

BROMELIAD SOCIETY OF SAN FRANCISCO



March 2008

NEWSLETTER

Our next meeting will be held on **Thursday, March 20, 2008** at 7:30 PM
Recreation Room, San Francisco County Fair Building, 9th Avenue at Lincoln Way, Golden Gate Park,
San Francisco

March Program

Bromeliads at Haalei Nursery in Makawao, Hawaii

There are no bromeliads native to Hawaii but if you visit many of the nurseries, you would not know that. The climate in Hawaii is conducive to producing spectacular plants. Some of our members have seen slides shows of Dennis Heckart's beautiful plant collection since he has moved to Hawaii. This month **Wes Schilling** will show us another aspect of bromeliads in Hawaii – at the Haalei Nursery that he has visited. If you want to see some beautiful plants, come to this month's meeting.

March Refreshments

Marilyn Moyer and **Peder Samuelson** will provide our refreshments this month.



Vriesea 'Hawaiian Sunrise' photo by P Waters

Here is *Vriesea* Hawaiian Sunrise – an example of the type of hybrids that are being produced in Hawaii. This photo is taken by Peter Waters and is courtesy of the Florida Council of Bromeliad Societies.

February Meeting

Last month **Roger Lane** provided an overview of the *Billbergia* genus with a slide show on many of the species, some of the early hybrids, and the current hybrids that are so much more colorful. Our Show-and-Tell Table was overflowing with a great variety of beautiful bromeliads. Our plant raffle table was also huge so Roger had to speed up the presentation of the slides to leave before the building lockup. Thanks to everyone who brought raffle and Show-and-Tell plants.

Results of Molecular Studies on the Origin of Bromeliads

This article is extracted from the write-up by Herb Plever on the 2004 World Bromeliad Conference in Chicago. It was printed in the October 2004 *BROMELIANA*, newsletter of the New York Bromeliad Society.

At the 16th World Bromeliad Conference in Chicago in 2004 Harry Luther arranged a full day of five fascinating scientific seminars. This article is a summary of one of these seminars. Professor Thomas Givnish (Wisconsin) presented the results of his molecular (DNA) studies on the origin, adaptive distribution and geographic diversification of bromeliads.

Dr. Givnish's DNA findings based on studies of 300 species with Dr. David Benzig (the largest number studied to date) warrant a brief summary here. These showed the evolution of eight major subfamilies beginning about 70 million years ago with the most primitive, terrestrial *Brocchinias* growing at low elevations on the sandstone mesas of the ancient Guyana Shield. Climatic changes on the Guyana Shield over eons resulted in reduced photosynthesis and marked nutrition deficits for the *Brocchinias*. Those plants which survived did so by evolving mechanisms to break down and absorb protein from trapped insects and dead ants and they became carnivorous. This unparalleled adaptive facility in the early bromeliads was passed on to succeeding subfamilies. Profound changes to dry climates

and in geography (the Andes uplifted and the Amazon River changed its course) over the eons provoked major adaptations such as epiphytism (which occurred at five different times), CAM photosynthesis, development of central tank reservoirs, and trichome leaf anatomy.

These adaptations evidently occurred at the genetic level and perhaps they explain the remarkable ability of bromeliads from the low tropics, high mountain cloud forests and arid xerophytic areas all to adapt to the same indoor life. The DNA clues of the subfamilies and species are plotted on a tall column with the most primitive at the base. They reasonably conform to the morphology (structural characters) that taxonomists used to identify subfamilies, genera and species; they also confirm the mess in the genus *Aechmea* and the need to redefine species of *Tillandsia* and *Vriesea*.



Brocchinia acuminata photo by M Asmuss
near Las Golondrinas, Gran Sabana

This is *Brocchinia acuminata*, one of the primitive bromeliads found in the Guyana Shield. This plant is found in Columbia, Guyana, and Venezuela. The photo is taken by Matthias Asmuss and is courtesy of the Florida Council of Bromeliad Societies.

Top Eleven Signs You Might Be Losing Control With Your Bromeliads on the Origin of Bromeliads

This article is by Paul Wingert and is being reprinted from the November 2004 "The BSGC News", newsletter of the Bromeliad Society of Greater Chicago.

1. You can't see clearly from one end of the greenhouse to the other.
2. You ship an empty suitcase on trips to Florida in preparation of shopping trips to Bromeliad nurseries.
3. You feel compelled to have at least one representative species of each of the 55 Bromeliad genera. Or is it 56? Just to be sure, must get one species from each sub-genus.
4. You grow several hundred bromeliads from seed each year, with the full realization that you can only keep a precious few for the long term.
5. Since they won't take their own pollen, must have at least 2 different clones of *Aechmea chantinii* in order to have the possibility of producing your own seed.
6. It takes two full days of searching to find a large, spectacularly variegated *Neoregelia* in your collection. By the way, you have two of them and can't find either one.
7. At the end of the society Bromeliad Show, people laugh at you as you contemplate how plants covering seven long banquet tables will be packed into a minivan. Ultimately, 39 flats do fit, filling every nook and cranny. (Unfortunately, no photographic record of this feat exists!)
8. It takes 4 days each spring to move the plants from the greenhouse to the shade house.
9. Your summer growing space (Shade house) is more than twice as large as the winter growing space (Greenhouse). This does present a dilemma in the fall when early frost threatens. *See item 7: Cramming plants into a minivan.*
10. It takes 5 days to return plants to the Greenhouse in the fall. Still, just 4 days to

move them plus an extra day to sort out what won't fit.

11. You have more photos of your Bromeliads than you have of your own children.

They Don't Always Follow Our Rules

This article by Herb Plever is reprinted from the March 1993 BROMELIANA, newsletter of the New York Bromeliad Society.

When growing our plants we like to be "horticulturally correct" and there is a large body of bromel lore about the "right" cultural needs of different genera and species. This lore has developed from deductions made after observations of the plants in their native habitats as well as from the experiences of individual growers.

However, some plant delinquents just refuse to respect the rules we try to make for them. Here are a few instances where experience with one plant or genus contradicts the cultural generalization.

FERTILIZING TILLANDSIAS – Tillandsias are generally considered to be nutrition-starved in nature, and growers have assumed that in cultivation they need minimal or no fertilizer. But our trial and error testing over the past few years shows that Tillandsias do best when given lots of fertilizer. I soak my Tillandsias in the bathtub for 45 to 60 minutes every 7 to 14 days and add 6 Tbsp. of Epsom salts (magnesium sulfate) to the water. The overflow drain is only 9 ½ inches high and the bathtub holds about 35 gallons of water. The Tillandsias grow like weeds and they flower and multiple-pup quicker than ever before, without a sign of leaf burn or discoloration. I plan to increase the fertilizer to 8 Tbsp. in the spring and slowly increase that strength until I see signs of fertilizer damage.

FERTILIZING POTTED PLANTS – Growers have always been advised to go light on fertilizer because of the fear that too strong a concentration might burn the center cup or might wash out leaf markings. Over the past 2 years I have fertilized

my plants every 10 to 14 days with the same 20-10-20 at a strength of ¾ tsp. to 2 quarts water and 1/8 tsp. Epsom salts. I fertilize even in the winter, although less often, usually every 2 ½ to 3 weeks.

The plants are now all wick-watered. Except on Neoregelias, Cryptanthus, and Dyckias the fertilizer is poured directly into the cups and is allowed to remain about 40 minutes. I then fill the plant with fresh water to flush out the fertilizer, as it appears the plants absorb nutrients for only about 25 minutes. I don't fertilize Neos and I foliar feed the Crypts and Dyckias. I also use slow-release pellets in the mix of these three genera and some individual Aechmeas and Vrieseas.

I have never had such strong growth and quick blooming as I have had the last year. The high strength fertilizer regimen seems to have been particularly effective in producing multi-branched inflorescences in Vrieseas such as *V. Asahi*, *V. Charlotte*, *V. Christine*, and *V. Poelmannii* which used to put up only single or a few spikes.

TANK VRIESEAS – Bromel lore has it that Vrieseas such as *V. fenestralis*, *V. hieroglyphica*, *V. gigantea*, and *V. fosteriana* need to be grown dry. Their leaf axils hold an enormous amount of water and the water in the lower axils tends to grow stale and foul and to host algae, fungus, molds, and slimes. The implication is that we should not keep water in the leaf axils. Bromel lore further holds that these plants do not like to have their feet kept wet and prefer a drier mix.

However, I have been growing these plants wick-watered in bright light. Because I flush out the fertilizer I apply every 10 to 14 days, the leaf axils have lots of fresh water. These plants with constantly moist feet have been growing splendidly.

ORTHOPHYTUM NAVIOIDES –In the December 1991 issue of Bromeliana we reprinted an article from the Houston Society Bulletin by Toy Novak extolling the virtues of *Orthophytum navioides*. Indeed, it is a very attractive plant which turns rosy-red when it sends up fragrant white flowers. Tony indicated that this native of Bahia, Brazil grows on rocks and while “slightly more tender than other family members, it requires bright light

as a prime culture factor.” He quoted Dr. Werner Rauh's description of it as extremely xerophytic (meaning very dry in moisture needs) and opined that it “is an adaptable plant for home growing needs...”



Orthophytum navioides
15th World Bromeliad Conference, St. Petersburg, Florida, May 13 - 19, 2002

Shown by
Michael Kiehl

This magnificent and desirable *Orthophytum navioides* is grown by Michael Kiehl. The photo is by Michael Andreas and is courtesy of the Florida Council of Bromeliad Societies.

At the foot of that article I noted that contrary to that rosy expectation, we in New York had great difficulty in keeping *O. navioides* alive. Our plants kept drying back from the tips with brittle brown leaves until they succumbed despite bright light and adequate humidity. I stated: “I am beginning to suspect that the plant's xerophytic reputation is an oversimplification” and indicated the need to find more plants to test to clear up the mystery.

O. navioides is not readily available, but last spring I got one from Carol Johnson of Pineapple Place. At her suggestion, it was shipped in a pot, had flowered and was showing a tiny basal pup. Carol recommended not removing the pup and allow it to grow on attached to the parent.

I potted the plant in my regular friable bromel mix with a nylon wick and placed it on a wick tray in an unobstructed east window which receives 2-3 hours of morning sun. I am pleased to report that this *O. navioides* has evidently lost its xerophytic memory and has been happily growing in an evenly moist, wick-watered medium. There are now 3 strong pups growing basally attached to the parent. I cut the parent's leaves almost back to the center to give maximum

light to the pups. I fertilize these offsets with a foliar spray of my regular strength fertilizer.

NIDULARIUMS – This genus has a reputation of only tolerating low to moderate light levels, although it is a member of sub-family Bromeliaceae and all of its species have leaves with spines. Indeed, *Nidularium innocentii* v. *lineatum*, one of my favorite bromeliads, seems to grow best and develop the strongest white lines under Vita Lite fluorescent tubes. (My light setup certainly provides moderate light or better, since it has 6 tubes with silver Mylar reflectors.)

However, at least 3 species contradict the low light generalization: *N. fulgens*, *N. rutilans* and *N. billbergioides*. Grown under low or even moderate light *N. fulgens* develops dark green long arched-over leaves and it is difficult to see its leaf spotting. However, when it is grown in a full sun, unobstructed south window this plant grows compactly with stiff, broad yellow-green leaves which are covered with brown and dark green splotches. To a lesser extent, the same can be said of *N. rutilans*.

For a number of years we have purchased *N. billbergioides* in bloom with a yellow inflorescence. (The plant was called *var. citrinum*, but that varietal name is no longer recognized.) Most of us have had a lot of difficulty in establishing pups from these plants. The purchased plants had all been forced to bloom and usually were not fully mature or strong.

I finally managed to establish a pup of *N. billbergioides* on a capillary mat set back from an east window, shaded by plants in front of it. Its leaves were narrow and dark green. Then I came across a brochure from the Bak Nursery in Holland which has been exporting the plant. The brochure contained simplified cultural information about pot size, maximum light requirements, etc. and I was surprised to see that Bak recommended the plant be grown in strong light.

I promptly moved my *N. billbergioides* to a wick tray in a south window and it has responded with vigorous growth. *N. fulgens* and *N. rutilans* have prominent spines whereas *N. billbergioides*'

leaves are inconspicuously serrate. Nonetheless, the plant likes strong light despite its reputation to the contrary.

Complete BSI Journal Set

There is a COMPLETE set of BSI Journals available for sale. The journals go back to the initial publication in 1952 and continue up to the present time. The price is \$700 for the set. If you are interested please contact:

Camille Horak
(619) 469-9629

Kerlinger Bromeliad Collection

Herb and **Eleanor Kerlinger** were members of our society for many years. Their collection has been donated to the Berkeley Botanical Garden and is in fantastic shape. The bulk of the plants are tillandsias. However, there is no one at the Berkeley Botanical Garden that knows how to care for bromeliads. Our society has been contacted for help in preserving this collection. There are two options that have been proposed:

- Volunteer to look after the plants on a periodic basis – hopefully, weekly
- Train someone at Berkeley Botanical Garden to take care of the plants.

If you can help in any way, contact **Roger Lane** who will put you in touch with the right people.

BROMELIAD SOCIETY OF SAN FRANCISCO (BSSF)

The BSSF is a non-profit educational organization promoting the study and cultivation of bromeliads. The BSSF meets monthly on the 3rd Thursday at 7:30 PM in the Recreation room of the San Francisco County Fair Building, 9th Avenue at Lincoln Way, Golden Gate Park, San Francisco. Meetings feature educational lectures and displays of plants. Go to the affiliate section of the BSI webpage for information about our meetings.

The BSSF publishes a monthly newsletter that comes with the membership. Annual dues are single (\$15), dual (\$20). To join the BSSF, mail your name(s), address, telephone number, e-mail address, and check made payable to the BSSF to:

Harold Charns, BSSF Treasurer, 255 States Street, San Francisco, CA 94114-1405.

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BROMELIAD SOCIETY INTERNATIONAL

The Journal is published bimonthly at Orlando, Florida by the Bromeliad Society International. Subscription price (in U.S. \$) is included in the 12-month membership dues: single (\$28.), dual (2 members at one address receiving one Journal -\$30). Address all membership and subscription correspondence to: Membership Secretary, Dan Kinard, 6901 Kellyn Lane, Vista, CA 92084, USA, membership@bsi.org

BROMELIAD SOCIETY
OF
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This is your last newsletter if you have not paid your 2008 dues!
