permanently attached."

In botany a **type** is either a specimen or an illustration.

Herbarium: A collection of plant specimens that are dried or otherwise preserved, annotated, identified, and systematically arranged.



Tillandsia rauhii L.B.Smith
herbarium type sheet.

***Sincoraea* sp. nov. Andaraí**

by Drew Maywald and John Crawford

In August 2018, John Crawford was given two small bromeliads about 80 mm wide, from seeds that were originally acquired from Brazil. John nurtured the plants and 6 months ago one of them flowered. The bromeliad was *Sincoraea* sp. nov. Andaraí, which is rarely seen in collections. This is a plant that has not yet been officially named. It occurs in a few locations near the town of Andaraí in Bahia, Brazil, growing in rock crevices. It was apparently first found by Brazilian bromeliad enthusiasts H. and O. Ribeiro.

John put his plants on small stones in a saucer of water to ensure that they were well hydrated, and fed them with 16-month slow release fertilizer. His efforts were rewarded with a lovely plant that has very fine, narrow leaves. The lance-like, glossy, lime-green leaves are finer than those on *Sincoraea burle-marxii*, and are around 180 mm long. At the base the leaves are 4mm wide and taper to a long, very fine point at the tip. The upright leaves have soft, small, upward pointing spines less than 0.5 mm long. This relatively small plant is a maximum of 350 mm across.



However, all that changes when *Sincoraea* sp. nov. Andaraí flowers. The leaves flatten down and extend out at 90° to the axis. They turn a pinky red colour with a ring of yellow surrounding the flower head. The petite flowers are a soft white colour with petals less than 10 mm long.

The inflorescence resembles that of *Sincoraea mucugensis*, however the leaves are much finer and the band of yellow surrounding the flower head is much wider on *Sincoraea* sp. nov. Andaraí. *Sincoraea mucugensis* has shorter leaves of stiffer texture which are smooth or almost smooth on both surfaces, compared to the leaves of *Sincoraea* sp. nov. Andaraí which are lepidote (covered with small scales), on the lower surface.



After flowering the leaves turn to a darker, less glossy, green colour, but remain flattened out and extend further down below the head of the plant.

Sincoraea sp. nov. Andaraí is a prolific “pupper” with pups peeking through the foliage from the base of the plant on short stolons. A unique plant that will be a valuable addition to any collection.

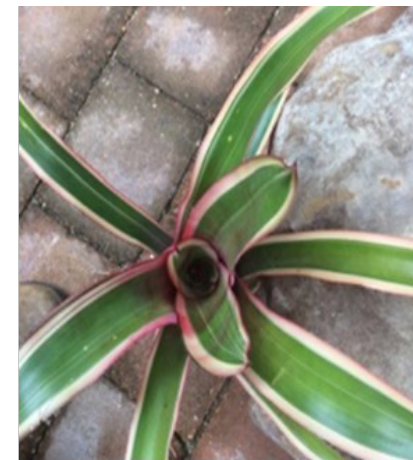
***Billbergia* ‘Booyong Ladd’**

by Drew Maywald

Billbergia ‘Booyong Ladd’ is a majestic Alan Ladd cultivar. It was named by Ross Little after the town where Alan Ladd lives in the Northern Rivers area of New South Wales. It was registered by Geoff lawn. The seed parent is *Billbergia pyramidalis* var. *pyramidalis*, and the pollen parent is thought to be *Billbergia* ‘Windigig Special’.

The foliage on this tricolour plant is beautiful with broad, creamy margined green leaves with tinges of pink. On the reverse side, the leaves are a contrasting red colour. The individual leaves are 70mm wide at the base and are around 400 mm long. The plant is a rosette shape around 350mm in diameter.

When I first bought my ‘Booyong Ladd’, it was a thin plant and was nothing spectacular. I planted it in my front garden and forgot about it. Six months later I had this lovely plant growing which I moved to my back garden so that I could admire it more.



But it is when *Billbergia* ‘Booyong Ladd’ flowers that makes it even more magnificent. The stem of the inflorescence extends 35mm above the plant and consists of numerous bright red bracts, leading to the ball shaped inflorescence, which is a mass of brilliant red buds.

The tips of the bright red petals are tinged with purple and the blue stamen sits well above them. Unfortunately, like other *Billbergias* the flowers do not last very long. It took nearly 2 years for my *Billbergia* ‘Booyong Ladd’

to flower but the wait was well worthwhile.

I have been fortunate enough to get two pups from my ‘Booyong Ladd’ with another on the way. I am now fertilising it with Powerfeed regularly to see if I can get another couple of pups from it. In my opinion this magnificent plant is one of Alan Ladd’s best hybrids and brings me great pleasure.





A substantial breeding programme is ensuring the Galapagos tortoise will be around for many generations to come.

Being a group of volcanic islands they aren't all covered in dense tropical vegetation.

There are also vast lava fields covered only with sparse vegetation.



Snorkelling attracted inquisitive visitors!



Of course there were the blue-footed booby, fortunately we were there during breeding season and saw many chicks.



However all good trips must come to an end, we had explored eight islands, snorkelled with sea lions, penguins and saw some very large Galapagos green sea turtles grazing as we swam. The fun of having a sea lion blow bubbles in your face or tugging on your fins when snorkelling will remain in our memories forever as will the flash of a penguin as they raced by.

It was day eight and some of our group had early flights so it was time to say our good byes and leave the Eden and Galapagos without having found our Bromeliad. So it was back on the bus, then the water taxi and another bus to the airport, BUT my travelling partner Lesley decided she couldn't sit around for four hours waiting for our flight. There were the twin craters to go and see which she deemed we had just sufficient time to get there and back providing nothing went wrong....! Off we went on the bus again, across the channel in a water taxi and to find a (land) taxi that was willing to take us to the craters and back!

On arrival it began to rain - light, misty and annoying for photography. At the first crater we saw several varieties of finches but no Bromeliads again, so we walked the short distance to the second crater. It was quite large, the vegetation is very lush and there is a walking trail around the rim. We only had about 20 minutes to spare so off we went on a quick march around the rim of this great crater.



Suddenly there it was, *Racinaea insularis*. We were in that far right hand corner of the crater (photo above right) and just about to head back when we found it. For us to have travelled the vast distance from Australia to Ecuador then out to the Galapagos Islands and not to have seen the only Bromeliad there would've been very disappointing. Unfortunately they were post floral BUT we found it !!



Bromeliaceae

A Layman's Guide to the
Sub Families and Genera

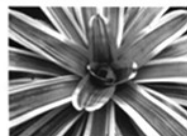


Compiled by
Drew Maywald
Edited by
Ross Little
Edition 1
March 2020

A4 36 pages,
with binding.
Cost \$26.00 inc.
postage
within Australia.
\$24 ex postage.

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postage within
Australia.
\$14 ex postage.

PUZZLE SOLUTION (Ed: for the cheats)

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Wittmackia

compiled by Drew Maywald 2020

Pronounced witt-mack-ee'a, this genus was first named by Mez in 1897, and later merged by Smith in 1956, into *Aechmea*, because Smith considered that the lax spikes and mucronate sepals (abruptly projecting point) of the species were sufficient characters to place them in *Aechmea*. In 2017 Wittmackia was resurrected after Aguirre-Santoro et al's phylogenetic study, and a number of species from *Aechmea* and the *Hohenbergia* subgenus *Wittmackiopsis*, (meaning resembling Wittmackia), have been moved into the Wittmackia genus. There are 44 species in the Wittmackia genus.

This genus has two disjunct centres of diversity. The first area is located in the central corridor of the Brazilian Atlantic Forest in south-eastern Bahia state, with a few species occurring north from Ceara to Sergipe states. The second area centre of diversity, corresponds to Jamaica in addition to a small group of species occurring in the remaining Greater Antilles (except Hispaniola), their adjacent islands west of the Caribbean, and the Yucatan Peninsula.

The species of Wittmackia inhabit a wide variety of environments from hygrophilous (plants growing in damp conditions), mountainous forests to dry habitats in semi-deciduous forests and tropical dry forests. Most species of Wittmackia occur in lowlands to medium-low elevations of about 600-800 mtrs. However, species such as *Wittmackia fawcettii* and *Wittmackia eriostachya*, can occur at 1600 mtrs in the Blue Mountains of Jamaica.

The most distinctive characters that separate *Ronnbergia* from Wittmackia are its generally longer flowers (25 – 50 mm vs 9 – 37 mm), longer corolla tubes (11 – 27 mm vs 2.5 – 7 mm), frequently pigmented flowers (vs white), and petal appendages arising from the base of the petal, when present (vs 2 mm or more from the petal base, when present).^[1]

For the every-day, non-scientific collector these changes can be difficult to understand, because there are no easily identifiable features to identify Wittmackia. And it gets more complicated. In 2017 Aguirre-Santoro^[6] stated that the *Ronnbergia* alliance is "recognized by the combination of their sessile flowers, tubular and apically spreading corollas, and chalazal ovule appendages absent or rudimentary." The Chalaza is the part of an ovule to which the end of the stalk (funicle) is attached^[5].

To identify plants in the Wittmackia genus it is the combination of these features that is the key, not any of them individually, and no every-day collector can tell if there are any chalazal appendages without a microscope.

Wittmackia is a genus rarely seen in collections, and at the time of writing this article, there were no cultivars in the genus.

References:

- Wisnev, Mike, "Taxonomic Tidbits – The *Ronnbergia* Alliance – Aechmea, Hohenbergia and Wittmackia Part 2":
San Fernando Valley Bromeliad Society August 2017.
- Butcher, Derek, "Genus *Wittmackia*", an unpublished paper.
- Wittmackia – Bromeliads in Australia:
A Brief Abstract of Aguirre-Santoro's paper.
- Aguirre-Santoro, Julian, "Taxonomic Revision of the Caribbean-Endemic Species *Wittmackia* (Bromeliaceae).
- New South Wales Flora Online.
- Aguirre-Santoro, J. (2017) Taxonomy of the *Ronnbergia* Alliance (Bromeliaceae: Bromelioideae): new combinations, synopsis, and new circumscriptions of *Ronnbergia* and the resurrected genus *Wittmackia*.
Plant Systematics and Evolution:1–26.

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.

New Bromeliad Taxon List: <http://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, Detective Derek Articles.

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

Where to Find Bromeliad Groups & Societies Meeting 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.