



S.F.V.B.S.

SAN FERNANDO VALLEY BROMELIAD SOCIETY

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MAY 2016 NEWSLETTER

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. May 7, 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: Bryan Chan*

Program Topic: Show Preparation



Bryan and Mary Chan have been active members of our club for more than 20 years. During construction of the Sepulveda Garden Center the Chans frequently hosted our monthly meetings, holiday parties and backyard picnics. Bryan is a top grower of bromeliads and several of his Dyckias are registered thru the Bromeliad Society International. Many of his plants are sold on eBay. Each year he is a co-chair for the annual show and sale. Recently retired, Bryan has been able to pursue his love of the guitar and singing the Blues.

At this meeting Bryan will demonstrate show preparation for your plants. Many valuable growing and prep tips. Whether you are a novice or advanced grower, you can learn something.

11:15 - Refreshment Break - Will the following members please provide refreshments this month: **Tom Lucero, John Martinez, Michael Matsumoto, Gisela Miller, Kathleen Misko, Tom Moore 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

The club enjoyed a wonderful event on April 19 at the home of Bryan and Mary Chan.

Bill Baker's name is frequently mentioned at our monthly meetings. Recently our club and several individuals nominated Bill for the Bromeliad Society International (BSI) "Wally Berg Award." He did not win, however he was runner up to a 96 year old man with an incredible list of accomplishments. The rules allow Bill to be nominated again in two years; perhaps by that time we will have additional information; keep your ears open. Winning this award will be an incredible accomplishment in the international world of bromeliads. Our club has also created a perpetual trophy in Bill's memory for "Best Dyckia, which will be given at the annual Inter-City Cactus and Succulent Show in August. The art was done by Tom Glavich. Cash donations for the trophy were given by Steve Ball, Mike Boess, Bryan Chan, Richard Kaz and John Martinez. Please see plaque on page 33. In case you didn't know, the Dyckia is one of the bromeliads also classified as a succulent.

Kathleen Misko had to resign as refreshment coordinator; thanks for a job well done. And a big thanks to Gisela Miller, one of our newer members, who has agreed to fill in until the end of the year.

There was a business meeting last month to discuss the up-coming show. There was some doubt as to finances and the amount of participation. All was resolved and now it is time for each of us to get our plants ready to display; the second weekend of June is not far away. *Mike Wisner*

April Meeting Andy Siekkinen's program on Brazil was outstanding. The presentation included a selection of plants to satisfy everyone. There were beautiful orchids, cactus, and many other plants but especially including the more than 10 genera of bromeliads with a focus on Hohenbergia and Orthophytum/Sincoraea. Thanks to the many members who parked in the regular parking lot; a big improvement. Unfortunately *Kathleen* resigned as refreshment chair; she did such a great job and we wish her well. Last month Mary K e-mailed the newsletter because Mike was out of town. Sorry the email list was not up to date; I believe that has since been corrected. <>

Announcements

- **Bromeliad Show w/ LACSS Festival June 11 & 12** – Bromeliads needed for outside sales and to display inside. We need your help.
- **May Birthdays** – Only one May birthday, *Kathleen Misko is celebrating on the 31st*. Let Joyce know your DOB so we can say Happy Happy to you when the time comes.
- **Taxonomic Tidbits** - Read Mike's article on Page 4
- **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.
- **Participation Rewards** - Since we began the rewards, our club participation has more than doubled. When you sign in let the person at the table know what you are contributing and ask for your raffle tickets. For the new members this is a reminder of how you are rewarded for participation. Bring a **Show-N-Tell Plant, Raffle Plants**, and/or **Refreshments** and you will be rewarded with a Raffle ticket for each category. Also if you **donate an Auction plant**. We realize not everyone has pristine show plants but each of us certainly have unidentified plants that can be brought in.
- **Opening & Closing Sepulveda Garden Center** – The SGC staff is only unlocking the kitchen door by 9:00am. It is our responsibility to **make sure all doors** are locked when we leave. We need to be concerned about the possibility of an outsider entering and doing damage after we leave our meeting. We need cooperation from all. <>
- **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. <>

Be Prepared

Are you almost ready for our Bromeliad Show on June 11 & 12 ?

Now is a good time to remove large pups and prepare to Donate pups for Club Sale.
At the show we need Volunteer Docents, Volunteers for Reception & Membership
Help with Set-Up & Break Down

Prepare one plant a week

We still have time to get our plants ready. Make a commitment to **prepare one plant a week**. If you do that, each member can have 3 plants to add to the June Show. Remove pups that are half or 2/3 the size of the mother plants. Wear long sleeves and gloves when handling the Aechmeas. When potting tall or large plants, you can add a few rocks or broken pottery to the bottom of the pots to prevent them from falling over. Use proper potting mixture. Pot the plant and if necessary use chopsticks or small rocks to brace the pup upright; pup's root faster when stabilized. Place the pot on a bench or in an area where it will receive bright diffused light. Make sure the leaves don't touch other plants so they don't become scared.

Before the show wipe the leaves and flower pots with a damp cloth. In 15 minutes your 3 plants are ready to show.

Mother plants or large pups are now ready for the Show! <>

Membership Dues - Pay at the meeting to: Joyce - Membership Chair

or Mail check to: SFVBS membership - P.O. Box 16561 - Encino, CA 91416-6561
Yearly Membership Dues \$10.00 for a single or couple

Please Put These Dates on Your Calendar

If there is rain please check **web page, email or phone messages** before leaving home for the meeting.

Sat. & Sun. April 30-May 1, 2016	LaBallona Bromeliad Show & Sale
Saturday May 7, 2016	Speaker – <i>Bryan Chan</i>
Sunday May 8, 2016	Happy Mother's Day
Saturday June 4, 2016	Speaker – <i>Ray VanVeen</i>
Sat & Sun June 11-12, 2016	SFVBS Show & Sale w/ the Cactus Club
Saturday July 2, 2016	SFVBS Regular meeting - STBA
Saturday August 6, 2016	Speaker - <i>Andy Siekkinen</i>
Sat. & Sun. Aug 6-7, 2016	So. Bay Bromeliad Show & Sale
Saturday Sept 3, 2016	SFVBS Regular meeting - STBA
Saturday Oct 1, 2016	Speaker – <i>Guillermo Rivera</i>
Saturday Nov 5, 2016	Speaker – <i>Woody Minnich</i>

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 John Martinez johnwm6425@gmail.com

- We hope you all have an enjoyable Mother's Day -

Taxonomic Tidbits – *What is a Bromeliad? Part 2*

By Mike Wisnev, SFVBS President (mwisnev@sbcglobal.net)

San Fernando Valley Bromeliad Society Newsletter – May 2016

Part 1 really didn't get very far in answering my question – what features are unique to Bromeliads? It left off in the midst of describing how Bromeliads were classified in the plant world. Basically, they fall within a large group of flowering plants called monocots. This article continues with their classification, and then finally addresses how they are unique.

Apologies in advance - this article may be more technical than most. I have tried to use footnotes for some of the more technical parts, or parts not so relevant to Bromeliads.

Different Systems of taxonomy. The plant kingdom, or at least aspects of the plant kingdom, has been divided lots of different ways by different botanists. This is a huge topic, so only a few points are noted.

At least in the U.S., many have used the Cronquist system (1981) for dividing flowering plants into groups. Like many earlier botanists, this system divided angiosperms into two classes, the monocots and dicots. He then divided monocots into 4 subclasses – the three large ones are Commelinidae (which includes grasses), a second for lilies and its relatives, and the third for gingers and its relatives. Cronquist put Bromeliads in the ginger subclass.

Cronquist also put Bromeliads in its own order. While most others agreed, others placed this order in different higher groups. In fact, it looks like Bromeliads were one of the most controversial orders. Three of the major classification systems in the 1980s and 1990s put the Bromeliad order into different higher groups – one with lilies, one with grasses and one with gingers.

They also seemed to use different terminology, preferring the term superorder instead of subclass, and giving each of Cronquist's 3 subclasses a slightly different name.¹

¹ Unlike Cronquist who treated Bromeliads in the ginger subclass, in 1985 Dahlgren et al he grouped Bromeliads with the lily and other orders in the Bromeliiflorae superorder. In 1992, Thorne adopted another different classification system: he had Bromeliads in the superorder containing grasses!



Picture 15 - Is this grassy looking plant above a Bromeliad?
I will tell you now it isn't a *Tillandsia*.



Picture 16 – is this a Bromeliad?

The problems were just as great regarding the numbers of orders and families within them. I found one book online called *Classification, Evolution and Phylogeny of the Families of Monocotyledons*, Smithsonian Contributions to Botany, by Aaron Goldberg (1989). To give you a sense of the difficulty and subjectivity of botanical classification, Goldberg says that those attempting an overview in the 25 years before 1989 recognized between 45 and 103 families of monocots in 14 -38 orders. Goldberg accepted 57 families in 18 orders. His analysis was based, in part, on the analysis of about 85 character states of plants.

Goldberg's complete description of Bromeliales is below. I suppose this is a very complete answer to what is a bromeliad, if you have a botanical dictionary handy!. I also suppose that if I gave you 1000 plants and asked you to determine if they were Bromeliads, you could go through the description and see if it met the description below. But it still doesn't tell you which of these features is unique to Bromeliads.

BROMELIALES

The order is monotypic.

Chemistry: Steroid saponins sometimes present; tannin and mucilage common; alkaloids absent.

BROMELIACEAE (Figures 29, 30).—Perennial herbs or rarely woody plants often of dry habitats, and often epiphytic in moist habitats, sometimes rhizomatous or stoloniferous; hairs characteristically peltate shield-like scales with a uniseriate stalk, functioning to conserve and absorb water, rarely other types also present; raphides and silica present; xylem vessel perforation plates usually scalariform, sometimes simple in the roots, vessels sometimes absent from the stem and leaves; leaves mostly in a rosette, spirally arranged, rarely distichous, liguliform, without a midrib (except *Pitcairnia* spp.), entire or often with spiny teeth, the sheath open, the stomates tetracytic or sometimes hexacytic; inflorescence a terminal, rarely axillary, panicle, raceme, spike or head, rarely the flower solitary, often with brightly colored bracts; flowers almost

always actinomorphic, rarely weakly zygomorphic, bisexual or more rarely the plants polygamous or dioecious, entomogamous, ornithogamous, rarely anemogamous; perianth heterochlamydeous, but sometimes the sepals colored (*Sodirola*, *Massangea*); sepals 3, free or basally connate; petals 3, free or connate, usually considerably larger than the sepals, sometimes with a pair of basal appendages; stamens 6, free or basally adnate to the petals, the filaments usually separate, sometimes basally connate, often long-exserted, the anthers linear, usually dorsifixed; pollen usually 1-sulcate or 1-sulcoidate, sometimes 2-polyaperturate, then the apertures slightly elongate, circular or irregular, 2-celled when shed, rarely in tetrads; pistil 1, the carpels 3, style 1, elongate, the stigmas 3, usually linear, sometimes spirally twisted around each other; ovary superior, semi-inferior or inferior, 3-locular, with internal septal nectaries, the ovules usually numerous, axile, bitegmic, crassinucellar, anatropous, rarely campylotropous; embryo sac with 3 small antipodal cells; endosperm formation Helobial, the tissue at first free-nuclear, later becoming cellular; fruit a septicidal, more rarely loculicidal, capsule, berry or syncarp; seeds usually numerous, small, sometimes appendaged or winged; embryo lateral to the endosperm or rarely embedded in it, 0.2-1.8 times the length of the endosperm, 2-10 times longer than wide; endosperm copious, mealy, starchy. Chromosomes: $x = 8, 9, 17, 25, 27, 28$, especially 25,8.

Composition: ~50 genera, ~2000 species.

Distribution: Tropical and warm temperate America, except for one West African species.



Picture 17 – is this a Bromeliad?

DNA Testing. Studies in the last 20 years have led to new classifications, primarily due to the use of DNA testing. The Angiosperm Phylogeny Group (APG) is an informal group of botanists studying the classification of flowering plants. Mark W Chase at Kew Gardens has taken a leading role in all of these studies. They have revised the classification three times since 1998 based on new studies using DNA and statistical analyses. These studies would not have been possible without computers.

The APG has abandoned rankings above the rank of order, instead using the term clade for all higher groups. In fact they said the placement of a group as an order, superorder, suborder or family is largely vacuous and arbitrary .



Picture 18 – is this a Bromeliad?

Among other things, the APG has also found that while the monocot group is still a good one, the dicots are not. Most of the dicots fall into a good group now called eudicots. But others are more ancestral and have some features typically associated with monocots. The largest other group is called magnoliids, which includes the magnolia tree. Thus, magnolias aren't monocots or eudicots.

The APG includes Bromeliads in a large clade of monocots called commelinids, which includes the grass family. There is actually a Commelinid Monocots Working Group.²

²The webpage says commelinids are a “monophyletic group of monocotyledonous angiosperms that are united by DNA sequence data as well as the general chemical apomorphy of cell-wall bound, UV-fluorescent ferulates (e.g., ferulic, coumaric, dicoumaric acids).”

<http://www.sci.sdsu.edu/plants/comm/commelinids.html>.

Orders and Relatives. To recap, irrespective of the name of the groups, Bromeliads are monocots, which are one group of flowering plants which in turn are vascular plants. At this point, however, it is harder to describe where Bromeliads fit in. Things have changed quite a bit the last 20 years.

Orders are basically groups of related families. Until the late 1990's, almost all, if not all, of the classification systems considered the Bromeliad family (called Bromeliaceae) as its own order called Bromeliales. Thus, it was a monotypic order, with only one family. This word is usually seen in connection with a genus with only one species.

In addition, since botanists didn't agree where to place the Bromiales order, they didn't have a good idea of its closest relatives. In any study using DNA to classify taxa, you need an outgroup – a closely related taxon to compare with the taxa you are studying. Since they didn't know of a good outgroup, the early progress from these studies was limited.



Picture 19 – is this a Bromeliad?

You might recall at the beginning that I said you might have to be a botanist with a lab to distinguish Bromeliads from other plants! Maybe a biochemist!

DNA testing has provided some new results, some with more clarity and some that differ quite a bit from traditional classifications. For example, Professor Givnish at the U. of Wisconsin co-authored the papers analyzing the subfamilies of Bromeliads, and determining there were in fact eight, not three, subfamilies.



Picture 20 - Is this a Bromeliad?

Givnish also studies monocots and various clades and orders within them. A 1999 paper studied Cronquist's Commelinidae subclass (which did not include Bromeliads), and related orders. The new 1999 study found Bromeliads did in fact belong to the subclass Commelinidae. This subclass was named after the Commelinales order, which at that time consisted was a group of five monocot families that had, among other features, "a strong tendency toward the rosette habit." However, their relationships to each other and to related families, including Bromeliads, were one of the "greatest areas of uncertainty in higher-level monocot systematics." Givnish TJ, Evans TM, Pires JC, Sytsma KJ. 1999. Polyphyly and convergent morphological evolution in Commelinales and Commelinidae: evidence from rbcL sequence data. *Molecular Phylogenetics and Evolution* 12: 360–385.

As to Bromeliads, the 1999 study noted that earlier studies found that Rapateaceae (in the Commelinales order) is the closest family to Bromeliads. Smith had in fact suggested this in 1934 based on plant morphology. This is a group of about 100 species in tropical South America and west Africa. It includes the *Stegolepis* genus, and a picture of one species is included in this article.³ ”



Picture 21 - Is this a Bromeliad?

³ The 1999 study instead found the Mayacaceae (apparently this is the boggy moss family) is the closest family to Bromeliads and that both they and Rapateaceae should be added to Bromeliales order.

As an amusing aside, the group of plants in the subclass Commelinidae did not include the family Commelinaceae so they needed to change the subclass name – they proposed Bromelinae, which was not accepted later. Bromelianaes are characterized by “paracytic stomata and an absence of calcium oxalate raphides.

Poales. A real breakthrough came with the turn of the century. A new study concluded that Bromeliads were not monotypic and belonged to a different order than had been believed – Poales. Chase MW, Soltis DE, Soltis PS, Rudall PJ, Fay MF, Hahn WJ, Sullivan S, Joseph J, Molvray M, Kores PJ, Givnish TJ, Sytsma KJ, Pires JC. 2000. Higher-level systematics of the monocotyledons: An assessment of current knowledge and a new classification. In: Wilson KL, Morrison DA, eds. Systematics and evolution of monocots. Proceedings of the 2nd International Monocot Symposium. Melbourne: CSIRO, 3–16. Many of these authors are in the APG, and the second APG paper in 2003 moved Bromeliads to Poales.



Picture 22 – is this a Bromeliad?

Actually, the Poales order is relatively new.⁴ The most well known family in Poales is the grass family, Poaceae, which includes wheat, barley, rice, corn and bamboo.

It turns out that the grass family is at the complete opposite end of the Poales order than Bromeliaceae. It appears there are very few succulents in the Poales order, at least those commonly collected, apart from Bromeliads.

Poales were studied quite a bit in the last decade. See, for example, Givnish TJ, M Ames, JR McNeal, MR McKain, PR Steele, CW dePamphilis, JC Pires, DW Stevenson, WB Zomlefer, BG Briggs, MR Duvall, JM Heaney, DE Soltis, PS Soltis, K Thiele, JH Leebens-Mack. 2010. Assembling the tree of the monocotyledons: plastome sequence phylogeny and evolution of Poales. *Annals of the Missouri Botanical Gardens* 97: 584-616. This study found that Bromeliads were at the base of the Poales order,⁵ next to a clade containing the Typhaceae family, and then the aforementioned Rapateaceae family.

Typhaceae is thus perhaps the closest relative to Bromeliads. There are all of two genera – *Typha* and *Sparganium*. These plants often grow in marshy areas or near ponds and lakes. If you saw one in flower, there would be no mistaking it for a Bromeliad. Probably not out of flower either.

⁴ From what I can tell, it was first described in 1903, but Cronquist didn't recognize it in 1981. Dahlberg and Thorne both recognized it and included about 7 families, while Goldberg recognized as a monotypic order. By 1998, the APG had expanded Poales to include around 16 families.

⁵ In contrast, the earlier 2000 study found it was in the middle of Poales; thus, they had to be included in the Poales order. Technically, if Bromeliads are at the base, they could be reinstated as their own order. This is really semantics – there is no taxonomic difference between treating them as the base family of the Poales order, or as the sister order to the Poales order. But had the 2000 study found the same tree as the 2010 study, I wonder if they would have moved Bromeliads into Poales.



Picture 23 –
is this a
Bromeliad?

Is this a Bromeliad? Not the easiest photo to see. It is not a Bromeliad. It is *Typha latifolia*, apparently known as a common cattail for its inflorescence. *Typha* is one of the closest genera to the Bromeliads. It has a large range, and I saw it grow in California. Out of curiosity I googled the name of it with Los Angeles and found this picture of it at the Sepulveda basin about a mile from where our club meets! .

<http://www.sepulvedabasinwildlife.org/aquatic.html>



Others families in Poales include Cyperaceae (the sedge family that includes papyrus) and Juncaceae (the rush family). To give a sense of how sometimes DNA testing has led to radical changes, one study found that a group thought to be in Poales not only didn't belong there, but were not even monocots. That is sort of like finding out what you thought was a baseball team is really a football team (assuming of course, you follow sports.).

The 2010 article noted the all Poales, other than Bromeliads, lack septal nectaries. I am always surprised how much there is about plant topics. There is a book called Nectaries and Nector that is about 400 pages; it is published by Springer which also publishes to books about succulent families some of us have. It says septal nectaries are nectaries in the region between carpels in the ovaries. Apparently many monocots have them, including Bromeliads, but not other members of the Poales order.



Picture 24 – is this a Bromeliad?

This 2010 study confirmed other studies grouping Poales and four other orders into the commelinids clade. At least somewhat consistent with earlier studies, the clade closest to Poales is a clade consisting of Commelinales (includes Tradescantia and Callisia) and the Zingiberales (gingers). All three of these orders, including Bromeliads have a starchy endosperm, which is part of the seed. The next sister clade in the commelinids clade includes Arecaceae (the palm family).

A bit more on Monocots. The 2010 study above found the commelinids clade was sister to the Asparagales order. This order has lots of familiar plants. Asparagales includes the following plants:- orchids (family Orchidaceae), aloes, gasteria and haworthias (all in the Xanthorrhoeaceae family), agaves, yuccas and nolinias, and asparagus (all in the Asparagaceae family), amaryllis and agapanthus (Amaryllidaceae family), and iris (Iridaceae family).

Finally, these two clades, that is the commelinids and Asparagales, were sister to the clade containing lilies (Liliales). i

ANSWERS.

So to summarize, Bromeliaceae, the Bromeliad family, is a group of vascular flowering plants that are monocots in the Poales order. Its closest relatives seem to be the *Typha* and *Sparganium* genera.

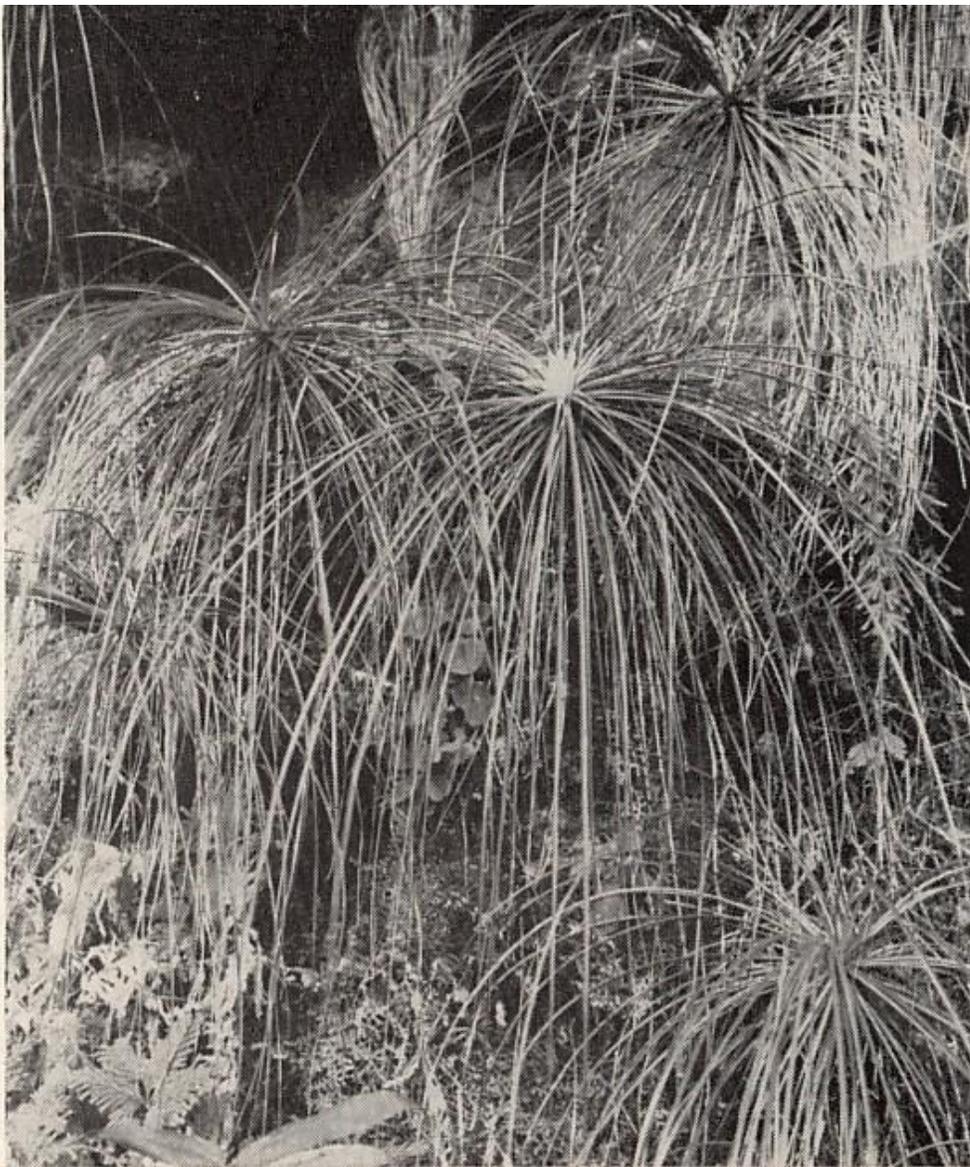


Picture 25 – is this a Bromeliad?

Despite all this information, I still haven't answered my real question – how to tell a Bromeliad from another plant. In fact, none of the many articles above had the answer. I guess it is fair to say, however, that I no longer know pathetically little about plants, at least monocots. It turns out that the BSI site gives part of the answer, almost as good as some of the others, but none of them give you the important part. The BSI website says “All bromeliads share a common characteristic: tiny scales on their leaves called trichomes. These scales serve as a very efficient absorption system.” When ever you see a greyish Dyckia or Tillandsia, it is covered with trichomes. The banding on Bromeliads is at least partially trichomes.

Many succulents also have trichomes. So all this tells you is that if the plant does not have trichomes, it is not a Bromeliad. IF it does, it might be.

The very technical description of Bromeliads by Goldberg shown earlier goes further. It doesn't refer to trichomes, but says Bromeliads have “hairs characteristically peltate shield-like scales with a uniseriate stalk functioning to conserve and absorb water.” Apart from the technical terms, the problem again is that this just says Bromeliads have them, not that other plants don't. The definition also says the leaves are in a rosette, but lots of other plants have a rosette. So reading the definition doesn't make it clear how important this is or isn't.



Picture 26 – is this a Bromeliad?

I finally found an answer in a book called *The Biology of the Bromeliads* by David Benzing (1980). On page 5, it says “Among the 40,000 or more monocots, only the bromeliads possess a particular combination of seed, flower and fruit characters plus, in most cases, the stalked flat-capped trichome which has no parallel in any

other family. Thus Bromeliaceae appears, on the basis of these and other characteristics, to be a relatively isolated and unique entity with no close relatives.”

This seems to be the answer, but I wanted more specificity. The book is 300 pages, and I haven’t read it. When I skimmed the sections on fruit, seed and flowers, there was lots of information, but I didn’t see something that followed up on precisely which combination of them was unique to Bromeliads. I was actually more curious than before, since the three traditional subfamilies of Bromeliads were distinguished by having different forms of seeds and fruit. So if there are 3 different kinds of seed and fruit, what ties them together. I still don’t know!.



Picture 27 – is this a Bromeliad?

But I did find more about trichomes. Apparently most plants have them, so saying that Bromeliads have trichomes doesn't help much. But, "the almost universal occurrence of a particular kind of trichome – one with an umbrella or **peltate** shape – has been taken as evidence that, despite their many differences, bromelioids, pitcairnioids and tillandsioids are closely enough related to be placed in a single family." Id. At 39. While it doesn't quite say it, it strongly suggests that other families don't have this peltate shaped trichome.

So now I have my answer!, or at least one answer. If someone asks "What is a Bromeliad,?" –you can respond "a monocot with peltate trichomes." Of course, unless they are a botanist or into taxonomy, this tells them nothing at all. I guess that is why no where else has this answer!.

Picture 28 – is this a Bromeliad?



Picture 29 – change of pace – just an inflorescence - is this a Bromeliad?

More answers - Picture IDs

So how well did you do with the pictures. As I said, it isn't really a fair test – if I included flowers etc, it would have been a lot easier. I really wanted to show that some Bromeliads can look quite a bit different than the ones we typically see, and that lots of other plants look, to some degree, like various Bromeliads. Since Bromeliads are grouped in the Poales order, which has grasses, the grassier looking the Bromeliad, the harder it is to distinguish from other grassy looking plants.

Of course, it turns out the test isn't really completely fair for another reason. If the plant is somewhat close to a bromeliad, then you either need to already know what it is, or you need to be able to see it well enough to determine if it has peltate trichomes!

Finally, current DNA testing shows 8 Bromeliad subfamilies. Some of the Bromeliads pictured in this article below to some very obscure families and genera. The eight subfamilies are:

1. Brocchinioideae – the *Brocchinia* genus
2. Lindmanioideae – the *Lindmania* and *Connelia*
3. Hechtioideae – the *Hechtia* genus
4. Navioideae – *Navia*, *Brewcaria*, *Sequencia* and *Cottendorfia* genera
5. Pitcairnioideae – *Pitcairnia*, *Dyckia*, *Deuterohohnia* (*Abromeitiella* has been lumped in here later) , *Fosterella* and *Encholirium*
6. Puyoideae – the *Puya* genus
7. Tillandsioideae – same as before, *Tillandsia*, *Vriesea*, *Guzmania* etc
8. Bromelioideae – same as before – *Aechmeas*, *Neoregelia*, *Nidularium*, *Billbergia* etc.

So, here are the answers.

15. Bromeliad – *Puya* species, most likely *P prosanae*

16. **not a Brom** "*Prionium serratum*" by Serban Proches - <http://calphotos.berkeley.edu>. In Thurniaceae family of Poales order, which includes Bromeliads.

17. Bromeliad – *Disteganthus basi-lateralis*. 40(3) J Brom Soc 100. Photo by W. J. Kress. Bromelioideae
18. Bromeliad - *Sequencia serrata*. Photo by Len Colten? Navioideae
19. Bromeliad – *Puya* species
20. not a Brom – *Agave geminiflora*. In Asparagaceae family of the Asparagales order, which is sister to commelinid clade containing Poales (which includes Bromeliads).
21. not a Brom – *Agapanthes* species. In Amaryllidaceae family of the Asparagales order. This order is sister to the commelinid clade containing Poales (which includes Bromeliads).
22. Bromeliad – *Lindmania vinotincta*. 59(2) J Brom Soc. 67, 2009. Photo by Vruce Holst. Lindmanioideae
23. – not a Brom. *Dregeochloa pumila*. This is one of the very few succulent grasses. Photo by Ernst van Jaarsveld.
<http://www.plantzafrika.com/plantcd/dregeochloapum.htm>. Poaceae family
24. *Sparganium erectum*. In Typhaceae family, arguably the closest family to Bromeliads http://www.eplante.ro/plant_pics/347.jpg
25. Bromeliad – *Steyerbromelia discolor*.
<http://www.bromeliads.info/steyerbromelia-bromeliad-plant-species/>
Unknown photographer. Navioideae
26. Bromeliad - *Navia fontoides*, 5(2) J Brom Soc. (cover), 1055. Photo by R. E. Schultes. Navioideae
27. Bromeliad - *Cottendorfia florida* in Chapada Diamantina, Bahia, Brazil, Photo - Bromeliaro Imperialis. Navioideae
28. Bromeliad - *Hechtia lundelliorum*

29. not a Brom.

I had no idea, but Maryk identified it as probably being *Costus barbatus*. In Costaceae family of the Zingiberales order. This order is sister to Poales (which includes Bromeliads).

Here is a picture of the whole plant at HBG.



If you are still curious about some of the pictures in Part I of this article, here is more information about them.

1. - Bromeliad – unidentified *Puya*

2. not a Brom. *Nolina longifolia*. In Asparagaceae family (includes asparagus and agaves) of the Asparagales order. This order is sister to the commelinid clade containing Poales (which includes Bromeliads).

3. Bromeliad – A is *Yucca elephantipes*. B is *Puya mirabilis* (large clumps in middle of photo) . C, ?, not a Bromeliad. D is *Beaucarnea inermis*.
4. The four at the bottom right are Bromeliads: I don't remember about the others. .
5. **not a Brom.** *Callisia fragrans*? This is in the Commelinales order, which is sister to Poales (which includes Bromeliads). I thought this might be a Bromeliad when I got it at a cactus club.
6. Bromeliad – *Acanthostachys strobilacea*. Bromelioideae .
7. **not a Brom** –?
8. Bromeliad - *Connellia augustae* *Unknown photographer*. Lindmanioideae
9. **not a Brom** – *Bulbine alooides*. In Xanthorrhoeaceae family (which includes Aloes) of the Asparagales order. This order is sister to commelinid clade containing Poales (which includes Bromeliads).
10. Bromeliad - *Areococcus micranthus*, photo in *Die Bromelie* 2005(1) 25,. Bromelioideae
11. **not a Brom** – *Furcurea* species growing on my street. In Asparagaceae family (includes asparagus and agaves) of the Asparagales order. This order is sister to the commelinid clade containing Poales (which includes Bromeliads).
12. Bromeliad – *Pitcairnia oblongifolia* . Photo by Ing. Alexander Hirtz
13. Bromeliad – *Brochinia acuminata*, photo by M Asmuss. Brocchinioideae
14. **not a Brom.** *Stegolepis guianensis* by Christian Hummert (Ixitixel) - Own work (Own Photo). *Stegolepis* is in the Rapateaceae family of Poales, and is one of the closest families to Bromeliads.



How about this one? Not a brom. This is *Gahna grandis*, a sedge, in the Cyperaceae family. It's like a third cousin to Bromeliads.

Taxonomic Tidbits –

Yellow/green petalled Billbergia – Part 4 (more on Bill. distachia and cultivars).

By Mike Wisnev, SFVBS President (mwisnev@sbcglobal.net)

San Fernando Valley Bromeliad Society Newsletter –May 2016

Part 1 – 3 have discussed the many varieties of *B amoena*, which seems to be well cultivated, and *B distachia*, which isn't so much. At least I don't remember seeing a plant labelled *B distachia*. But it turns out that many of us have *B distachia*, though you might not realize it.

Most of us like variegated plants, though I have met a few folks who claim to hate them. Some of them command a considerable price, if rare or hard to grow. Others multiply easily. And, in the case of some Billbergia, many of them look very similar, at least out of flower.

I have a number of them from our raffle, most unlabeled. Here is the first, *Billbergia* 4A.



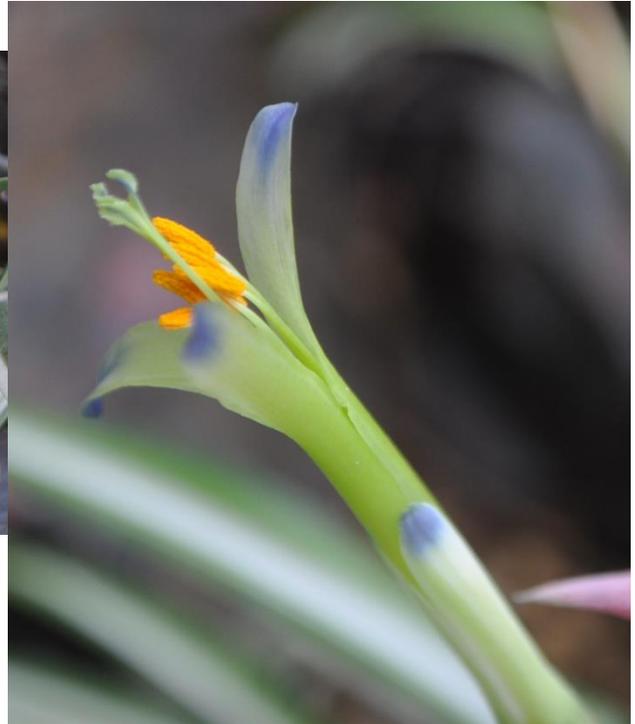
They show how the plant looked when I got it in November, 2011, then grew a number of pups (June 2013), and after some of it was planted (August 2015). The last picture shows one pup that is almost completely devoid of chlorophyll – I hopes it pups out!.

The series also shows how plants are plastic – they can change a lot over time, especially variegated ones since the variegation can vary from pup to pup. The pup I got in 2011 was heavily striped, yet the two shown in 2015 show one that has almost no chlorophyll and another that is more or less albomarginated.

This alone suggests identifying variegated plants can be difficult. Now that I have seen it, I won't be surprised by the huge variation, but back when I got in 2011, no way I would have believed the first and third plants were the same.

Back when I got it, someone said it was probably B 'Louise' or 'Santa Barbara.' The first is a variegated form of *B distachia*, and the latter is thought to be a cv. of unknown *distachia* or *nutans* hybrid. I looked a bit more and found one called 'Perriam's Pride', a cultivar of *distachia* var *straussiana*. There are probably other very similar ones. Both BCR and FCBS have search engines, and you can search for hybrids of a species or cultivar if you wish.

Finally it bloomed – in 2014!



If you are wondering about the rather strange shape of leaves, neither picture shows any bromeliad leaves. The rounder looking ones in the left photo are a variegated *Hoya*, probably *H obovata*, a succulent, and the thin ones on the right are variegated spider grass, probably *Liriope muscari*.

The inflorescence matches *B‘Louise,* since it is strongly decurved and has blue tips on both the sepals and petals. Should I label it? My advice in Part 3 was “generally no, or only with the utmost caution, and even then probably by indicating the name with a ? after it to reveal potential uncertainty.”

With cultivars, however, there is even a greater problem than species. As I understood it, in the case of a cultivar, only offsets of the original plant and its offsets should have the same name. Let’s be clear about this. Say our club member, Larry F., finds that one of his Costco cashew jars is full of gorgeous seedlings, all of which look almost identical. He knows the mama, not the father, and decides to register it. Technically, even though they are seedmates, he should give each seedling a different name, even if they look almost or exactly the same.

It turns out that my understanding was completely wrong! And I learned that only after finishing the article, but fortunately before it made its way into the Newsletter.

The following rules are copied from the International Code of Nomenclature for Cultivated Plants (ICNCP, 2009)

2.3. A cultivar is an assemblage of plants that (a) has been selected for a particular character or combination of characters, (b) is distinct, uniform, and stable in these characters, and (c) when propagated by appropriate means, retains those characters (but see Art. 9.1 *Note 1*).

2.20. In considering whether two or more plants belong to the same or different cultivars, their origins are irrelevant. Cultivars that cannot be distinguished from others by any of the means currently adopted for cultivar determination in the group concerned are treated as one cultivar.

So, my example is 100% wrong – if they all look almost identical, or more accurately “cannot be distinguished from others,” they are the same cultivar. Of course, like so many things, not everyone may agree on what can be distinguished, which is perhaps why there may be so many cultivars that look much alike!

You often see different cultivars with the same parentage that may or may not look the same, though they should be distinguishable. Based on the above, seedlings of a cultivar shouldn't be the same name unless they look the same.

If I understand the rules, a pup of a cultivar that looks different shouldn't be given the same cultivar name. In fact, a number of variegated offsets have been given cultivar names. On the other hand, I suspect lots of pups look a bit different (or more) than the parent, yet are tagged with the same name.

I have sometimes used the term “grex” or “grexmate,” which is basically all offspring of a specified parentage. So all of the offspring from one of Larry’s crosses are considered a grex. I first heard this term on a Bromeliad forum. But according to the ICNCP, grex is used only for orchids!

From what I gather, however, that rule wasn’t limited to orchids before 1995. While the ICNCP says it is generally retroactive, some bromeliad cultivar names in the past may have been given to all members of the grex, even if they looked different! Under the current rules, the word grex is supposed to be in the name if it is a grex, but I have no idea if this rule applied before 1995, or how one could tell whether a given bromeliad was considered a cultivar or a grex before 1995.

Given all this, from what I gather, if my plant looks exactly like B ‘Louise,’ I can label as such. (I’d be happy to hear if that isn’t correct. For that matter, I’d be happy to hear if anyone ever has possible corrections to anything in these articles.) Of course, this is a dangerous thing to do, since you need to be awfully careful that it really looks the same. More than once, I thought that to be the case, only to find later that I overlooked something. What looks the same when you start the hobby, can look quite different a few years later!

Later, I acquired a plant with a B ‘Louise’ label. Here it is in a pot, next the one discussed in this article. It hasn’t bloomed yet, but seems the same.



Next month – *Billbergia nutans*.



Bill Baker BEST DYCKIA Award



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