



S.F.V.B.S.

SAN FERNANDO VALLEY BROMELIAD SOCIETY

NOVEMBER 2019

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

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Elected OFFICERS & Volunteers

Pres: **Bryan Chan** V.P.: **Joyce Schumann** Sec: **Leni Koska** Treas: **Mary Chan** Membership: **Steffanie Delgado**
Advisors/Directors: **Steve Ball, Richard Kaz -fp, & Carole Scott-fp,** Sunshine Chair: **Georgia Roiz** Refreshments: **vacant**
Web & Editor: **Mike Wisnev** Snail Mail: **Nancy P-Hapke** Instagram & Twitter & Face Book: **Felipe Delgado**

next meeting: Saturday November 2, 2019 @ 10:00 am

Sepulveda Garden Center 16633 Magnolia Blvd. Encino, California 91436

AGENDA

9:30 – SET UP & SOCIALIZE

10:00 - Door Prize drawing – one member who arrives before 10:00 gets a Bromeliad

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

10:15 –Speaker – Jeff Chemnick - Botanizing for Bromeliads in Southern Mexico

Sit back, relax, and enjoy a tour through Oaxaca and Chiapas in search of tillandsias and other bromeliads. Jeff, along with Pam Koide-Hyatt, has led several tours focusing on the bromeliaceae of southern Mexico. His presentation will show highlights from those trips.



Jeff is an authority on Mexican cycads and is a research associate at Ganna Walska Lotusland. He has published numerous articles and has described several new cycad species. He is owner and

operator of Aloes-in-Wonderland, a specialty nursery in Santa Barbara where he has an amazing four acre garden full of cycads, agaves, aloes, bromeliads and other plants of distinction. In addition to his nursery and field research he leads botanical and ornithological ecotours throughout Mexico with focus on the states of Oaxaca and Chiapas. Most recently, he has led tours on behalf of the Bromeliad Society International and the Cactus and Succulent Society of America. Jeff is a member of the IUCN's Cycad Specialist Group which determines the status of endangered species.

11:15 - Refreshment Break and Show and Tell: Will the following members please provide refreshments this month: **W Y X Z A B and C** 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 - Show and Tell is our educational part of the meeting – Members are encouraged to please **bring one or more plants.**

11:45 – Mini Auction: members can donate plants for auction, or can get 75% of proceeds.

12:00 – Raffle: Please bring plants to donate and/or buy tickets.

12:15 - Pick Up around your area

12:30 –/ Meeting is over—Drive safely <>

Announcements

Starting for 2020, annual dues are now \$15 (\$20 if you receive the Newsletter by snail mail instead of email). You can pay this month at the meeting or at future meetings.

Update on fieldtrip to Colleen Baida’s home – see page 14

Please pay your 2020 Membership Dues

NEED TO RENEW ?.....

Pay at the meetings to: Membership Chair –Steffanie Delgado or Treasurer - Mary Chan or

Mail to: SFVBS membership, P.O. Box 16561 - Encino, CA 91416-6561

Yearly Membership Dues - \$15 for monthly e-mail newsletters or \$20 for snail mail

Please Put These Dates on Your Calendar

Here is our 2019-2020 Calendar. Rarely does our schedule change..... however, please review our website and email notices before making your plans for these dates. Your attendance is important to us

Saturday November 2	Jeff Chemnick
Saturday December 7	Holiday Party
Saturday January 4	STBA
Saturday February 1	Kathleen Misko
Saturday March 7	Nels Christianson
Saturday April 4	STBA

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 **Joyce Schumann** at 818-416-5585 or ropojo@pacbell.net

Literary Letters from the Library November, 2019

If you are not a member of Bromeliad Society International (BSI), you still have a chance to see the latest Journal which is Volume 68 (3) 129-192, July-September 2018 and will be added to our Library at the November 2 meeting.

Also, if you didn’t have a chance to attend the World Bromeliad Conference 2018 in San Diego or the Bromeliad Society of New Zealand’s Annual Fiesta Show and Sale, you can catch up on the goings on with both events being given lots of coverage in this issue.

Also included is the description of a new species of Racinaea from Ecuador and a conversation on the diversity of Tillandsia fasciculata of Florida. You **must** read about these two fascinating plants. And if that is not enough to get you to check out this issue, the article titled “Notes on the Androlepis Alliance, a lineage of Bromelioideae (Bromeliaceae) with high morphological diversity” will provide you with much to think about.

See you soon, **Joyce the Librarian**

*This section is open for any
Member-contributions of photos or articles....*



Vriesea philippo-coburgi (in a one gallon pot!)

surrounded by assorted *Tillandsia*.

Photo submitted by Mike Wisnev

Taxonomic Tidbits: *Canistrum*, *Wittrockia* *Fdmundoa* and more – Part 7 (*Eduandrea*; studies of various morphological features)

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

San Fernando Valley Bromeliad Society Newsletter –November 2019

Earlier in 2018-9, the six Newsletters covered the Nidularioid complex which includes *Canistropsis*. In 1998, Leme wrote a book on *Canistropsis* – Bromeliads of the Atlantic Forest (“*Canistropsis* Book”), and he elevated those plants to generic status. All 12 *Canistropsis* species listed in this book were described in the penultimate draft of the January 2019 Newsletter. I was curious if the number of species had grown since 1998, and was surprised to find that now there are only 11 species.

Eduandrea. The last species is now *Eduandrea selloana*. It is an unusual bromeliad found in Minas Gerais, Brazil, with a convoluted history described in this Newsletter. The plant has long virtually spineless leaves, and looks much like a *Pitcairnia*. It is particularly unusual in that the bottom side of the leaves are “very densely cinereous-lepidote” while the top side is not.

Leme and Brown indicated the species was threatened with extinction. A later field study found another location with about 400 plants. *Eduandrea selloana*: Field Notes on a New Area of Occurrence by Elidio Armando Exposto Guarçoni & Cláudio Coelho de Paula. JBS 58(2): 65-70. 2008.

The species was first described in 1889 as a *Quesnelia* by Baker. Mez soon moved the species into a new genus he called *Andrea* that he considered similar to *Orthophytum* and *Nidularium*. His 1896 key had it next to *Orthophytum*, distinguishing it based on its generally spineless and grass-like leaves, as well as a different form of pollen.

Smith & Downs considered *Andrea* closer to *Bromelia*, although in his key it is also next to *Orthophytum*. Its features listed in the S&D key include a dense compound inflorescence in a flat spike or raceme, with sessile flowers and a well-developed scape. This group includes other genera in the Nidularioid complex, although *Andrea* has leaf-like scape bracts while the others don’t.

The species remained *Andrea* until 1986 when Pereira and Leme moved it to *Nidularium* subg. *Canistropsis* and expanded that subgenus to include species with more developed inflorescences. In 1998, Leme elevated this subgenus to a genus, and it became *Canistropsis selloana*. Leme stated the leaves of this species look much like a *Pitcairnia*, and they are almost spineless.



Eduandrea selloana see J Brom Soc 58(2): 66. 2008

Photo by Guarçoni & de Paula.

Brown and Leme did a cladistics study of 80 various plant features and concluded that *C. selloana* didn't belong in *Canistropsis*. The re-establishment of *Andrea* (Bromeliaceae: Bromelioideae), a monotypic genus from Southeastern Brazil threatened with extinction by Gregory K. Brown & Elton M. C. Leme in *Taxon* 54(1): 63-70. 2005. While *Canistropsis* have slender stolons, *C. selloana* has thick rhizomes with roots. It also has a different form of pollen, and a scape where the flowers at the base are well separated from those at the top. Finally, it has aromatic fruit that is much larger than the ovary.

As a result, Brown and Leme reinstated the original *Andrea* genus, noting it propagates by underground rhizomes and the undersides of its leaves are very white-lepidote.



Figure 7. The flower of *Eduandrea selloana*:

58(2) JBS 68 (2008). Photo by Guarçoni & de Paula.

So how did the name *Eduandrea* come about? A brief detour is needed. The nomenclature rules generally provide that the first name for a genus has priority over later names. While *Canistropsis* was first used in 1891, it was a *Nidularium* subgenus, not a genus. At the genus level, the 1896 description of *Andrea* predates Leme's use of *Canistropsis* in 1998. So based on the nomenclature rules, the entire *Canistropsis* genus should have been called *Andrea*.

You would think that the transfer of *Andrea selloana* out of *Canistropsis* in 2005 would have solved this problem. You would be right, except for another event in 2005-6. There is another genus in the moss family called *Andreaea*, which was named after J.G.R. Andreae. Two genera can't have the same name, and there is a rule that if the names are too close, the later one can be treated as illegitimate. A request was made to disregard *Andrea* for this reason, and the relevant authorities voted to do so.



Figure 4. Vegetative reproduction showing the sub-erect clone air and clone from the underground rhizome.



Figure 5. The fruit of *Eduandrea selloana* showing the effect of herbivory.

58(2) JBS 68 (2008). Photo by Guarçoni & de Paula.

The problem is that now *Andrea* could not be used for anything since it was considered an illegitimate homonym of *Andreaea*! A new name was needed. The solution was *Eduandrea*. See *Eduandrea*, a new generic name for *Andrea* by Elton M. C. Leme, Walter Till, Gregory K. Brown, Jason R. Grant & Rafael Govaerts, JBS 58(2): 61-4. 2008. Both it and *Andrea* are in honor of the French botanist and horticulturalist Eduard-Francois Andre.

The last tidbit is that the species was named after Friedrich Sello. “Sello, a young German botanist, went to Rio Janeiro in 1814 when he was twenty-five years of age. He collected from Bahia to Sao Paulo until 1820 and from 1820 to 1830 he explored the southern areas to Parana and on into Uruguay for two years, then back into Brazil to Minas Gerais. He was an avid collector and made thousands of herbarium specimens of the Brazilian flora as well as collecting live plants which he sent back to Europe. (He discovered several new species of bromeliads in other genera. Also the now well-known *Philodendron selloum* was one of his many new plant discoveries.)” *Andrea selloana* by Mulford Foster, JBS 8(2):27. Foster found the plant again in 1940.

Based on DNA testing, it appears *Eduandrea* is not part of the Nidularioid complex.

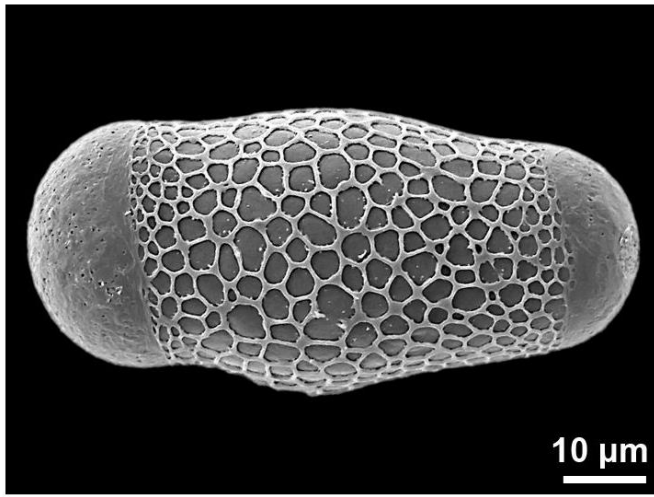
Morphological Studies in the *Canistropsis* Book. Before I bought it, I had wondered how there could be a book on *Canistropsis* since it only has 11 species and isn’t at all popular. In fact, it also discusses, at length, 17 *Neoregelia* species. Finally, it has three chapters written by others on pollen, stigma and leaf anatomy.

Pollen. While Mez considered pollen critical in distinguishing genera, Smith didn’t consider it very often. As noted in recent articles, it is now considered quite important, and many genera and subgenera are distinguished in part by having different pollen. See the Oct. and Nov. 2017 Newsletters for more about pollen.

Heidemarie Hallbritter is perhaps the leading pollen expert, and she has now co-authored a number of bromeliad articles. She and Walter Till, both professors at the University of Vienna, studied the pollen of numerous species in the Nidularioid complex.¹ With a few exceptions (including *Canistrum aurantiacum*), all the species have a reticulate exine (basically the pollen cover) with two pores.

¹ Hallbritter, H. and Till, W., Pollen Morphology of the Nidularioid Complex. *Canistropsis* Book pp 124-131. pp 114–121

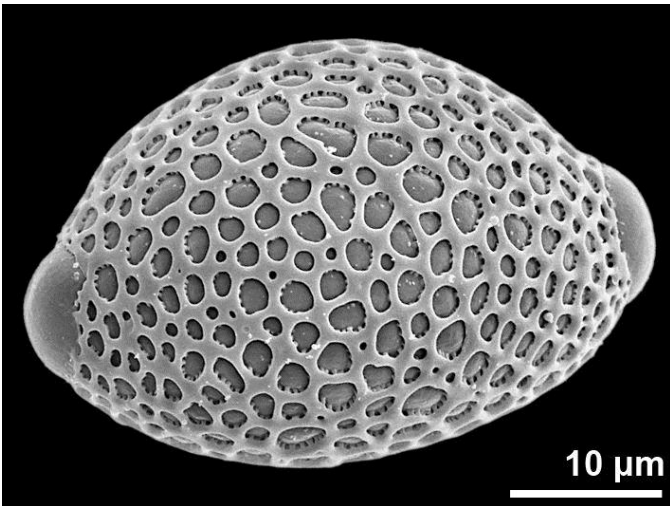
They fell within two basic groups. The first is almost all *Nidularium* (and a Neo). The pollen of almost all *Nidularium* was very similar, though two had pollen like *Canistropsis*.



Nidularium rolfianum, photo by H. Hallbritter. PalDat- a palynological database. www.paldat.org

Nidularium have larger pollen with relatively larger pores and polygonal apertures. You can see the two pores, one on each side, and the reticulate exine in between.

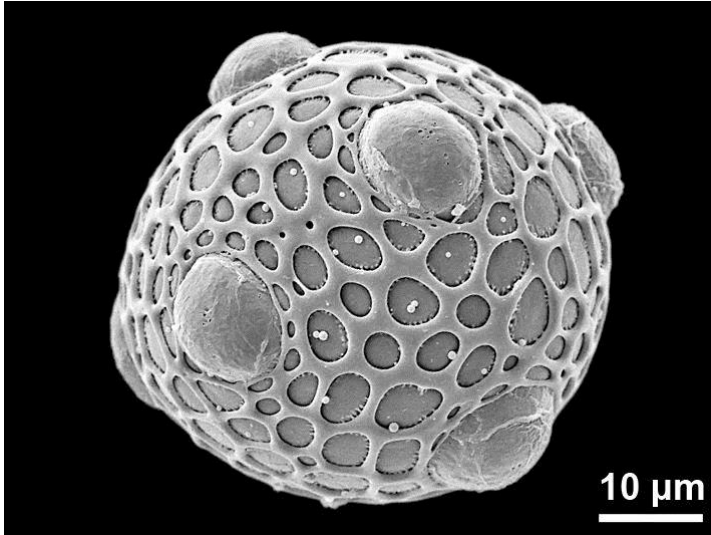
The second group has smaller pollen with relatively smaller pores, and often rounded apertures. This group included the other genera of the complex. There was more variation in this group, and often variation within a genus.



Wittrockia superba. photo by H. Hallbritter. PalDat- a palynological database. www.paldat.org. Like most members of the second group, the pollen is smaller, with relatively smaller pores and with rounded apertures.

Canistropsis species also have similar pollen to each other, except for then *C. selloana*, now *Eduandrea*. *Wittrockia* species vary from each other, and *Canistrum* species are even more heterogenous – *C. aurianticum* was the

only species with more than two pores. *Edmundoa lindenbergii* is quite different from all of them since it does not have a reticulate surface. The other two *Edmundoa* species do.



Canistrum aurantiacum, photo by H. Hallbritter. PalDat- a palynological database. www.paldat.org. This species was the only one in the study with more than two pores. The PalDat website showed that both *C alagoanum* and *pickellii* also fall into this group. (Other DNA studies suggest these three species probably will become part of a resurrected *Gravisia* genus.)

Stigma. In the 1980's, Gregory K. Brown and Amy Jean Gilmartin wrote two articles about stigma types; they studied over 400 bromeliad species. See the May and June 2015 Newsletters for more. They also are now often used to distinguish genera. In fact, they are perhaps most important features to distinguish genera of the Tillandsioideae subfamily.

Gunter Gortan and Walter Till studied the stigma types of many Nidularioid complex species.² What surprised me the most was the correlation between pollen and stigma type for subfamily Bromelioideae: some genera have sulcate pollen and non-twisted stigma, while others have porate pollen with conduplicate-spiral stigma.

As just noted, the *Nidularioid* members have porate pollen, so they have conduplicate-spiral stigma. However, there is some variation within this group. As was the case with pollen, *Nidularium* have very similar stigma,

² Gortan, G. and W. H. Till (1998). Stigma morphology of *Nidularium* and related genera. *Canistropsis* Book pp 124-131.

except for the same two that had unusual pollen. *Canistropsis* species fell into two groups. *Wittrockia* species were also variable somewhat.

Here is an example of a conduplicate-spiral stigma from my *Portea* 'Pink'-



The stigma is small pyramid shaped structure in the middle that is white with purple swirls. The three lobes are actually wrapped around each other lengthwise (this is what conduplicate means) in a spiral so they look sort of like a spinning top.

Leaf anatomy. Leaves have a variety of types of cells and internal structures. A sample illustration is shown below. Leaf anatomy is sometimes studied to see how they differ among taxa. These differences are quite technical; for our purposes, the nature of the differences are ignored.

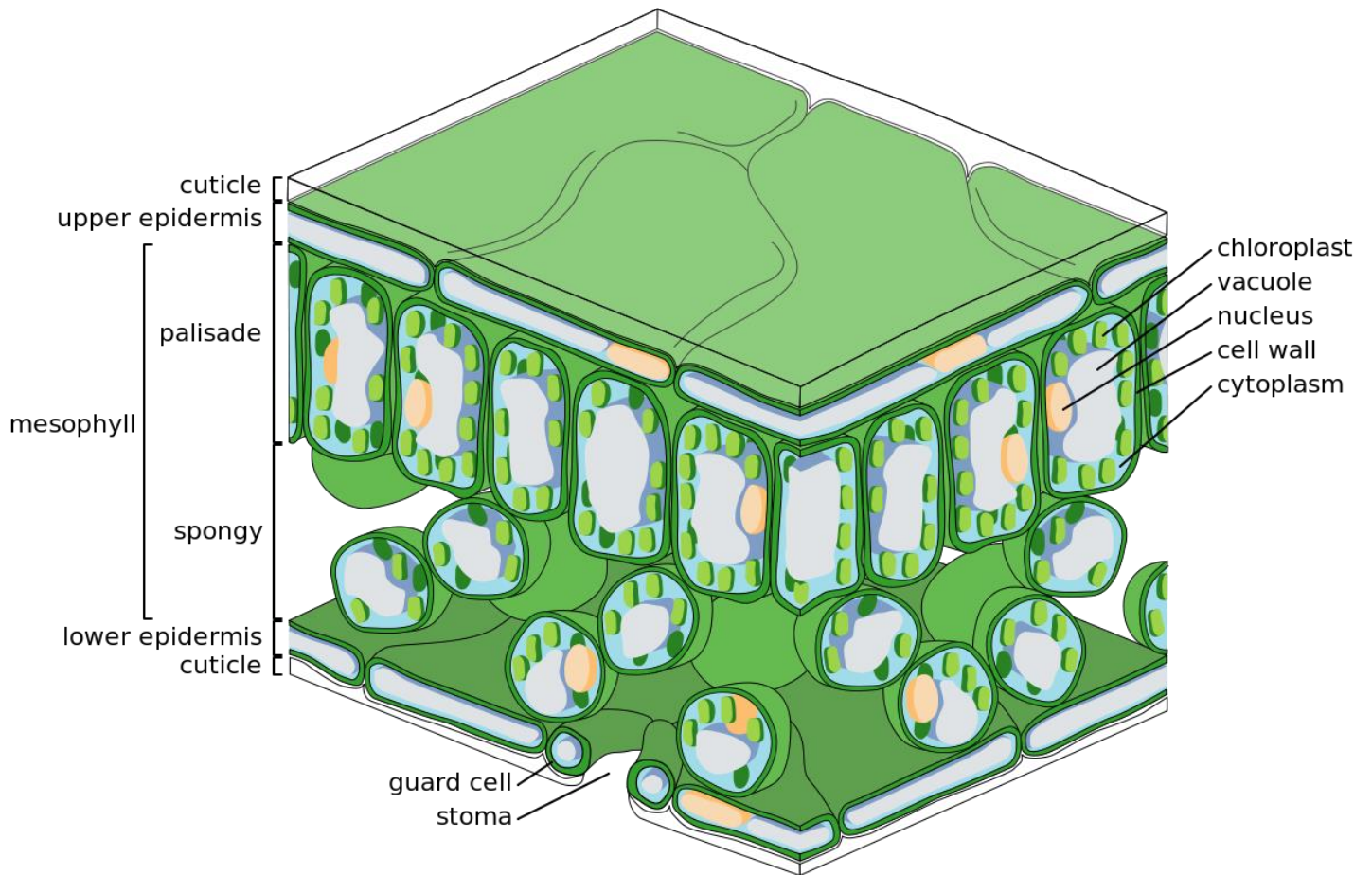
In the *Canistropsis* Book, three researchers studied the leaf anatomy of various species in the Nidularioid complex and 6 *Aechmea* with similar

features.³ They found these fell into 6 groups. Of course, it would have been great if each group corresponded with a single different genus. However, this was only true for one group - it had all the *Canistropsis* and nothing else.

A second group had all Neos, but Neos showed up in 3 other groups. All the *Aechmea* and *Canistrum* were in a third group with some Neos. *Nidularium* formed the bulk of two groups, but one had two *Wittrockia* and the other had an *Edmundoa* and two Neos. The last one was a mix of Neos, *Wittrockia* and *Edmundoa*.

Illustration of Leaf Anatomy. By Zephyris - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=15005439>

³Sajo, M. G.; S. R. Machado & S. M. Carmello-Guerreiro. 1998. Aspectos estruturais de folhas de bromélia e suas implicações no agrupamento de espécies. *Canistropsis* Book, pp. 102–111.



2018 Study. A recent 2018 study was designed “to find possible morphoanatomical synapomorphies of the Nidularioid complex and its subclades, allowing new perspectives for studies of the phylogenetic relationships within this group.”⁴ It sampled 11 species in the Nidularioid complex (and four species that weren’t) and used four different DNA markers for a phylogenetic analysis, then examined 90 morphological

⁴ De Oliveira F.M.C, R. Louzada, M. Wanderley and G. Melo-de-Pinna Morphoanatomical characters in the Nidularioid Complex (Bromeliaceae: Bromelioideae) from a phylogenetic perspective . *Flora* 239 (2018) 111-121.

features and chose 20 for further study. Most of these related to technical cellular features of the leaf blade and leaf sheath, in addition to a few traditional features like whether the inflorescence is simple or compound, the flowers are sessile or not, and the existence of petal appendages.

The study concluded as follows:

“We viewed the results of the present study through the lens of ancestral state reconstruction and concluded that the morphological characters typically used for genera delimitation in Bromelioideae, such as inflorescence type, presence of pedicellate flowers, presence of petal appendices, and presence of longitudinal callouses in the petal, are homoplastic and should be avoided in the circumscription of the genera from the Nidularioid complex.” Id at 120.

One common feature of all the species related to the trichomes on the leaves. The bromeliad family on the whole has leaves with trichomes while other families don't, or have different kinds. These trichomes are different for bromeliad subfamilies. As to this complex, the members all have elongated wing cells, while *Aechmea* and *Quesnelia* had rounded ones.

October 26 Field Trip

Neither wind nor fire will stop the few hearty souls who want to go on a field trip.

We arrived at Colleen Baida's home to find her doing - what else - watering her plants. We quickly got into conversations about how she started her collection, how she cares for it and why she is downsizing. Her future plans include an out-of-state move and some plants refuse to go with her! We enjoyed her conversation as much as checking out her artistic mounting of Tillandsias. Colleen shared the history of some plants, how she protected the Bromeliads with PVC pipe and shade cloth and a generous treat of cookies and fresh fruit. (We travel on our stomachs, you know.) All who attended appreciated Colleen's enthusiasm and joy for her plants.

Colleen wants to remind everyone, she still has plants for sale. If you are interested in visiting Colleen, feel free to give her a call or email to make arrangements to visit her.

FYI We are planning on scheduling another field trip sometime next year, maybe during the week rather than the weekend. Stay tuned.....

See you soon.

Joyce
