



S.F.V.B.S. NEWSLETTER JULY 2016

SAN FERNANDO VALLEY BROMELIAD SOCIETY

P.O. BOX 16561, ENCINO, CA 91416-6561

sfvbromeliad.homestead.com [sanfernandovalleybs@groups.facebook.com](https://www.facebook.com/sanfernandovalleybs)

Elected OFFICERS & Volunteers

Pres: **Mike Wisnev** V.P.: **John Martinez** Secretary: **Leni Koska** Treasurer: **Mary Chan**
Membership: **Joyce Schumann** Advisors/Directors: **Steve Ball, Bryan Chan, Richard Kaz –fp, Mary K. Carroll**
Sunshine Chair: **Georgia Roiz**, Refreshments: **Gisela Miller**, Web: **Mike Wisnev**, FaceBook: **Roger Cohen**
Editors: **Mike Wisnev & Mary K.**, Snail Mail: **Nancy P-Hapke**

next meeting: **Sat. July 2, 2016 @ 10:00 am**

Sepulveda Garden Center (SGC) 16633 Magnolia Blvd. Encino, California 91316

AGENDA

9:30 – SET UP & SOCIALIZE

10:00 - Door Prize – arrive before 10:00

10:05 - Welcome Visitors and New Members. Make announcements

10:15 - Introduce Speaker: Richard Kaz

Program: Bromeliads in his collection

Richard has been growing bromeliads, bulbs and succulents for many years. He is a frequent visitor of the Huntington Botanic Garden and will also share some of those photos. His talks are always informative and entertaining. I wouldn't be surprised if he included some images from his other hobbies like scenic shots and an occasional picture of a train. You will not be bored.

As a member of SFVBS for over 25 years, Richard has held many positions like Secretary, Editor, Program Chair and President. Each year he has a major role in our show and sale.

11:15 - Refreshment Break - Will the following members please provide refreshments this month:

Joyce Schumann, Carole Scott, Raquel Smith, Ray VanVeen, Gloria Vargas, Andrea Wareham, Ana Wisnev, Bob Wright and anyone else who has a snack they would like to share. If you can't contribute this month don't stay away.... just bring a snack next time you come.

Feed The Kitty - if you don't contribute to the refreshment table, please make a small donation to ([feed the kitty jar](#)) on the table; this helps fund the coffee breaks

11:30 - For Show and Tell: please bring a plant

11:45 – Mini Auction: members contribute

12:00 – Raffle: We need each member to donate

12:15 - Pick Up around your area

12:30 – Meeting is over—Drive Safely <>

President's Message.....

I wanted to thank all who helped out at our show and sale. There is always a danger in mentioning names, but Leni organized the indoor exhibit and was there Friday, Saturday and Sunday. She did a fantastic job! Leni, Bryan, Steve B., Chris, Joyce, Mary K, Ana and I brought in plants for the exhibit. Bryan was in charge of sales; he and Mary Chan spent all three days there as well, in the sales area, and setting up and cleaning up and both deserve many thanks. Michael & Terral Matsumoto, Nels, Steve B and Ana were there helping out in the sales much of the time, and all of us brought in plants for sale, in addition to Ray, Chris and Mike Boess. Apologies in advance if I left someone out. Thanks for everyone's help.

Mike Wisnev

Extreme heat – Mist your Tillandsias frequently

Have a Safe and Happy 4th of July

Announcements

- **Extreme heat** - In some parts of the San Fernando Valley we have been experiencing temperatures as high as 120. Yet Joyce, our membership Chair, is on a road trip in a much cooler climate. A few days ago when she and Rose arrived in Leadville, CO, it rained a few drops and the morning temperature was 43 degrees.
- **Mosquitoes** – At 80 degrees water becomes stagnant in about 4 days. Stagnant water means Mosquitos breeding. They live in the same tropical environments as the outdoor growth of bromeliads and die odd when temperatures drop below 50. Flush bromeliads or add fresh water every 3 or 4 days.
- **Happy July Birthday to: Duke Benadom 1st - Mike Wisnev 3rd - Carole Scott 7th - Barry Landau 10th Georgia Roiz 11th - Gloria Friedman 13th – Wesley Batera 23rd and Ana Wisnev 30th**
Let Joyce know your DOB so we can say Happy Happy to you when the time comes.
- **WOW !!** – It is July, half the year has passed and it is time to think about the **December Holiday Party**. I remember when I first joined the club in the mid 90s, the pot luck was very simple but it served the purpose without any fan-fare. I started adding a little bit more each year. Then Kim Thorpe, added her professional touch. Last year Kathleen added her touch. **Now we need another coordinator for Dec 3, 2016.** This is not rocket science; the club will provide the basic supplies, meats and beverages. The main thing the coordinator needs to do is to make suggestions and keep track of who is bringing what pot luck dish so that we don't end up with a dozen cakes and cream pies. The members determine if they want decorations, there are several people willing to help. Keep it simple. **Think about it.** Bryan will order the holiday gift plants.
- **Attendance Book** – Two good reasons to sign in.... 1. Attendance is very important for a small club like ours to remain viable. 2. That's how you are noted for Participation Rewards.
- **Ramblings about Better Growing** The editor is looking for information from other members for this column. I'm sure some of you have some growing tips to share about what to do or what not to do; it can be 1 or 2 sentences or 3 or 4 paragraphs. Member contributions are vital to keep the newsletter interesting and our SFVBS thriving. Submit a bromeliad photo of a plant in your collection. I'm sure some of you have some growing tips to share about what to do or what not to do; it can be 1 or 2 sentences or 3 or 4 paragraphs <

We lost another member... Don Misumi *photos by Barry Landau*

Saturday June 18, Bryan Chan represented our SFVBS and spoke at Don's memorial. It was a very nice memorial. His son gave a remarkable presentation about his father's life and career. Over the years I had several conversations with Don; and I already knew he had taught at Dorsey High School and was a retired biology teacher from LA Trade Tech College (LATTC). I knew he loved his family, bromeliads, orchids and insects. He was so dedicated to the clubs and growing great plants; I wondered how there was time to contribute to all the other hobbies. Many of Don's LATTC colleagues spoke of his strong influence in the teachers union. Don also served on the Gold Creek Project committee and played a major role in securing government funding for it.

During all the years of knowing him it just never crossed my mind or entered a conversation that he had been sent to a Japanese internment camp at the age of seven, and still as a young man he served in our US military. When his son spoke of Don's visit to the Japanese Monument in Washington DC, it was obvious that the internment experience weighed on him but he never displayed any bitterness. Everyone who spoke at the memorial, in so many words, said the same thing; a kinder, nicer person you will probably never meet.

RIP



Taxonomic Tidbits – *Aechmea*, its subgenera and history - how does taxonomy work? – Part 1 -

By Mike Wisnev, SFVBS President (mwisnev@gmail.com)

San Fernando Valley Bromeliad Society Newsletter –July 2016

The article started out to be about *Aechmea*, and how we got where we are. But as it was written, it seemed to help explain (and conjecture and sometimes simply guess) how the taxonomic process worked. So it ended up with some of each.

Aechmea is the largest genus in the Bromelioideae subfamily. The Bromeliad Taxon List said there are 283 species, as of October 20, 2015 (another, *Aechmea xinguana*, has since been described). There are eight subgenera, though it seems few pay much attention to the subgenera.

It has long been suspected that neither *Aechmea* nor most of the subgenera are valid. Smith and Down's Monograph on Bromelioideae (1979) said "*Aechmea* includes some very discordant elements and is very likely of polyphyletic origin. Further research is likely to divide it with some parts becoming independent genera and others merging with genera at present considered distinct."

For this reason, some have called *Aechmea* the "trashcan genus" – I don't know who gave it this lovely moniker. Elton Leme, when describing a new *Quesnelia*, stated "[a]s all exquisite bromelioids, this new species could easily be a victim of the almost irresistible "*Aechmea* attraction effect" due to the precarious delimitation of *Aechmea* and its paraphyletic composition of a high number of taxa." J. Brom. Soc. 55(1): 15-20. 2005.

Latest Study. The latest DNA study, in 2015, on the validity of the genera in the Bromelioideae subfamily suggests that very few genera will remain unscathed. In particular, like virtually every other study, it confirms what has long been suspected about *Aechmea* – this genus is a complete mess from a taxonomic standpoint. But because there are so many *Aechmea*, and the studies don't always agree, no one has suggested any changes yet, so it may be awhile before we have to relabel our bromeliads.

Basically, *Aechmea* showed up in at least 12 different groups throughout the subfamily, often with species of other genera mixed in. To give you a sense of how problematic *Aechmea* are, let's assume the results of the latest study are completely correct, and the authors decided to keep every current *Aechmea* species in that genus. To do so, it would be necessary to merge all of the following genera into *Aechmea*: *Billbergia*, *Neoregelia*, *Nidularium*, *Quesnelia*, *Hohenbergia*, *Portea*, *Canistrum*, *Canistropsis*, *Edmundoa*, *Wittrockia*, *Lymania* and a few more.

Ruminations. In some ways, the results of the study might not be so surprising. Those of you who have been in the hobby for some time are familiar with lots of species, and recognize by its binomial name, that is both the genus and species. But it is not so easy if you don't recognize the plant. Lots of times, when a club member brings in an unknown plant for an ID, even the more knowledgeable members can only say it is probably an *Aechmea* or a *Quesnelia* or maybe even a *Portea*.

Since this article focuses somewhat on history, it will try to show pictures of some of the first *Aechmea* described, although they may have been known by another name at that time. It appears the first actually described is *A lingulata*, a plant I had never heard of, despite the fact it grows throughout the Caribbean and into northern S. America. It was described 1703 and was then named *Bromelia ramosa* and *Bromelia racemosa*. I don't know why there were two names originally given in 1703. My guess is that there were two plants collected, and they looked somewhat different, so each was given a different name. Linnaeus later called the same species *Bromelia lingulata*; it wasn't until 1879 that Baker treated the species as belonging to *Aechmea*. It has lots of synonyms and has been treated as a *Billbergia* and *Hohenbergia*, as well as these no longer existing genera: *Lamprococcus* *Hoplophytum*, *Chevalliera* and *Wittmackia*.

Sometimes the members of a species all look very much the same, while in other cases, there is quite a bit of variation. One problem is that few of us have any idea which is which. This can make it hard to assess if your plant is a species or hybrid. Is the variation you may see in your plant, as compared to the description, consistent the variation in the species or not? How can you tell? I wish I had the answer.

Geography is also important. If the modest variation is seen within the same localities, it is likely to be considered unimportant even to create different species or varieties.

In contrast, if each locality is relatively uniform, and the localities aren't very close, then the different features might be considered to give rise to a different species or variety, depending on just how different the two populations are. Perhaps the most common reason to combine similar looking species is that later research reveals that the two plants grow together in the same or close locations.

Aechmea lingulata, the first plant described now considered an *Aechmea*.

Photo by Ludwig.



As a relatively new bromeliad hobbyist, I recall my bewilderment in trying to distinguish the genera with a tank habit, that is, those with fairly upright leaves that hold water. At first, almost nothing jumped at me, especially if there was no inflorescence. After a while, some things got easier. For example, *Vriesea* don't have spines and aren't even in the Bromelioideae subfamily. Neos are easy if you have an inflorescence –it is buried low in the tank. *Billbergias* also get easier due to their slim upright habit. But then you get to *Portea*, *Quesnelia*, *Androlepsis*, *Hohenbergia* – it still isn't very easy. For that matter, there are some *Billbergias* that look a lot like *Quesnelia*. In fact, when you look at the key, the differences may be things like whether the flowers are pedicellate, or the sepals are armed, features that don't seem all that important unless you remember them.

Early botanists and horticulturists were in much the same position – actually even worse since they didn't have any literature to study. Bromeliads grow in the Americas, and virtually all of the early studies of them were in Europe in the 17th and 18th centuries. So imagine various tank habit bromeliads showing up for the first time, with no books or pictures, and trying to figure out how to classify them. Many are rosettes with spiny leaves. Except for Neos, they all have long showy inflorescences. There were no experts to consult.

One of the first Bromeliads to be widely cultivated in Europe was *Aechmea fasciata*. It still may be the most commonly cultivated one. It was described in 1828, but was then considered a *Billbergia*. In fact, many of the bromeliads that were discovered early have synonyms in more than one genus. They weren't so easy to classify then, and perhaps not much easier now!



Above is the inflorescence of, *Aechmea dichlamydea tritensis*.

These reflections led me to this article – how did we end up where we are? We have many different genera and subgenera and many of them may be incorrect. So perhaps some initial (and interrelated) questions are (1) why bother classify them anyway, (2) how did the early botanists distinguish these tank bromeliads and (3) why were so many species treated by different folks as belonging to different genera?

Most of the articles I have seen don't provide much in this respect. This article provides a mix of history, taxonomy and a lot of guesswork.

Why classify? What motivated the early botanists to create new genera? I don't really know, and am really only guessing based on things I have read over the years. The obvious explanation is that they thought the plant in question was different than the others. But is this enough?

Humans like to categorize things. One primary reason may be to simplify life, and in particular, communication. While it may seem simpler to have everything in one large group, this doesn't tell you much about the group. Even those of us with no interest in species names do this to some extent. When you look for something to plant in your yard, you don't ask for tall plants or short ones, but ask about some trees, shrubs, flowers or groundcover.



Another inflorescence. It seems quite similar to that of *A dichlamyda*, shown above. But this one, while unlabeled, **seems to match *Portea petropolitana extensa*** perfectly. How can you tell it is a *Portea*, rather than an *Aechmea*? If you aren't familiar with the species, it is hard – the primary difference is that *Portea* have connate sepals! See the December 2015 Newsletter for more information.

Moreover, as the number of known plants in a family or genus becomes large, it becomes too cumbersome to communicate and/or work with them without breaking them up in some way.

Botanists have historically used plant and other features to group similar plants into genera. But which features? It might be charitable to say the answers aren't clear. A cynic might say we are really just guessing!

Similar problems have been noted in many articles. First, different individuals described different plants and may have focused on different plant features. It is not uncommon to compare two descriptions and find one tells you about sepals, while the other doesn't. This makes comparisons very difficult. In addition, often all that was available for study was a dried herbarium specimen. This might not have included all parts of the flower etc, and it may have been badly preserved, making comparisons difficult, or even worse leading to an incorrect description.

Communication and Language. While I suspect some historians know the answer, it is hard to imagine how quickly or slowly scientific information was disseminated in 1800's. Say some scientific journal was published in Germany in 1812. How long before it gets to Spain, if ever? With no internet and no modern transportation, it might take months for publications to reach other countries.

Even today, botanists in one country often seem oblivious to the works of others in different countries. I sometimes come across articles of Brazilian botanists in Portuguese. Obviously I can't read them. But more importantly, I don't see them cited very often in English articles either. German cacti experts often seem to ignore English experts and vice versa. For all the ways civilization has changed, language is still a critical barrier. Before 2012, a Latin description was required for a valid description; this existed for this very reason – to have a common language. The current rules require either a Latin or English description.

In any case, it seems likely that many of the problems of the past were due to ignorance of the works of others, coupled with perhaps rather vague descriptions of the genera.

***Aechmea* Description.** You can learn a lot just by looking at the beginning of a taxonomic description. Here is the beginning of the description of *Aechmea* from the Smith and Downs Monograph.

“*Aechmea* Ruiz & Pavon, Fl. Peruv. Prodr. 47. 1793; nomen conservandum.

Hoiriri

Adanson, Fam. 2: 67, 584. 1763. (Type. *Bromelia nudicaulis* Linnaeus.)

Oechmea J. St.

Hilaire, Exp. Fam. 1: 103. 1805; orthographic variant of *Aechmea*.

Aechmaea Brongniart, Ann. Sci. Nat. Bot. II. 15: 371. 1841; orthographic variant of *Aechmea*.

Chevalieria Gaudichaud, Ad. Voy. Bonite pl. 61, 62. 1843; nomen illegitimum.

Pothuava Gaudichaud, Ad. Voy. Bonite pl. 116, 117. 1852; nomen illegitimum.

Macrochordion DeVriese, Jaarb. Nederl. Maatsch. Tuinb. for 1853: 14. 1853. (Type. *Bromelia tinctoria* Martius.)

Hoplophytum Beer, Flora 37: 348. 1854. (Type. *Billbergia rhodocyanea* Lemaire).

Echinostachys Brongniart ex Planchon, Hort. Donat. 25. 1854-58, non Brongniart 1828; nomen illegitimum. (Type. *E. pineliana* Brongniart.)

Lamprococcus Beer, Bromel. 21, 103. 1856. (Lectotype. *Aechmea fulgens* Brongniart.) *Macrochordium* Beer, Bromel. 22, 145. 1856; orthographic variant of *Macrochordion*. *Chevaliera* Gaudichaud ex Beer, Bromel. 22, 257. 1856. (Type. *C. sphaerocephala* Gaudichaud, Ad. Voy. Bonitepl. 61. 1843.)

Ortgiesia Regel, Gartenflora 16: 193, pl. 547. 1867. (Type. *O. tillandsioides* Regel.) *Wittmackia* Mez, Mart. Fl. Bras. 3(3): 179, 274. 1891. (Type. *Bromelia lingulata* Linnaeus.)

Gravisia Mez, Mart. Fl. Bras. 3(3): 179. 1891; 299. 1892. (Type. *Bromelia exsudans* Loddiges.)

[Description omitted.]

Type. *Aechmea paniculata* Ruiz & Pavon, Fl. Peruv. 3: 37, pl. 264. 1802. “Emphasis in red added.”

So what does this tell us? First, it looks like the name was given to the genus by Ruiz and Pavon in 1793. Usually; this means the first *Aechmea* was described then. However, here it appears that they just described the genus, and the first species, *A paniculata*, was not described by them until 1802. The name seems to have been derived from the Greek word for spear (aichme), referring to their leaves.

According to Wikipedia, King Carlos III of Spain encouraged numerous scientific expeditions to improve the world's "useful knowledge." Hipolito Ruiz and Jose Pavon led the first such expedition to Peru and Chile to study the New World. The expeditions included artists to draw pictures of the plants and other natural wonders found. They collected more than 3000 plant specimens, and produced over 2500 illustrations."

Ae. paniculata, the *Aechmea* type plant.

Illustration from *Flora Peruviana, et Chilensis* (1802) by Ruiz and Pavon (From the Missouri Botanical Garden.

<https://archive.org/details/mobot31753003431746>)

Isidro Galvez, a prestigious botanical illustrator who went on the expedition did this lovely illustration. I can't find any pictures of this species – is it lost to history??

In 1793, very little was known about Bromeliads; while a number had been described, it seems that perhaps only two (one of which was the pineapple) were widely cultivated in Europe. I

have no idea if Ruiz and Pavon were very familiar with bromeliads before their expedition, but they were after. Their 1802 publication was the first to describe *Guzmania*; it also has pictures of *Bromelia*, *Tillandsia*, and *Pitcairnia*.¹ Two of the more well known ones were *Tillandsia purpurea* and *recurvata*. They also first described a rather well known succulent – *Agave americana*!



Before continuing, some of you might notice the description above shows the genus *Hoiriri* from 1763, with the type plant *Bromelia nudicaulis* Linnaeus. That is in fact Carl Linnaeus who is more famous than anyone in the Bromeliad world will ever be – he is considered the father of taxonomy and developed the classification system still used, including the use of genus and species names. His work apparently included two bromeliad genera, one of which was *Bromelia*.² He had five *Bromelia* species –two plants now considered *Bromelias*, two *Aechmeas* (*nudicaulis* and *lingulata*) and the pineapple (*Ananus comosus*). As a further tidbit, the name Bromelia was given in honor of a Swedish doctor and botanist name Olof Bromell. Presumably that is where the word bromeliad comes from.

In general, the earliest valid name for a taxa is the name that is used. Since *Bromelia* had been first used for *B pinquin* and *B karatas*, the name *Bromelia nudicaulis* could not be used when it turned out to be an *Aechmea*. Otherwise, all our *Aechmeas* might be named *Bromelias*.

You might wonder why the earlier name *Hoirira* (which predated *Aechmea*) wasn't given precedence. I had guessed that the rule that the oldest name applied wasn't around then. That is true, but that is not why – the naming rules are generally retroactive. Instead, it appears that the *Aechmea* name was specifically conserved over this name – that is what the reference “**nomen conservandum**” means in the first line of the description above. It appears the current rule that the first name governs was not around at that time. An article on Bromeliad names just says *Hoiriri* was rejected as a taxonomic synonym. Grant and Zijlstra, An Annotated Catalogue of the Generic Names of the Bromeliaceae, Selbyana 19(1) 91- 21 (1988). That article also says hoyrira is the name used by indigenous peoples of America for pineapple.

² They also described two other new genera now referred to other ones -*Pourretia* (now *Puya*) and *Bonapartea*. Despite describing species of both *Tillandsia* and *Guzmania*, they described *Bonapartea juncea* (now a *Tillandsia*) and *Bonapartea strobilantha* (now a *Guzmania*).

² If you are really curious, the other genus name used by Linnaeus was *Renealmia*, which included *Guzmania monostachia* and four *Tillandsia* (*paniculata*, *polystachia*, *recurvata* and *useneoides*). Linnaeus later adopted the *Tillandsia* name, and his son later used *Renealmia* for a genus of gingers.

Next month – more on the *Aechmea* history and Bromeliad monographs.

Taxonomic Tidbits – *Yellow/green (and blue) petalled Billbergia - Part 6 (B sanderiana, saundersii and fosteriana).*

By Mike Wisnev, SFVBS President (mwisnev@gmail.com)

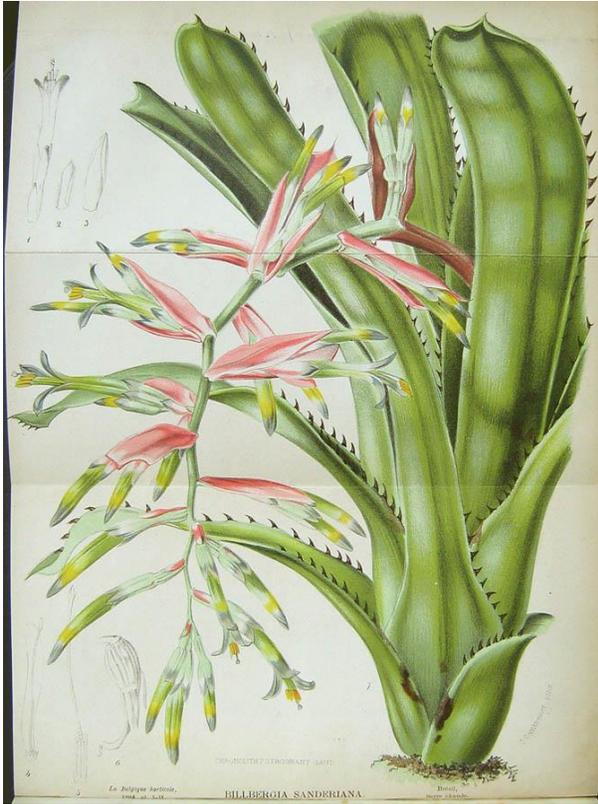
San Fernando Valley Bromeliad Society Newsletter –July 2016

Part 5 covered *B nutans* and a number of hybrids between *B nutans* and *saundersii*. But it never got around to *B saundersii* itself. There is a very different looking species with a very similar name, *B sanderiana*. Because I don't have either species, I can't remember which is which, so this Part 6 covers these species.

Once you see it, *B sanderiana* looks fairly distinctive compared to most other *Billbergia*. It has deep green leaves, sometimes a bit banded or dark spotted, that are relatively wide. It has very large very dark spines - I don't know if any other *Billbergia* species has spines that large – perhaps *B vittata*. It is often used for hybridizing for the spines and pink spiny peduncle bracts.

In some respects, its flowers are not all that different from *B amoena* - both the sepals and petals are green with blue tips. Typically, there is a lot more blue at the apex of the petals than *B amoena*, and the sepals often are more lepidote at the tip. (Smith's first distinction on his *Billbergia* key is whether the inflorescence is completely glabrous, or instead is "lepidote at least on the bracts or sepals." So this species is the first discussed in this series to fall into the lepidote side, despite the fact most of the inflorescence is glabrous.) But while the floral bracts of *B amoena* are minute, those of *B sanderiana* are rather large, and rose to pink colored .

It grows in Espirito Santo, Minas Gerais, and Rio de Janeiro, Brazil.



Here is the original illustration of *B sanderiana* by Morren in Belg. Hort., back in 1884. As you can see, the inflorescence is decurved and very long. Take a look at some of the pictures in FCBS – it is a very handsome plant.



Above is a close up of the flowers. Photo by D Butcher.



B. sanderiana. Ian Hook show entry.

<http://www.bromeliad.org.au/pictures/Billbergia/sanderiana2.htm>

Billbergia saundersii is quite different. In fact, it is about as different as two billbergias can be out of flower. It has a much more tubular rosette with heavily whitish spotted leaves that are not nearly as spiny. The peduncle bracts are similar or darker red and the sepals are reddish. Unlike all the species discussed so far in this series, its peduncle is pretty lepidote, as are the sepals and bracts generally.

If you recall Part 5, which dealt with some *nutans/saundersii* hybrids, you can see how the leaves of those plants resemble *B saundersii*. The photos of the species suggest some variation in the shade of blue on the petals, as well as how much of the tip is blue. Interestingly the floral bracts of flowers near the base of the inflorescence are quite large, while those at the top are tiny - I don't know how common this.

Here is a close up of the flowers (Bromeliario Imperialis).

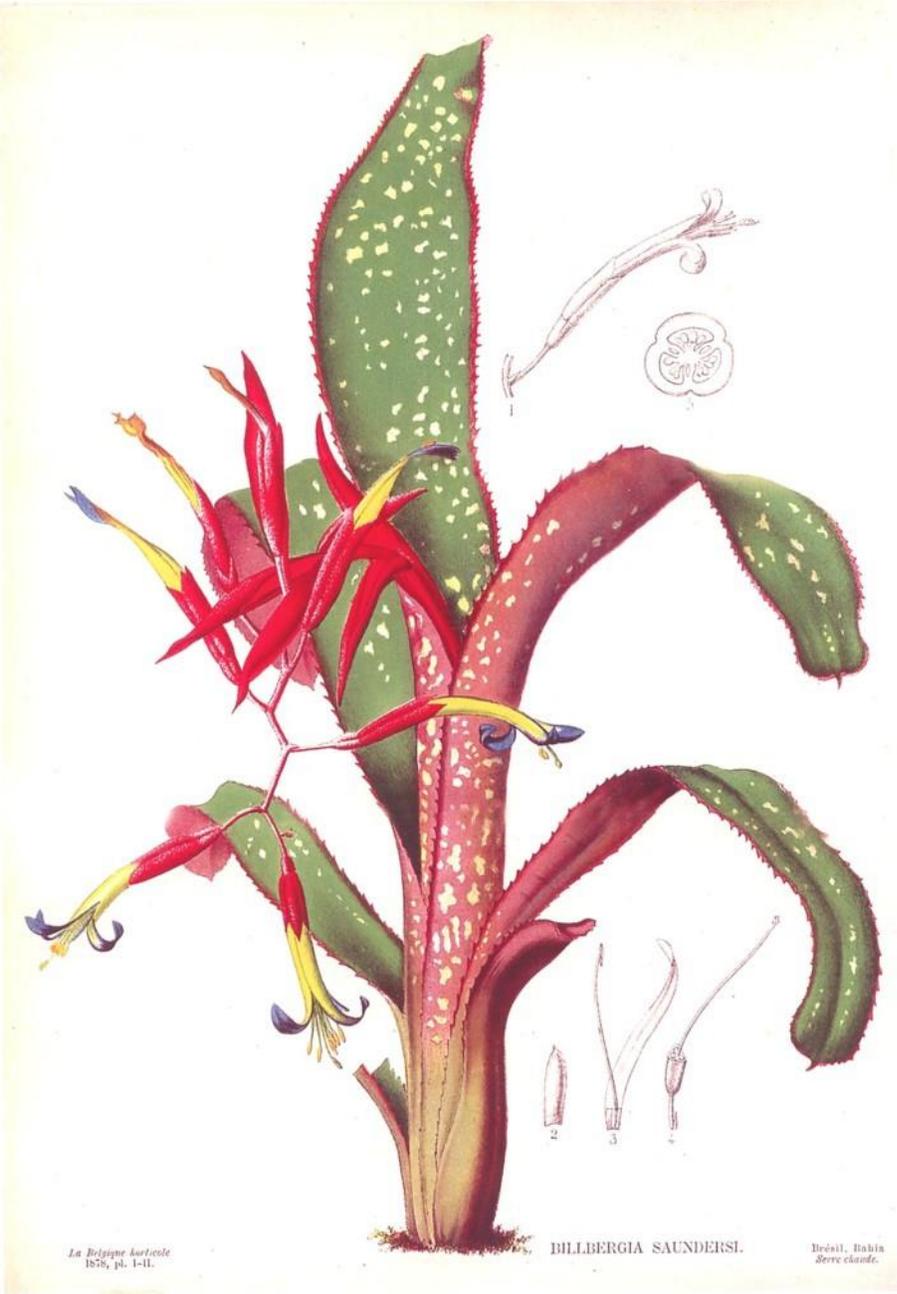


The pictures above don't give a sense of just how lepidote the inflorescence is. The one below does!



Billbergia saundersii photo courtesy Marie Selby Bot Gardens

Below is an illustration of *B saundersii* in Belg. Hort (1878)



Billbergia saundersii

Smith's key showed *B. chlorosticta*, *debilis* and *fosteriana* all having a simple and slender densely lepidote inflorescence with flowers having fairly long pedicels. He distinguished the three as follows: *chlorosticta* had spotted leaves with a pendant inflorescence, *debilis* had spotted leaves with an erect inflorescence, while *fosteriana* had banded leaves with an erect inflorescence.

Here are two flowers from the same plant, one of the B Hoelscheriana-like clones. The flower closest to the base is on the left, with a floral bract longer than the flower. The flower on the right is from the apex of the inflorescence and the floral bract is barely visible, not even reaching

the base of the ovary.



But the text contained the following Note: “Too late to reorganize our manuscript, Robert W. Read has shown with living material that the characters used to separate *Billbergia debilis* E. Pereira and *B. fosteriana* L. B. Smith from the earlier *B. chlorosticta* Saunders are not valid.” I am not sure what, if anything, Read published on this point.

Just how different was *B debilis*? Besides having an erect inflorescence, its description says it has shorter leaves, and the green and red scape bracts and sepals compared to the red ones of *B saundersii*. Smith's description of *chlorosticta/saundersii* says “Petals never spiraled, linear, acute, dark blue

toward apex and the remainder greenish yellow.” His description of *B debilis* said “the blade dark violet, the claw green.” I don’t think I have used these terms before. In his glossary (found on the FCBS website), Derek Butcher says the blade is ‘the expanded part of a leaf or floral segment.’ The claw is “the long, narrow petiole-like base of the petals or sepals in some flowers.” As Derek points out elsewhere, the claw is mostly hidden by the sepals. The pictures of *B debilis* I found on FCBS look pretty like *B saundersii* except for some of these differences noted above.

Interestingly, Pereira’s 1972 description of *debilis* compared it to *fosteriana*, and didn’t mention *chlorosticta*.

When you google this species, lots of them have a very *B nutans* like petal, that is, with a blue margin instead of a blue tip, and aren’t very lepidote. These seem more like *B. Hoelscheriana* which as noted in Part 5 is a cross of *nutans* and *saundersii*. My plant labelled *B chlorosticta* falls into this category, as does the *B saundersii* (HBG 46920) at the HBG Jungle Garden looks like it may have a *nutans* flower. One forum exchange has stated that most of the plants in the US labelled *saundersii* are actually *nutans* hybrids.

Some pictures of *B saundersii* show claw that is white or white with reddish tinge and or red at the base of the petals. Your guess is as good as mine as to whether these other pictures show a pure species.

While Read also referred *B fosteriana* to *B saundersii*, others have treated it as a valid species. The Smith and Downs key distinguished it from *B debilis* on the basis of having banded leaves, not spotted ones. Both have an erect slender lepidote inflorescence, and the flowers have fairly long pedicels.

Of course, Derek has an article about it, which appears below.

“Billbergia fosteriana L.B. Smith by Derek Butcher Sth Australia in Bromelea 30(2): 10-11. 1992

Have you given up changing labels on your *B. chlorosticta* to *B. saundersii*? Well, how about a few more complications for you to digest while waiting for the botanists to come up with a well presented reasoning for this change.

You can blame this article on Bill Morris, because he was the one who started me on this particular crusade. If you are after unusual non-Tillandsioideae species then you cannot go past Bill Morris's collection. Well, this was where I obtained a thin tubular plant some 80cm long and made up with just three leaves. Almost like an extra long toilet-roll tube, but this time green with strong white bands. The plant was named *B. fosteriana*. Recently it flowered and is the cause of this article because when any new plant flowers in my collection, out come the reference books.

Luther's list had "lost" *B. fosteriana*. But Franklin's tapes came to the rescue because *B. fosteriana* had been lost in synonymy under *B. saundersii*. Who had done this dirty deed without telling us about it? There is a clue in Smith and Downs Flora Neotropica page 1994 where it states....

"Note. Too late to reorganize our manuscript. Robert W. Read has shown with living material that the characters used to separate *B. debilis* and *B. fosteriana* from the earlier *B. chlorosticta* are not valid." *B. fosteriana* is described in Smith & Downs and I dutifully checked off all the criteria given, even to the 2 fimbriate scales at the petal base plus the 2 dentate lateral folds above them. The only thing that did not tally was the sepals which are described as lavender. This colour is true if you scrape off the thick white flocculose covering. This white flocculose covering is mentioned in the description of *B. debilis* but not in *B. chlorosticta* or *B. fosteriana*.

To add further fuel to the fire we can refer to the key on page 1976 where our three plants are within step 13, "inflorescence densely lepidote except the petals". From this can we assume that sepals are "flocculose" despite it not being in the description? Were they

innocent omissions? Can a similar conclusion be made for the 2 dentate lateral folds which can be clearly seen with the naked eye and even with bifocals? This phenomenon is reported for *B. fosteriana* but not for either *B. chlorosticta* or *debilis*! I do have a copy of Baker's "The Bromeliaceae" printed in 1889 and I wondered what was said under *B. saundersii* - yes, that was its name in those faraway days. I quote, "Leaves thinly white lepidote beneath with copious white spots AND white transverse bands". I put the 'AND' in capitals because this latter detail is omitted from the description in Smith and Downs page 1994, admittedly under the name of *B. chlorosticta*! It has been said that Botany is as much an Art as a Science and I am slowly getting the message.

Meanwhile, I'll be leaving *B. fosteriana* on my label waiting for a re-write of *B. saundersii* to include, I hope, clear varieties. After all, what are the dentate lateral folds clearly shown in the attached line drawing, and do they have diagnostic significance?"

Besides the strange double petal appendages, super long leaves, and lavender sepals, Pereira distinguished it from *B. debilis* based on the different scape bracts. They are lanceolate, with a rose color fading to stramineous. In contrast, per Smith and Downs, *B. debilis* has "Lower scape-bracts lance-oblong, 9-10 cm long, 25 mm wide, greenish rose, the upper ca 6 clustered beneath the inflorescence, acuminate, slightly smaller, deep red, white- lepidote beneath."

The two species are not found near each other.

The type plant was found in Maracas, Bahia, Brazil. The Virtual Herbarium site mentioned earlier lists another in Parque Nacional Monte Pascoal, Bahia, which seems to be located in the midst of numerous localities of *B. saundersii* in Bahia and Rio de Janeiro.

So far, the only *Billbergia* I am aware of with similar margins is *B. nutans*,

though those are much darker blue, and *B macrocalyx*, with pale blue margins.. *B nutans* also has long thin leaves, though nothing like these.



B fosteriana, unknown photographers. Interestingly, most of the photos show the petals have these light blue-violet margins, while the description just says the apices are blue green. Next month – some *Billbergia* without blue in the petals!