

BROMELIAD SOCIETY OF

SAN FRANCISCO

JUNE 2016



Meeting Specifics

When: Thursday, May 16

Time: 07:30 PM

Recreation Room

Where: San Francisco County Fair

Building

9th Avenue at Lincoln Way

San Francisco

Exploring Northwest Argentina with Nels Christianson

This month's presentation by **Nels Christianson** is an overview of a 2012 two-week trip Nels took to northwestern Argentina (led by Guillermo Rivera). His presentation will include pictures of tillandsias, puyas, deuterocohnias, dyckias, and several genera of cacti.

Nels is a native of Merced, California and was educated at UC Santa Barbara, Georgetown University, UCLA and the Federal University of Minas Gerais where he studied Brazilian literature through a Rotary Foundation scholarship. He retired in 2014 after a 37-year career in hospital administration and international relations at the Ronald Reagan UCLA Medical Center. Nels is a board member of the Cactus and Succulent Society of America (CSSA), a published poet and a board member of California Poets in the Schools. Nels has been a member of the CSSA and of the Sunset Succulent Society since 1984. He is a potter, the president of the Westchester Begonia Society, a member of the Culver City Gesneriad Society, Bromeliad Society international, La Ballona Valley Bromeliad Society and San Fernando Valley Bromeliad Society. He is a weekly volunteer at the Desert Collections at the Huntington Botanical Gardens. Nels is especially interested in tillandsias and terrestrial bromeliads and has been hybridizing Dyckias for ten years.



No one signed up for refreshments this month, but our members always come up with delicious goodies. Thanks in advance.



May Meeting

Gregg DeChirico's talk covered Ecuadorian flora in terms of the vegetative Eco zones

Gregg DeChirico, visiting us from Santa Barbara, gave us a talk on bromeliads that he saw on two trips he had taken with Guillermo Rivera to Ecuador. His show was organized in terms of the plants found in the various eco-zones in Ecuador that range from the Amazon basin to cloud forest, and near desert. Gregg told us that Ecuador has more plant diversity than any country

in the world. In fact, Ecuador has 10% of all the planet's plant species. In addition to the plants, Gregg showed us photos of the fauna that he saw. On a visit to a public garden in Guayaquil, he showed us a Peccary (pig like animal) being petted by Guillermo Rivera (guide on one of his visits to Ecuador). Elsewhere on a trip, Gregg saw the spectacled bear or Andean

Bear.

During one of his trips, Gregg stayed at a resort for bird watchers and he saw many birds including trogons, hummingbirds, and toucans.

As for bromeliads, many of the bromeliads that we have in our collections are found in Ecuador.

Tillandsia biflora is quite variable in Ecuador and difficult to grow in cultivation

Among these are *Tillandsia tectorum*, *T. cyanea*, *T. lindenii*, large monocarpic tillandsias, small puyas at the higher elevations, and many different kinds of pitcairnia.

Gregg's slide show was organized to include

several photos on a single slide, so we were able to see many plants, birds, animals or people all at once.

Gregg's show was comprehensive and longer than some of our shows so we missed our plant raffle, but no one complained because it was such a great presentation.



JUNE BROMELIAD SALE

Our combined plant sale with the San Francisco Succulent and Cactus Society (SFSCS) will be on **June 11th and 12th** this year at the County Fair Building. Setup will be on **Friday, June 10th** from 3 PM to 8 PM. We must be out of the building at 8 PM on Friday evening.

Sale schedule is Saturday (9am to 5 pm) and Sunday (9 am to 4:30 pm). Cleanup is 4:30 pm to 6:30 pm.

One of the conditions of selling your plants is helping out at the sale for a minimum of 4 hours during Saturday or Sunday. We need to help the SFSCS in various areas as well as working on our own sales.

This is our main annual event that brings in money to support the society. Start setting aside your plants for the sale and save these dates to help on the sale. Since this is such an important event for our society, we really need as much support as you can provide. You can help in three ways:

1. Entering some of your premium plants in our bromeliad display area
2. Selling your own plants
3. Working at the show/sale.

Remember, if you plan to sell your plants, the club will keep 25% of the sales.

The current signup sheet is included as a separate file with your newsletter.



Start saving boxes for the sale!

Tillandsia Culture, Habitats and Metabolism (Part 2)

Most genera in subfamily *Pitcairnioideae* use C3 metabolism. A notable exception is the succulent leaved dyckias, which use CAM metabolism. In subfamily *Tillandsioideae*, species of *Catopsis* and *Vriesea* use C3 metabolism, as you might expect from their green, mostly glabrous leaves. Species of *Guzmania* and *Tillandsia* may use either C3 or CAM depending on the succulence of their leaves and the existence of trichomes, and whether their habitats are mostly moist or dry. All of the *Bromelioideae* are CAM plants. There is a scarcity of written material on the metabolic functions of the different tillandsia species. The laboratory method of determining C3 or CAM is to place the plant in a sealed chamber and measure the amount of CO₂ it absorbs while exposed to daylight and during darkness. A simpler method is to make microscopic examination of the leaf stomata in the light and at night. Neither of these scientific methods is available to us, so I make my judgments with respect to the species based on habitat, examination of the

leaf stomata in the light and at night. Neither of these scientific methods is available to us, so I make my judgments with respect to the species based on habitat, examination of the leaves for succulence and the density of trichome covering and growing experience

We can make valid generalizations about the relationship of a plant's environment and structure to its cultural needs. But because there are important differences in conditions within a grower's environment we must understand that our conclusions are tentative. They are subject to modification after we examine closely each plant's specific growing conditions and test by trial and error. When purchasing plants we should choose those, which are most likely to adapt to the particular microenvironments, which exist within our homes, gardens or greenhouses. Before we decide where to place a tillandsia and whether it is better to mount it or pot it, we should examine the plant's structure and the different aspects of its natural habitat to see how or if we can approximate them. Ask: Are the leaves succulent or soft? Are they covered with trichomes, or are they completely glabrous-green without any trichomes or sparsely covered with trichomes? Is it a high or low altitude plant? Does it grow shaded or in full sun? Can it get by with 50% relative humidity or does it need very high humidity? Does it grow epiphytically and/or saxicolous on rocks? Will it do better mounted or in a pot? Can it take (or does it need) cold nights, or does it like it very hot?

Tillandsia caput-medusae and *T. ionantha* grow in such a broad range of environments that they will do well under most conditions. I separate the other tillandsias we generally grow into a number of loosely distinct cultural groups based on whatever habitat facts I could glean from printed sources and descriptions from reports of collectors - which are woefully lacking in cultural details. I suppose this is because collectors are mostly taxonomy specialists who are concerned with identification. Occasionally we are blessed with a grower collector who actually makes cultural measurements at the collection site. Mulford Foster's reports in the early BSI Bulletins gave general cultural information about the collection sites.

A prime example of this rare event is the report by Bill Soerries of his collection of *Tillandsia wagneriana* (BSI Journal, Vol. 35, No. 1, pg. 8-9) in which he gave readings of foot-candles of light, daytime temperatures, relative humidity and altitude. Wow! If we had such data for most of the tillandsias we buy, it would greatly assist us in our choices and growing results. Absent such details for most plants, the experience of growing (and often killing) these plants for many years permits me to intuit into which cultural group to place them. And strange as it may seem, I use the same method of watering my mounted tillandsias grown indoors whether they are mesophytes or xerophytes - they really adapt!

The cultural groups, species and as much habitat information I could glean for each species are as follows:



Tillandsia caput-medusae



Tillandsia wagneriana



Tillandsia erubescens

DRY GROWING AND SUN LOVING - This broad group includes the atmospheric, epiphytes and saxicoles that are found in dry areas. They have succulent or sub-succulent leaves and indumenta of trichomes and are structurally unable to collect and hold water in a central reservoir or in lateral leaf axils. They are adapted to harvesting moisture through their trichomes when it rains or by absorbing molecules of water from the air. The water is stored in the intercellular spaces in the leaves. They are all CAM metabolism plants, which limits water loss through transpiration and can adapt to good relative humidity provided that their bases are not over-soaked. In the greenhouse they should be hung high and clear of shade. Indoors they can be grown in a south, west or a sunny, unobstructed east window, and they should be soaked in fertilized water for 30 to 60 minutes every 7 to 14 days. After soaking the plants should be turned upside down and shaken to remove water from the leaf axils.

Tillandsias aizoides, andreana, argentina, atroviridipetala, baileyi, cacticola, capitata, chiapensis, circinata, circinnatoides, concolor, crocata, didisticha, duratii, edithae, erubescens, floribunda, gymnobotrya, harrisii, hondurensis, humilis, ignesia, ionantha v. vanhyningii, kammii, karwinskyana, latifolia, loliacea, lorentziana, maureyana, mitlaensis, muhriae, myosura, ortgesiana, paleacea, plumosa, pohliana, pueblensis, peiranoi, purpurea, reclinata, recurvata, reichenbachii, rodrigueziana, socialis, spherocephala, straminea, streptocarpa, tectorum, vernicosa, xiphioides, xerographica, zecheri.

MOIST, SHADE/SEMI-SHADE - The term “shade” must be qualified for indoor culture since the light in most homes is not much more than just adequate. These plants can grow well in an east window which gets morning sun or set back from a sunny south or west window. With decent humidity from a humidifier, some of these plants will grow satisfactorily when mounted, but they will grow better when rooted in a pot medium. Especially those with soft green leaves should be potted in a well draining mix that is water retentive.

For the greenhouse or outdoors, this group is subdivided between those that need shade without direct sun: *Tillandsias biflora, brenneri, dodsonii, filifolia, ionochroma, keglia, lautneri, leiboldiana, monodelpha, triglochinos, and venusta*. Those needing diffuse light/and or a little sunlight are *Tillandsias cyanea, deppeana, dyeriana, flabellata, guatemalensis, hamaleana, kalmbacheri, lampropoda, lindenii, multicaulis, orogensis, ponderosa, prodigiosa, rhomboidea, standleyi, wagneriana, and yunkerii*. *Tillandsia biflora, T. brenneri, T. ionochroma* and *T. wagneriana* are extremely difficult to grow anywhere in cultivation, especially indoors, as they need 80-90% relative humidity with temperatures between 85°F to 90°F. The stiff, grey leaves of *T. rhomboidea* belie its habitat because it grows terrestrially in semi-shade and its leaf axils can hold some water. It can be grown in a pot as well as epiphytically. Plants in the group which should be mounted epiphytically and grown shaded are *tillandsias acosta-solisii, andrieuxii, brachycaulos, butzii, geminiflora, linearis, montana, paraensis, punctulata, stricta, subulifera, tenuifolia, tricholepsis*. Those plants in the group, which should be mounted and need diffuse light are *tillandsias aeranthos, bulbosa, ehlersiana, ixioides, kammii, kautskyi, macdougallii, oaxacana, polystachya, seleriana, sprengliana, tenuifolia, tricolor, and valenzuelana*.

SUNNY BUT HUMID - These plants may grow epiphytically or saxicolous, but they get high light and quite high humidity at low altitudes or near the top of the canopy in the higher cloud forest. They all have good trichome coats and are not able to water in their leaf axils. Many grow upside-down in habitat. *Tillandsias araujoi, aurea, balbisiana, bertramii, brachyphylla, flexuosa, funckiana, gardneri, gilliesii, graziellii, macbrideana, reclinata, rectangula, recurvifolia, remota, and schiedeana*.

Tillandsia portillae, T. roland-gosselinii, T. rothii, and T. umbellata also grow in this environment but their leaf axils can retain water. They can be grown mounted but they do best when potted. *Tillandsia imperialis* fits in this group but it too does best in a pot. *Tillandsia portillae* has stiff, flat, lepidote leaves that retain some water in its axils. In habitat it grows both epiphytically and as a terrestrial in open terrain so it does fine in a friable potting medium. I have one growing well in coconut husk fibre in a sunny east window.

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 sfbromeliad.org 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 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 Bromeliad Society International publishes the Journal bimonthly at Orlando, Florida. Subscription price (in U.S. \$) is included in the 12-month membership dues. Please address all membership and subscription correspondence to Membership Secretary Annette Dominquez, 8117 Shenandoah Dr., Austin, TX 78753-5734, U.S.A. or go to www.bsi.org.

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