



The Bromeliad Blade

Newsletter of the
San Diego
Bromeliad Society

February 2016

VOLUME LI

NUMBER 2

The President's Corner

by Robert Kopfstein

Some years ago my father, a dyed in the wool organic gardener, came to visit me after I had finally been able to purchase a house—or, more importantly, a yard. I had begun a garden in the backyard which previously had been a dog pen for five German shepherds. The place looked like no man's land in World War I.

I had planted cactus, succulents, bromeliads, and (I now hate to admit it) roses. I thought the place was looking pretty good. But when my father took one look at it he turned to me and said that this was all well and fine but that you could not eat any of it. So why bother planting it in the first place.

Chagrined, I have recounted this story many times.

Recently, however, I encountered some entries in *Cornucopia—A Source Book of Plants* by Stephen Facciola. On page 53 there was an entry for the bromeliaceae, a pleasant surprise.

Facciola lists the following as edible:

Aechmea bracteata -- The berries are eaten from Mexico to Columbia. (This one did not surprise me too much because in Mexico I had seen Andy Siekkinen munching out on them; as we all know he is still in good health.)

Aechmea magdalenae -- The fruits can be eaten raw or made into beverages. Perhaps a little gin might enhance the enjoyment. The plant is found in Central America and tropical South America.

Ananas bracteatus -- The fruit is sweet and it is popular in Paraguay.

Ananas comosus -- We all know the pineapple (pina), but are you aware that besides using the fruit raw or cooked in dishes, you can make wine -- and if that fails you have vinegar. The unripe fruit can be eaten with hot pepper sauce. Terminal buds can be consumed raw or cooked as a vegetable or an ingredient in soup. Inflorescences can be peeled and steamed as a vegetable or put into stew. The new growth can be eaten in salads -- They are called *hijas de pina*.

Phillippinos ferment the juice to make a gelatinous dessert called *nata de pina*. The rind of the fruit can be brewed into *chicha de pina*. And the cultivars are many:

Hawaiian King
Homey Gold -- can weigh 15 lbs.
Natal Queen
Red Spanish -- with round fruit
Smooth Cayenne -- introduced from French Guyana in 1820
Sugarloaf
Variegated

Bromelia karatas -- The Fruit is used in making a drink called *atol de pinuela*. Young leaf shoots can be cooked in soups, stews, and egg dishes.

Bromelia Pinguin -- The fruit is used as a beverage, or it can be made into a vinegar. The inflorescence is fried in El Salvador, and young pups can be eaten both raw and cooked.

Puya cerulea
Puya chilensis -- The young shoots of both of these are eaten in salads.

Recently Ivon Ramirez from the Autonomous University of Mexico named a newly found *Hechtia* (*H. edulis*). The species name means edible, and the Raramuri people who live in Copper Canyon, Chihuahua

use the base (bola) of the plant in cooking; the leaves (minus the spines) can be eaten raw. (See my article on this plant in the Oct – Dec 2014 issue of the Journal.)

And you tillandsia aficionados don't despair. On a trip to the village of San Sebastian in Jalisco I heard tell of a woman who was growing a tillandsia that she used in her cooking. More perhaps on this later...

It is unfortunate that my father is no longer around so that I might point proudly to my bromeliad collection and exclaim "Bon Appetit!" (Sorry Julia Child . . .)

January Meeting Recap

Collaborators: David Kennedy, Don Nelson, Dan Kinnard



Last month's presentation by our own Pam Peters was great fun. Her unique trip to the Brazilian Amazon, which took place principally on a large boat over several days, was devoted to artists of all types (Pam is a skilled painter) who braved early-morning getaways to avoid the scorching midday heat on board a tiny skiff to visit remote areas in search of orchids, bromeliads, and other amazing Amazonian treasures.

Pam adroitly relayed the joys and pitfalls of adventurous jungle travel (she got nailed by some mysterious fungus she mistakenly touched while in the skiff that left her hand painful

for hours, although she decided not to tell anyone at the time!). And the food looked, and by her account was fabulous, and available any time.

Thanks to Pam for giving us a real taste of her obviously terrific trip - and in the 'proper' length of time, which we raffle-mad folk appreciate.



Note: The trip was largely inspired in Margaret Mee's Amazon journey as described in the book Margaret Mee's Amazon. Club members can find the book in the SDBS Library.

Show and Tell

- 1 *Billbergia* "night side" (Kopfstein)
- 2 *Hechtia* sp. (Kopfstein)
- 3 unknown
- 4 *Neoregelia wilsoniana* (B. Wright)
- 5 *Tillandsia stricta* (Andrew Wilson)
- 6 *Tillandsia caput medusae*

January's Opportunity Table

Featured a slew of collectible Tillandsias from Tillandsia International, in Central California.

The offerings included such classics as *T. superinsignis*, *T. limbata*, *T. roseoscapa*, *T. magnispica*, *T. novakii*, *T. roland-gosselinii*, *T. lymanii*, and a wealth of others.



February Meeting

The program for February is an in-house presentation on cultivation. Robert Kopfstein will introduce the concept (We will be doing two of these this year, and if everyone likes it we may continue into next year).

The presenters this time will be Andrew Wilson, who will discuss what you might do once you get a bromeliad (should you mount it--if so on what--or pot it; perhaps it would be better to simply hang it from a string).

Andrew will be followed by Dan Kinnard, who will discuss potting mixtures for bromeliads: if you plan on potting a tillandsia, what might you use? What about terrestrials? Do all epiphytes require the same potting mix?

Opportunity Table

by David Kennedy

February's Opportunity Table will feature broms from SDBS member Justin Allen's collection. He is not only an accomplished plant grower (he previously worked for Paul Isley at RainForest Flora) but also a soil conservation expert interested in helping developing nations with soil issues.



Vrieseas in Justin Allen's collection

Justin will soon be moving to the Philippines so; he needs to sell most of his awesome collection. To that end, he will likely bring additional plants to this month's meeting for individual sale, and he invites you to contact him to see the remainder of his sale plants at his home in Solana Beach. japhyto@gmail.com

A Visit to Justin Allen's Garden

Justin Allen's beach bungalow has been taken over by his plants. Bromeliads are present wherever you look, sharing the space with ferns and other tropicals. The journey starts at the white picket fence, barely visible under a mass of colorful bromeliads; and the wooden gate, permanently held open by a lace of passion fruit vines. A large tree in the middle of the patio is dressed with a variety of tillandsias and hanging broms. The surrounding grounds are filled with large aechmeas, neoregelias and vrieseas, in multiples. Even the table and chairs are occupied by scores of

tillandsia, as if they are the ones who are dining.

It is the ultimate bachelor pad with bromeliads. A very laid back, unpretentious garden at first glance, but full of wonder for whoever takes a closer look. A lot of thought went into the palm stumps loaded with bromeliads big and small. Massive displays of tillandsia hang on trees, bamboo sticks, fence, even on the SDGE meter (see photo).

The result is a garden very fun to look at, but the important take away is that whatever Justin is selling, is fully acclimated to life outdoors in Southern California. We all know that nursery plants have a hard time adapting to garden conditions -- not the case with Justin's offerings. He showed me a variety of colorful vrieseas, a few different types of (one of my favorite plants), *Neoregelia cruenta*, which are

exceptional for their salt tolerance. He also pointed to some rare tillandsias that he has grown from seed. The collection was built up in a number of years; one could say these plants are survivors in a long term experiment.



The trunk of this tree is covered in tillandsia

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More from Justin's Garden

Bromeliad display on fence; tillandsias and SDGE meter; a rare tillandsia tricolor x fasciculata specimen grown from seed. **See interview with Justin on page 9.**



SDBS MEETINGS

Meetings are held at 10 AM on the second Saturday of each month at Balboa Park, Casa Del Prado, Room 104.

San Diego Bromeliad Society Webpage

www.bsi.org/webpages/san_diego.html

THE BROMELIAD BLADE

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Make sure to submit your contribution before the 20th of the month for inclusion in the next newsletter.

2016 SDBS Membership

It's that time of the year again!

To renew your membership, please contact Al Evans, Treasurer
alevans001@earthlink.net
 858-492-9866

Renewal Fees: 1 year

<p>Single email \$13 Dual email \$17 Single USPS \$28 Dual USPS \$32</p>

Renewal Fees: 2 years

<p>Single email \$22 Dual email \$30 Single USPS \$52 Dual USPS \$60</p>

Couldn't Show and Tell

Winter color. Big plants that are too cumbersome to bring to the meeting. Members share a little bit of what's happening in their gardens.

From the collection of Dan Kinnard and Eloise Lau:

Vriesea bleherae



Tillandsia neglecta x stricta



Found composition: Ursula tuitensis and fruit from Triangle Palm



Some Hechtias along the road are beginning to get their winter color



From Juliana Raposo's garden:

Aechmea blanchetiana gets the richest orange color.



Neoregelia from Home Depot, in center of picture, showing the best colors.



Vriesea phillipo-coburgii has great fingernails right now.



All gardening is landscape painting.

William Kent

Unpot Before It's Too Late

by Andrew Wilson

Before I knew anything about bromeliads a 'good' friend provided me with a starter plant, an *Aechmea distacantha*. Based on that you may



guess what happened. After potting it into the largest decorative container (24-inch diameter) available at the time I let it look after itself. Years later the plant was 7 feet across and the pot seemed to be splitting open due to expansion of the roots. It had to be extracted.

As you know, the spines on *Ae. distacantha* come free of charge. Even with arm protection and heavy gloves the handling risks are significant. An alternative approach was needed. The detailed mechanics would require much explanation. Suffice it to say that a rope fastened around the upper portion of the pot, two 6-foot pry bars and heavy wooden logs were the tools used. Using them the pot could be moved without touching the plant. As the pot was standing on a slope, at the foot of which were puyas and

alcantareas that would not have survived a crushing blow, tilting the pot and wedging it had to be done in multiple stages. Eventually, it was laid in its side, split but still intact. After that the going was easy. The plant was heavy due to the weight of water in its tanks after the rains in late December. When emptied the total load was greatly reduced so that it was then possible to rotate the pot and cut off the extensive

side-growths. Much to my surprise the roots occupied only the top foot of the pot. So, the friction between them and the inner walls was far less than expected and it was possible to pull out the central portion of the plant. Mission accomplished!

It was interesting that after years of growing, no moisture had reached the mix below the roots. All rain or rare watering had been intercepted in the tanks and in the upper root zone. Knowing that would have made the job both easier and less risky. Another year in the pot could have been disastrous.

Two pieces of advice - (1) do not pot up your *Ae. distacantha* and (2) do not ask me to unpot it!

Upcoming Events

Highlighted Meetings

February 13, 2016 at 10 AM
San Diego Bromeliad Society
Balboa Park, Casa Del Prado, Room 104
Our own Andrew Wilson and Dan Kinnard on Bromeliad Cultivation
www.bsi.org/webpages/san_diego.html

March 12, 2016 at 10 AM
San Diego Bromeliad Society
Balboa Park, Casa Del Prado, Room 104
www.bsi.org/webpages/san_diego.html

June 13 – 19, 2016
Bromeliad Society International World Conference
Houston, Texas
www.bsi.org/webpages/san_diego.html

Monthly Meetings

1st Tuesday, 6:30 PM
San Diego Orchid Society
Balboa Park, Casa Del Prado, Room 101
www.sdorchids.com

2nd Saturday, 10 AM
San Diego Bromeliad Society
Balboa Park, Casa Del Prado, Room 104
www.bsi.org/webpages/san_diego.html

2nd Saturday, 1 PM
San Diego Cactus and Succulent Society
Balboa Park, Casa Del Prado, Room 101
www.sdcss.net

2nd Monday, 5 PM
San Diego Horticultural Society
Surfside Race Place at the Delmar Fairgrounds
www.sandiegohorticulturalsociety.org

How I Became a Gardener while Painting with Bromeliads

A confessional account of an artist turned brom nut

by Juliana Raposo

I've been experimenting with bromeliads and other epiphytes in my coastal San Diego garden since 2013. Before that, I had never fussed with plants. I'm a rookie gardener, although one with a passion.

As much as I can appreciate the California sage scrub, my Brazilian pupils were longing for a tropical kind of green, one which takes me reminiscing like Proust and madeleines. I found my green in bromeliads.

The visual artist in me finds an endless source of inspiration in bromeliads: their sculptural shapes, and palette of colors. Individually, bromeliads are living works of art. Collectively, they can be used as color in compositions, just like painting. They can be grouped vertically or horizontally like sculpture. It helps a lot that soil is optional.

Frankly, I cannot understand why bromeliads don't have widespread

landscape use around the Southern California coast. Which other plant family combines the look of the tropics and xeriscape water needs?

Yes, bromeliads might be too expensive to use outdoors, where it's survival of the fittest. Here at home, hazards include trampling by children, scorching by leaf blower, poisoning by dog urine, and mysterious critters that eat spiny plants. There are nightmare scenarios: The unlikely threat of a winter frost haunts my dreams. God forbid we have the hot dry Santa Anna winds... Plus, I find there's a lack of literature in growing



Aechmea 'rajah', vriesea hybrid, assorted Neoregelias with ginger and asparagus ferns in garden bed.

bromeliads outdoors in Southern California. (Before I joined SDBS it felt pretty lonely). Whenever I add a new brom to the garden there is some anxiety. You end up finding your Zen and practicing the art of detachment.

I like to Google habitat photos for help with species plants. Seeing the harsh conditions bromeliads endure in their natural environment can be very inspiring for a gardener. There is a great article by Oscar Ribeiro on the restinga habitat of Brazil,

probably the cradle of the toughest tank bromeliads in existence, in the FCBS site:

fcbs.org/articles/restinga.htm

Unlike plants in pots, broms in the landscape cannot be moved. (It is sad that my guys will never make it to Show and Tell). My bromeliads are mounted on trees and walls while others are growing on the ground or in the rock garden. Some plants burn during summer, some plants rot in the winter. You will never have a show-quality plant. Naturally, I've killed scores of broms, but I have also learned a few lessons:

You can't go wrong with mounted plants -

- the epiphytic bromeliads, not the terrestrial types.

Mounted broms grow extremely well for me. I attached plant to mount without any substrate or moss. I don't fertilize. These are the ones that never rot. They may grow slower than the potted ones, but with excellent form and color.

My biggest surprise was the vriesea genus,

especially the big, leafy, thirsty ones. I have mounted fully grown *Vriesea hieroglyphica*, *Vriesea fenestralis* and other large vrieseas this way; removing them from original pots, stripping them from all attached substrate, and using cable staples to attach plants. My mounted vrieseas don't lose any leaves during the winter months as the potted ones often do. They don't suffer from crown rot either. The mounted vrieseas actually have more leaves than they used to. I have observed (even in specialized nurseries) that

vrieseas will suffer from mid-section leaf loss due to winter yuckiness. Mounting seems to eliminate the problem.

There is also an esthetical point to be made. Mounted bromeliads behave more naturally without the confines of the pot. I like to see how the stoloniferous ones hug their host, how orchid roots seek the bromeliads.

Many bromeliads can take more sun than “they” say. Last year I went to a beach resort in Rio de Janeiro and saw landscape use of *Vriesea ospinae* var. *gruberi* in full sun, grouped with *Alcantarea imperialis* next to a swimming pool. I couldn't believe it. Back home, I moved mine to a less sheltered location where it gets mostly full sun, and the colors became much better. I also transplanted my formerly potted (and ugly) *Vriesea philippo coburgii* to a palm trunk in full sun after

year, my plant has a tighter rosette, better fingernails and more leaves.

Some plants change so much with added light they look completely different. Neoregelias are among the most variable. For example, Neo ‘zoe’ is dark green with yellow striations in the shade but quickly turns into a rich burgundy in the sun.

Patience is key. Sometimes a good plant only comes in the second or third generation. There were several occasions when I bought a pup only to see it develop into something that wasn't as pretty as the pictures of the plant in the internet. The plants we buy from professional growers are usually rushed into maturity with a lot of fertilizer. Dark green floppy leaves are common. Well, sometimes it takes more than a generation for a plant to adapt to your garden conditions and thrive. I have a clump of *Hohenbergia castellanosii* that didn't grow a leaf for two years, now



Neo correia-araujoi with neo Raphael



Color contrast: *Neo danger* with succulents



It's amazing how much you can pack into a 6-foot epiphyte tree. From top: *A. correia-araujoi*, *Billbergia 'brimstone'*, *A. fasciata* purple and regular, *A. chantinii*, orchids, epiphytic cactuses, donkey tail. these guys in their natural range.

In Brazil, they will grow on rooftops, fence posts. At first the poor plant got sunburns. Now into the third

Finally, I would like to share with you my favorite bromeliads for landscape growing. In my experience, these need less water than succulents:

Aechmea blanchettiana
Vriecantarea 'Julietta'
Neoregelia 'royal burgundy'
Neoregelia compacta
Neoregelia 'fireball'
Neoregelia 'zoe'
Neoregelia cruenta 'Sun King'
Neoregelia correia-araujoi
Neoregelia carcharodon
Neoregelia 'petra'
Neoregelia marmorata
Neoregelia 'pimento'
Hohenbergia correia-araujoi

Note: Neo *cruenta* ‘Sun King’, *correia-araujoi*, *carcharodon*, ‘petra’, ‘pimento’ - I have never seen these in SD outside my garden. Do you grow these plants? How do they do for you?

Interview with Justin Allen

How did you become interested in growing bromeliads?

I first became fascinated with bromeliads after seeing documentaries on poison dart frogs when I was real young (maybe 7). Also, my parents were orchid collectors and I grew up with a greenhouse. I really love all things nature.

nature is meditation. Being out of touch may be the downfall of society.

Can you share a “secret” bromeliad cultivation tip?

If you don't have a shade house, knowing your garden microclimates is a fun challenge that takes some time and the ongoing seasonal shifting as shadows change. Know what plants are prone to crown rot and dump them out in the winter (heat-loving neos especially). If your garden is crowded like mine, don't neglect the importance of cutting and pulling all dead foliage (airflow



Vr. Platynema hybrid

crown rot-proof plants are awesome for our water. A few of these are:

1. Neo. cruenta
2. Vriesea gigantea ('Nova' form is NOT)
3. Most Aechmea and Billbergia are not prone to crown rot.
4. Tillandsia latifolia is diehard and there are so many forms
5. Vriesea philippo-coburgii



Overview of Justin's Garden.

photos by Justin Allen

You are a professional plant grower with a private plant collection at home. Why do you garden?

I have a collector's mentality as well. This leads to hoarding and the never ending quest for rare plants. But, to justify this to the layman, I would say gardening is an important skill that everyone should be familiar with. Being in touch with

and light is critical in winter). A watering trick I've found is to cut the end of your hose so it's just rubber and you have more control with your thumb in adjusting flow.

What is your favorite bromeliad and why?

Vriesea platynema hybrids are beautiful. *Neo. carcharodon* and *Aech. chantinii* are too, but neither like it below 45. Salt tolerant and



Aech. phanerophlebia wearing a myriad of tiny tillandsia



Tree display with assorted tillandsia and *Neo. fireball*

Taxonomic Tidbits –

Bromelias, colors and descriptions

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

San Fernando Valley Bromeliad Society Newsletter –December 2015

The July 2014 Newsletter had a Tidbits article titled. “Will the real *Bromelia balansae* please stand up? You can find the article on <http://sfvbromeliad.homestead.com/Newsletter.html>. That article addressed *Bromelias serra, balansae, sylvicola and penguin* and started out by stating “I am confused about this topic, and I am sharing my confusion about this relatively obscure genus.” Nothing has changed; in fact, I may be more confused now than before.

In any case, a recent Bromeliad Journal describes a new *Bromelia*, named *B tocaninense* found in Ponte Alta do Tocantins, Brazil. See J. Brom Soc. 65(1) 58. 2015. The authors, Eddie Esteves Pereira and Eric John Gouda, describe the new species and compare it to its relatives, *B antiacantha, B balansae and B eitenorum*. There are lots of pictures of the new species, and one each of the three others. There is also a chart describing the various differences among the four of them.

But this article is only tangentially about *Bromelia tocaninense* or even *Bromelias*. Instead, the various pictures and descriptions of the petal colors intrigued me. Specifically, the petals of the four species are described as “red with white margins” (*tocaninense*), “deep violet” (*balansae*), “dark purple to white at base” (*eitenorum*) and “purple” (*antiacantha*). Id at 67.

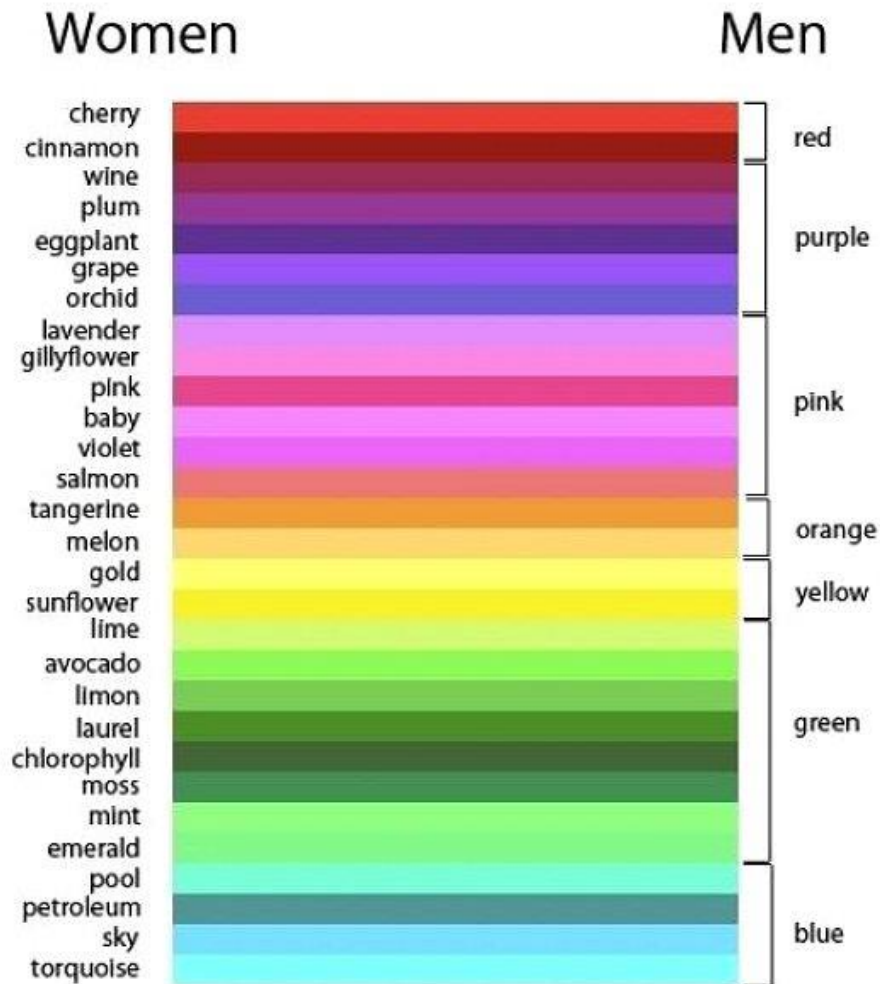
I fully confess my limited familiarity with various shades of colors. While I am not color blind, I tend to describe colors pretty basically, sometimes modified by “light” or “dark.” There are a dizzying number of color terms I don’t pretend to know, or remember. Magenta, teal, crimson, scarlet, lavender, fuschia ... the list goes on. Sometimes I think I know what one is, but when I look on the computer, I find it is different than I think. In fact, my ignorance extended to not realizing (or remembering) there is a difference between purple and violet.

So this somewhat different article is a bit about color (and words), and the difficulty of using them to explain things. There are really two interrelated issues for both, if not more. The first is how the color or word is defined, or described. The second is the degree to which each of us perceives and uses the color or word.

For example, sometimes if you look up a botanical term, you will find it defined a bit differently in different references. For example, one might say A is a synonym of Y, while another might distinguish the two a bit (or a lot more). So if I see a plant is A, what exactly does that mean – is it the same as Y, or is it a bit different. Even if all references agree on the same meaning, that doesn’t necessarily mean that each of us will use the term the same way or even correctly for that matter.

It turns out that purple and violet are different, though not that different. Violet is actually a “spectral color,” meaning that if you hold up a prism and let the light refract through it to get a rainbow like effect, one of the colors is violet. In contrast, purple isn’t spectral, but is a “composite color” that is a mix of violet and red.

Names of the Colors



So here, apologies to all the menfolk, is a good illustration of colors, and how differently we can perceive them. This image is taken from <http://dailypicksandflicks.com/2012/01/07/daily-picdump-356/names-of-the-colors-men-vs-women/>. Beside laughing out loud when I saw this, I felt a lot better about my ignorance; after all, based on the above, men aren't familiar with the color violet.

So now you can see the differences between purple and violet. But is this chart accurate?

I googled "purple vs violet" and hit images. There were a stunning number of results, and not always the same.

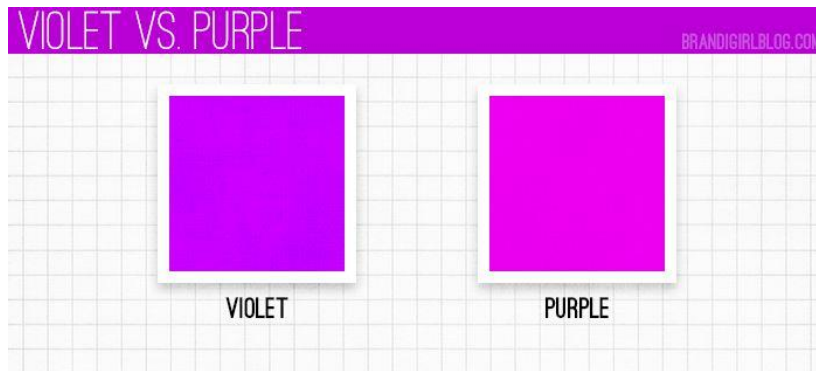
Here are some of the ones I saw.



<https://designcollagebydavidc.wordpress.com/2013/12/16/violets-these-days-and-purple-haze-by-david-chronister/>
(color pic from <http://tinypic.com/view.php>)



<http://www.filmciler.com/different-shades-of-purple/different-shades-of-purple-simple-decoration-18-on-home-gallery-design-ideas/>



<https://www.pinterest.com/pin/365495325984048413/>



<https://s-media-cache-ak0.pinimg.com/736x/c4/04/bc/c404bc33a5a045cec1699a432885fb06.jpg>

Try it yourself – you will find lots more.

So, you can see that purple and violet are pictured quite differently in the sites above. It is generally safe to say that they all show a purple color that seems to have more red in it than the violet colors. But in some it is darker and others lighter.

Back to Bromeliads, and *Bromelias*. If each of the folks who did the charts above were asked to describe the color of a *Bromelia* petal, they would likely give a different answer. And so would you if you were looking at the particular chart. Now I am starting to feel pretty good about my lack of color knowledge. While lots of folks think they know their colors, they seem to disagree with other folks. Even those bold enough to post on the web.

You can add more elements of confusion. I don't know much about these topics, but have read that cameras often can't capture certain colors particularly well. And we all know that bright or dull light will provide a different color. And you might not know that computer images also are somewhat limited by the type of colors they can convey. Those that print this article out might find that their printer shows each shade a bit differently than the computer screen. I suspect printers by different manufacturers might show slightly different shades as well.

This led me to wonder if there is an official color chart. From what I found, rather quickly, there isn't. Wikipedia suggests that there are all sorts of charts used for various purposes, many created by various manufacturers of paint or other similar products. There is something called IT8 which is "a set of American National Standards Institute (ANSI) standards for color communications and control specifications." I am not sure I quite follow, but it appears there are different standard for different technologies like diecutting systems, scanners and film dyes. I also remembered that *Tillandsia* II by Paul Isley's III had some information about color. On p 273, you can find a great a Horticultural Color Guide.

Since we are all so dependent on the computer, one site has what it calls HTML color names. It asserts that all "all modern browsers support the following 140 color names".

http://www.w3schools.com/html/html_colornames.asp Using this set of colors, I would still say the petals of the plants labelled *B balansae* at the HBG are red, not violet or purple. Since this set of colors is easily found on the web, I will try to use them as my standard in the future.

And for those ladies and gents who really like different color terms and random tidbits of information, the HTML colors seems to show fuchsia as identical to magenta, both having the #FF00FF code.

Returning to the *Bromalia tocaninense* article, I wouldn't say that either the picture of *B balansae* or *B antiacantha* showed a purple color, as stated by the chart in that article. To me, both appear a lot more red under all of the above color charts.. Is this simply a case of the written description arguably misstating the color? In fact, it is more confusing than I first realized. If you look at my earlier article on *Bromelia*, you will see that *B balansae* is described as having a dark violet petal, just like the chart in the *tocantinense* article says. Yet the picture of *B balansae* in the *Bromalia tocaninense* article is much like the HBG plant in my article, which I describe as "red, not blue or violet." I am not sure what to make of this.

This color problem wasn't really relevant for most early botanical descriptions. I have heard that the color of the flower is not particularly important for determining many species. Frankly, I am not sure this is true – I have never seen any study addressing the correlation between flower color and species. Like many plant features, some species have more than one flower color and others have only one. In some genera, the species have very similar flowers, while other genera have more variable ones. What is true is that plants were often described based on dried flowers which simply don't show the original color. As a result, the descriptions often don't say anything about the color of the sepals or petals.

Similar problems can exist with other aspects of a description. If you go back to the beginning of this article where I quote the petal colors of the four *Bromelias*, you will see that *B. tocanthinense* is the only one that seems to have white margins. But when you look at the pictures, all four species have white margined petals. In this sense, the descriptions seem a bit inaccurate.

While not sure, I suspect this is because most authors describe other plants from the botanical description for that plant. Thus, if someone describes a new *Bromelia* X as having fuschia colored petals, it is likely that future articles will state it has fuschia petals even if they in fact are fuschia with white margins. So, when you see a chart comparing different species, it is possible that each was described by a different person. That person may omit something or emphasize something that a different botanist ignores. As a result, it is sometimes difficult to compare different descriptions since they were prepared by different people.

These problems in descriptions can make it very difficult to determine what species a given plant really is. Is the flower of *B. balansae* red, violet or purple? Or is it variable, either among different clones, or stages in development?. Is the shape of the inflorescence or various flower part similarly variable? Sadly, I have no answers, only questions!

For all you who have made it to the end, I figured you deserve some modest reward, so here are some pictures of *Bromelias*. From the latest Bromeliad Journal here is *B. tocanthinense*. J Brom Soc 65(1) at 60, 2015.



Figure 3. A flowering specimen of *Bromelia tocanthinense* at the type locality with a dense inflorescence. Photo by Eddie Esteves Pereira.



Here are two pictures of *B antiacantha*. Are they both really that species – can it have differently colored flowers? Or do they change over time?

from Bromeliads of Brazil



The same issues seem to apply regarding the following two pictures of *B goyazensis*. *The first by an unknown photographer, the second by Monteiro. Is one mislabelled or can the flowers vary that much?*



Hope these clear up any confusion you might have about *Bromelias*, or colors.