



**S.F.V.B.S.**

**SAN FERNANDO VALLEY BROMELIAD SOCIETY**

**DECEMBER 2018**

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**Elected OFFICERS & Volunteers**

Pres: **Bryan Chan & Carole Scott** V.P.: **John Martinez** Sec: **Leni Koska** Treas: **Mary Chan** Membership: **Joyce Schumann**

Advisors/Directors: **Steve Ball, Richard Kaz -fp,**

Sunshine Chair: **Georgia Roiz** Refreshments: **vacant**

Web: **Mike Wisnev,** Editors: **Mike Wisnev & Mary K.,** Snail Mail: **Nancy P-Hapke** Instagram & Twitter & FB: **Felipe Delgado**

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**next meeting: Saturday December 1, 2018 @ 10:00 am**

Sepulveda Garden Center 16633 Magnolia Blvd. Encino, California 91436

## **ANNUAL HOLIDAY BRUNCH**

***Saturday December 1st***

***9:00 – Set-Up and Deliver all food dishes (Coffee & Donuts)***

***10:00 – meeting starts with drawing***

***10:15-11:15 – 'Show-N-Tell' and Social hour***

***11:30 – Pot Luck Brunch served***

***12:30 – Member Gift Exchange and Club Holiday Plant drawing***

**(Normal \$1.00 plant raffle will resume in January)**

***1:00 – 2:00 – Clean up; we will need all hands***

**RSVP to Mary Chan at [mchan2001@aol.com](mailto:mchan2001@aol.com) or (818) 366-1858**

**Holiday Plant Gift Exchange.** Please bring a wrapped plant (a bag will be okay) or plant related item- max value \$15 to the party. Please give something nice that you might like to receive. If you prefer, you don't have to participate in the gift exchange.

The Club will provide meat in addition to the usual club offerings. So far the following people have signed up to bring:

**Salad----** Jeanette Bond, Burton Bush, Al Mindel, and Leni Koska.

**Sides---** Delgado family (Mac & Cheese), Joyce and Rose (chicken enchilada casserole), Georgia Roiz (corn casserole), Jennifer Culp (sweet potatoes), Nancy Pyne-Hapke (vegetable),

The following contributors are undecided – Steve Ball, Efren Flores, Steve Rudolph

**Dessert---** Jeri Hughes (pumpkin pie), Mardy Graves (fruit tart), James Johnson (pie)

**Drinks---** Miguel Delgado (sodas)

# **We wish you and your family a Happy, Healthy and Safe Holiday season**

**Participation Rewards System** – (Normal \$1.00 plant raffle will resume in January)

## **Announcements**

**Duke Benadom** recently underwent major surgery and is slowly improving. Kaz, his wife, is caring for him at home now. Please send positive thoughts their way.

**All Participation Rewards** (free raffle tickets) – will resume in January.

**Normal \$1.00 plant raffle** will resume in January. Please remember to bring plants to the January raffle. <

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## **Please pay your 2019 Membership Dues**

***NEED TO RENEW ?.....***

**Pay at the meeting to: Membership Chair – Joyce Schumann or Treasurer - Mary Chan  
or Mail to: SFVBS membership, P.O. Box 16561 - Encino, CA 91416-6561**

**Yearly Membership Dues - \$10 for monthly e-mail newsletters or \$15 for snail mail**

## **Please Put These Dates on Your Calendar**

Here is our 2018 Calendar. Rarely does our schedule change..... however, please review our website and email notices before making your plans for these dates. Your attendance is important to us

Saturday December 1, 2018	<b><i>Holiday Party</i></b>
Saturday January 5, 2019	<b><i>STBA</i></b>
Saturday February 2, 2019	<b><i>STBA</i></b>
Saturday March 2, 2019	<b><i>STBA</i></b>
Saturday April 6, 2019	<b><i>STBA</i></b>

### **STBA = Speaker To Be Announced**

***Speakers*** Let us know if you have any ideas for Speakers about Bromeliads or any similar topics? We are always looking for an interesting speaker.

If you hear of someone, please notify Speakers Let us know if you have any ideas for Speakers about Bromeliads or any similar topics? We are always looking for an interesting speaker.

If you hear of someone, please notify Bryan Chan at [bcbrome@aol.com](mailto:bcbrome@aol.com) (818) 366-1858

OR John Martinez at [johnwm6425@gmail.com](mailto:johnwm6425@gmail.com) 805-390-2139.

# Taxonomic Tidbits: *Guzmania*, Part 2 - its inflorescences and history and a bit about keys

By Mike Wisnev, SFVBS editor ([mwisnev@gmail.com](mailto:mwisnev@gmail.com)) Photos by Wisnev unless noted.

San Fernando Valley Bromeliad Society Newsletter –December 2018

Part 1 described the basics of *Guzmania*, then had some history. To summarize, *Guzmania* are in the Tillandsioideae subfamily and are distinguished primarily by their polystichous flowers and conglutinated petals bases in a tube. It then continued by reviewing some of its history, specifically looking at Smith's Studies in Bromeliaceae. In the first and third studies, Smith discussed five other related genera. Three of them were relegated to the dust bin, and moved into *Guzmania*. Two other genera, known as *Sodiroa* and *Thecophyllum*, survived.

Here is a cultivar called 'Paulina' at Live Art. I may have missed the name, since I see a Mini Paulina registered that seems to have the same inflorescence. Like many of the cultivars on BCR and FCBS, it appears to be of unknown parentage.

## *Guzmania* 'Paulina'



Smith's fifth Study "is chiefly the result of studies made in the summer of 1933 in the herbaria" of Kew Gardens, the British Museum of Natural History and Cambridge University. As such, it touches on a variety of different genera. As to *Guzmania*, he examined 7 of the 8 members of *Sodiroa*, which he had called a weak genus before. The type species was *Sodiroa graminifolia*, shown on the next page. In the fifth Study, he decided they should be considered *Guzmania*.

*Sodiroa*, which are found primarily in Columbia, must be fairly unknown or unattractive. Of the five species noted in this study, only one is photographed in Derek's materials and it doesn't show its habit or sepals well. It is shown below.



### *Guzmania graminifolia*

Photo by Jose Mazanares  
appearing in 46(5) JBS 197 (1996).

This odd species with grass like leaves grows in Ecuador. Mazanares found this species near Alto Tambo, along with about 14 other species. In 1981, Jeffrey Kent also found it growing "nearly everywhere twisting up and around tree branches." 31(6) JBS 259. It grew with *Ronnbergia morreniana*, and Kent found *G. musaica* growing at a lower elevation and *G. sanguinea* "Erecta" at a higher elevation.

Smith's thinking is instructive. Apparently, *Sodiroa* were known for their flaring sepals and caulescent habit. His examinations found two of the *Sodiroa* didn't have those qualities. More important, he noted at least one other *Guzmania* with a caulescent habit. He concluded that it didn't make sense to have a separate genus based on flaring sepal blades, especially since some *Tillandsia* have flaring petal blades and others don't.



This is not unusual; I have seen other examples where subgenera were combined since the distinguishing features had been combined in a different genera.

The photos here and in Part I show some of the wide variety of inflorescences of *Guzmania*. Frankly, I don't know how representative they are, or how many others might exist. With over 200 species, there may be a lot. Derek's folders contain a 2003 article by Betancur and Salinis that described a six species *G morreniana* group known for its compound and digitate inflorescence along with other features.

Here is a lovely painting of one species listed in the *G. morreniana* group, *G eduardii*. This painting appeared in pl 12 of Revue Horticole in 1887. If you look at the bottom, you can see it was once named *Caraguata morreniana*, which is different than *G morreniana*.



Listed as *G eduardii*, photo by Prof. Werner Rauh. 39(2) JBS cover (1989).

But see more below. Why do the painting and photo of the same species look very different! Derek's materials regarding *G eduardii* said that the 2003 paper noted above apparently based their description of *G eduardii* on *G conglomerata*. What was this all about?

The answer is that Harry Luther realized that *G. eduardii* has long been misidentified as another taxon which had not been described – Luther named it *G. conglomerata*. Luther stated that “that all twentieth century illustrations and nearly everything written about *G. eduardii* refer to *G. conglomerata* or to a mixture of characters from both species.” 56(3) JBS 163 at 165 (2006). This included the Rauh photo shown above.

Luther could only explain this by noting that everyone (himself included) seemed to ignore the protologue of *G. eduardii*, that is its original description and associated material. Readers should note that the name of a species or taxa is tied to its type, which is the plant described and illustrated by Andre in 1887 and shown on the left above. Even if everyone later gets the identification wrong, it doesn’t matter – the name is tied to the type, not the plant everyone else considers it to be.

Luther’s article had more historical tidbits. *G. eduardii* had first been name *Caraguata morreniana*. When Mez moved it to Guzmania, the normal rule would be to name it *G. morreniana*. However, another species already had that name. So he gave it the new name, still honoring Eduard Morren, who (unknown before by me) was Mez’s mentor.



*Guzmania squarrosa*,

first Photo courtesy and copyright by [www.ecuagenera.com](http://www.ecuagenera.com).





## *Guzmania longipetala.*

*Photo by W.A. Soerries.*

*42(5) JBS 215 (1992).*

I was looking for a picture of another member of this group due to its name, *G longibracteata*. The pictures were old and in black and white, but next to them were pictures of *G longipetala*, another very different plant. The petals are sort of long, and can't be seen here, but I like the other features more.

*G longipetala* had been considered a *Tillandsia* and a *Thecophyllum*. *G. squarrosa* had also been a *Thecophyllum*. Part 1 had noted *Thecophyllum* were known for their “extremely abbreviated secondary axes” or free petals bearing scales. In the third study, Smith moved some back to *Guzmania*. But the genus doesn't exist now – what happened to it?

I vaguely recalled seeing the term, but not sure where. Searching through my documents I came across an article by Professor Jason Grant that had been discussed before in these Newsletters. See the February 2015 Newsletter if you are interested. In 1995, Professor Grant had moved some *Vriesea* species to a new genus, *Wehrauchia*. It turns out his article discusses *Thecophyllum* at some length. I now remember why I didn't remember them – I had no idea what a *Thecophyllum* was despite the extensive discussion about them.

It appears that the *Thecophyllum* genus was first described in 1889 by Andre, redefined by Mez, and disbanded in 1953 by Smith and Pittendrigh. The short story is that in 1953 they were split up between *Vriesea* and *Guzmania*, with a few going to *Tillandsia*.

Later, some of them that had been transferred to *Vriesea* were moved back to *Guzmania* or to *Mezobromelia* (yes, that name is still a good one). Finally, the rest that had been moved to *Vriesea* found their way to the newly created genus *Werauhia*.



*Werauhia* (then *Vriesea*) *sintensis*. Photo by J. Padilla 18(4) BSJ cover (1968) .

*This species was* first described as a *Caraguata* by Baker in 1889, then a *Guzmania* by Mez in 1896, then a *Thecophyllum* by Mez in 1903, then a *Vriesea* by Smith and Pittendrigh in 1953 and finally a *Werauhia* by Grant in 1995. Why is it a *Werauhia*? That is another story.

For those into more details, Grant's article in Trop. Subtrop. Pflanz. 91: 16-30 (1995) states that "SMITH & PITTENDRIGH (1953) dissolved *Thecophyllum* by recognizing its type species and several other taxa in *Guzmania*, transferring a few miscellaneous taxa to *Tillandsia*, and merging the majority of its species into *Vriesea* subgenus *Vriesea* section *Xiphion* (therefore the coined term "the thecophylloid *Vrieseas*")."

But the *Thecophyllum* story doesn't end there. Grant's article states that Professor Fred Uteley studied these species and found they were quite dissimilar from other *Vriesea*. Grant agreed and moved 66 species "belonging to the "thecophylloids" and their "allies"



sensu UTLEY (1983) are transferred to *Werauhia*. A significant number of the species placed in *Vriesea* subgenus *Vriesea* section *Xiphion* by SMITH & DOWNS (1977) are here transferred to *Werauhia*. The exceptions are a few miscellaneous taxa belonging to *Guzmania* and *Mezobromelia* (see GRANT 1993a), the "grey-leaved *Vrieseas*" belonging to *Tillandsia* (see GRANT 1993b), the "Allardtia-type *Vrieseas*" belonging to *Allardtia* (GRANT in prep.), and the "true" element of *Xiphion* which is part of the "thecophylloid allies" sensu UTLEY 1983) [= *Vriesea* sect. *Xiphion* (E. MORREN) E. MORREN ex Mez in Martius, Fl. Bras. 3(3): 514. 1894. The species referred to *Werauhia* are the "thecophylloid *Vrieseas*" and elements of the "thecophylloid allies" as defined in UTLEY (1983)."

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There you have it! You might see now why I avoided the topic in the earlier Newsletter.



*G. claviformis*, a "very large and spectacular species from Ecuador."

Photo by Eric Gouda, 50(3) J.B.S 137 (2000). The leaves are over 3 ft and the inflorescence over 4-1/2!.

Gouda, curator of the University Utrecht Botanical Gardens, publishes the online Encyclopaedia of Bromeliads website along with Derek Butcher and Kees Gouda.

<http://botu07.bio.uu.nl/bcg/encyclopedia/brome>.

To my mind, the details may be less important than what they represent. First, as indicated throughout this article, genera are perhaps artificially created, and can change over time as we learn more about the plants, and what makes up a good taxon. DNA studies will continue to drive this phenomena. Second, it shows how various plant features have evolved more than once. Whatever features grouped *Thecophyllum* (extremely abbreviated secondary axes and/or free petals bearing scales), it seems they have developed separately within different genera.

### Back to *Guzmania*.

Below are a couple fairly new species, *G kressii* and *kareniae*, both photos by K Norton and found in 57(3) JBS 2007. They are quite lovely.



Figure 2. Paratype collection of *G. kressii* flowering at the Marie Selby Botanical Gardens. Photograph by K. Norton.



*Guzmania kareniae* photo by K Norton  
in J. Brom. Soc. 57(3): 113. 2007

Have I covered most of the forms of *Guzmania* inflorescences? Looking through Derek's pictures, I am not sure I have even shown half of them. Below is yet another.



*Guzmania foetida* “at anthesis  
(during night)”

Photo by Jose Manzanares.

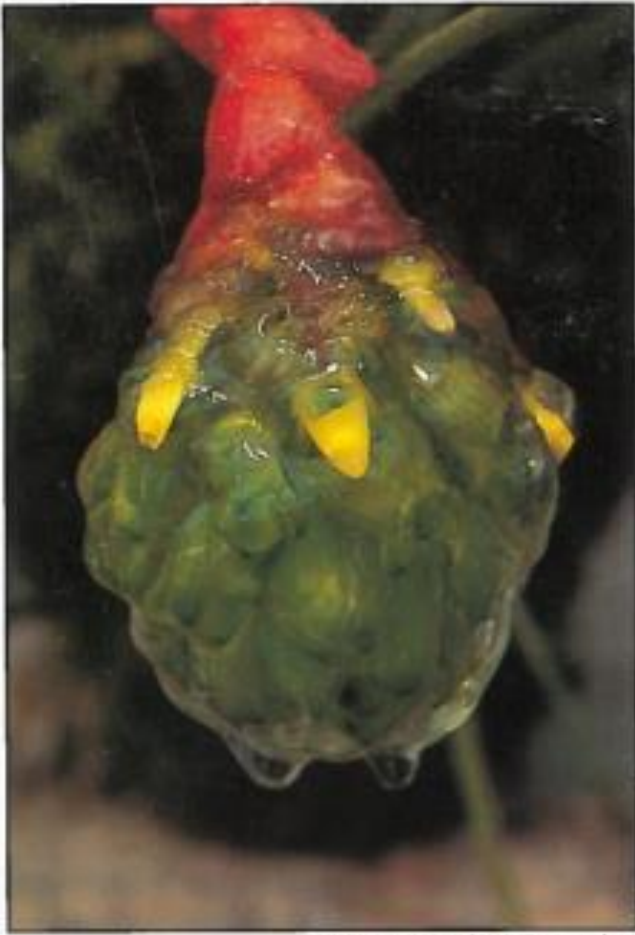
52 (2) JBS 75 (2002)

I was going to say some *Guzmania* inflorescences are not so pretty, but I struggled to find one I didn’t like. This might be one, but remember it blooms at night, and thus it smells. However, Prof. Rauh reported it had an “intensive unpleasant potato smell.”

There are no *Guzmania* subgenera despite its large size – over 200 species. When I tried to show different pictures in the article, I looked at the key to see how they were grouped. Which features did Smith use to create his key, and how did they relate to actual taxonomic units?

**Keys.** A botanical key is created to describe how the smaller groups within it are broken up. For example, a key of a genus is designed so that if you have a species, in flower, you can hopefully determine what it is. (For bromeliads, this may be difficult, since hobbyists are much more likely to have a hybrid than a species.) This is done by grouping the species into increasingly smaller groups based on their common features. As discussed once before, these features may or may not really be important on a taxonomic basis.





Sandra Williams for Selby Gardens

### *Guzmania globosa.*

Photo by Sandra Williamson.

42(6) BSJ 288 1992.

This is another plant found in the Lita area of Ecuador after being found in Columbia and Peru. Others in the surrounding area were shown earlier – *G squarrosa*, *kraenzliniana* and *gramnifolia*.

Luther says this species “demands very wet conditions and, when established flowers several times a year... The clear mucilage surrounding the inflorescence is rather solid and does not adherer to probing fingers.” Id at 247.

Keys are usually considered “artificial” – they are based on a variety of features that may, or may not, be taxonomically significant in the author’s view. For example, a key might at some point distinguish some species from others based on the color of the flower even though it seems unlikely that the species in that genus evolved in that way. It is just an easy way to identify your particular plant.

Often the factors used in the keys are the same ones used to create taxonomic units or even ones expressly rejected for that very purpose. As noted above, Smith rejected the *Sodirola* genus. Yet the first key in his *Guzmania* key seems to break them out, using somewhat different features than noted in the Studies – the first key whether the sepals are “free or not more than about ½ connate and then not forming a slender tube” or “high-connate into a slenderly cylindrical tube, the lobes often cucullate or dilated (*Sodirola*).” Smith & Downs, *Tillandsioideae Monograph* (1977) pp 1277 & 1284.

Interestingly, *G. musaica* and *graminifolia* are listed in the latter group (along with *G. globosa* and *sprucei*, pictured in this article); the first two species fall on the same clade in the most recent Tillandsioideae phylogenetic study. That study included 13 *Guzmania* species and found the genus was monophyletic. Barfuss, M.H.J.; Till, W.; Leme, E.J.C.; Pinzón, J.P.; Manzanares, J.M.; Halbritter, H.; Samuel, R. & Brown, G.K. (2016) *Taxonomic revision of Bromeliaceae subfam. Tillandsioideae based on a multi-locus DNA sequence phylogeny and morphology*. *Phytotaxa* 279 (1): 001–097.



Figure 1. *Guzmania ferruginea* flowering in cultivation.



Figure 2. *Guzmania calamifolia* from Panama.

### ***Guzmania ferruginea* and *Guzmania calamifolia*.**

Photos by Dr. Phil Nelson. 60(1) JBS 16-7 (2010).

Luther described the former in 2010 (found by Jeff Kent at Ecuagenera) and named its “shaggy, rusty trichomes.” He noted its resemblance to *G calamifolia*.

How do you make a key? Smith and Downs clearly relied on the earlier keys of Dr. Carl Mez. Smith noted that they generally use the same characters, “but in several instances have greatly raised or lowered the emphasis.” Naturally, the easier the character is to observe, the easier it may be use in a key. For example, Smith states that he doesn’t like using the texture of floral bracts as Mez did, since they are difficult to measure. In contrast, the existence or lack of a keel on a bract or sepal is easy to observe, and he uses it in his keys.

Smith states that a favorite distinction of Mez was a simple or compound inflorescence, which “is very convenient for any botanist who can count to two.” (As an aside, this may have been the first time I have Smith display his wit, since the Monograph is completely technical.) He continues that this is misleading when there species that can have either kind of inflorescence, and are thus listed more than once in the key. So he says he moves this as far down the key as possible.



Figure 22.  
*Guzmania glomerata* Mez & Wercklé; immature inflorescence (left),  
mature flowering inflorescence (right)



Figure 23.  
*Guzmania donnell-smithii*  
Mez ex Donnell Smith



Figure 24.  
*Guzmania rosea* L.B. Sm.



Figure 25.  
*Guzmania sprucei*  
(André) L.B. Sm.

*Guzmania glomerata, donnell-smithii, rosea and sprucei.* Photos  
by Jason Grant. 48(6) 270-1. All of these grow in Panama.



Out of necessity, the simple vs. compound feature usually does show up, as do whether the flowers are sessile or pedicellate. Since all four combinations are possible for many species, the same features may show up in different parts of the key. This may in fact turn out correct taxonomically. Some features clearly have evolved more than once, and it thus would be appropriate to have them show up more than once on the key.



Figure 1. *Guzmania nangaritzae*, flowering in cultivation

*nangaritzae*.

*Guzmania*

Photo by

Luther and Norton. 59(6) JBS 256.

First described in 2009, this species from Ecuador is similar to *G. madisonii* and *condorensis*, shown below. Since the key is artificial, there are presumably infinite ways to design the key, though some may be longer or more complex. For example, you could first break all the species into simple or compound inflorescences (or having both), and then break each such group further by sessile or pedicellate flowers. Alternatively, you use the opposite approach.

The actual *Guzmania* key focused quite a bit on sepals. It first asked if they were more or less than half connate. Then if they were exerted and were or weren't covered by the floral bracts. Then if the inflorescences were dense or lax, and then tripinnate or not. Size and shape of leaves, leaf apices, sepals floral bracts and pedicels all made their way into the key.



Figure. 3 *Guzmania condorensis*.



Figure. 4 *Guzmania madisonii*.

Photos by Luther and Norton. 59(6) JBS 258.

**Last thoughts.** More than once I have read that the human brain constantly seeks to organize things – we need/want to make sense of a seemingly chaotic world. But maybe the world, or some aspects of it, really is chaotic. As DNA testing becomes cheaper and easier to do, we may find some taxa that just don't seem to have common features. Maybe Group X broke off from Group Y when a bunch of DNA got messed up, but had no seeming impact on the organism.

In some cases, the species concept, at least at the plant level, might not be correct. There might just be a huge spectrum of plants that really don't deserve to be separated. After all, the world was flat and the sun went around the earth until we learned more!



55(5) JBS cover (2005).

This 2005 journal reprinted Mulford Foster's 1955 *Guzmania* article noted in the October Newsletter.

**Cover Photo Legend.** Row 1: *Guzmania* 'Fortuna', *G. mucronata*, *G. globosa*; Row 2: *G. patula*, *G. musalca*, *G. sanguinea*; Row 3: *G. brevicauda*, *G. rennyi*, *G. vittata*; Row 4: *G. farcinuliformis*, *G. 'Puna Gold'*, *G. berteroniana*. Most photographs by Phil Nelson with a few by Bruce Holst (Row 1-2, 1-3, 2-3).