

BROMELIAD SOCIETY OF SAN FRANCISCO

DECEMBER 2016



Meeting Specifics

When: Thursday, December 15
Time: 6:30 to 7:00 PM
Where: Recreation Room
San Francisco County Fair Building
9th Avenue at Lincoln Way
San Francisco

Note that we are meeting earlier this month for the holiday party.

Holiday Potluck and Gift Exchange

This month culminates another year for our society. For our members that are not able to get to our monthly meetings, we hope that many of you will be able to join us for the holiday potluck. This month's meeting will be an opportunity for us to socialize and partake of great food. The society is providing an organic turkey and organic ham. We are asking you to bring a dish to share- drinks, appetizer, vegetable dish, rolls, desserts, etc. Please try to remember to bring serving silverware for the dish that you bring. We will provide plates, cups, silverware, and napkins.

Our club will provide a plant for each member. You may also bring a special plant or plant-related item for exchange with the other members (not required).



Our very own Santa: Gary Turner



Oaxaca Botanical Garden, Mitla, Oaxaca Botanical Garden



November Meeting

Last month, Dan Arcos took us to Oaxaca and Mexico City for casual botanizing

Last month, Dan Arcos gave us a show on his trip with Tom Dyer to Mexico earlier this year. Our first stop was at the Botanical Garden in Oaxaca. This was the first time Dan had been to the garden since it had opened about 15 years ago. Of course, the plants were much more established. The garden is an ethno botanic that shows the interaction of plants and

people. The earliest evidence of plant domestication of squash and corn was found in Oaxaca. The garden tells the area's history by arranging plants by ecological and cultural themes. The garden contains domesticated plants and wild natives. One of the most striking features is the rows of columnar organ pipe cactus (shown above) as well as opuntias used in the

production of cochineal. The Spanish exported this maroon dye for use in Chinese silks, Persian carpets and paintings. There are more than 1,000 varieties of plants in the garden.

About 25 miles from Oaxaca, Dan and Tom visited Mitla, an



Dennis visited this wall planting in Mexico City that is about 400 feet long

archeological site that was a religious capital when the Spanish arrived in the 1500's. Squash seeds were found here that were 10,000 years old and provide the first evidence of gardening in the New World. One of the unique features of Mitla is the elaborate mosaic fretwork and geometric designs that cover the tombs. These mosaics are

Made with small, finely cut and polished stone pieces, which have been fitted together without the use of mortar.

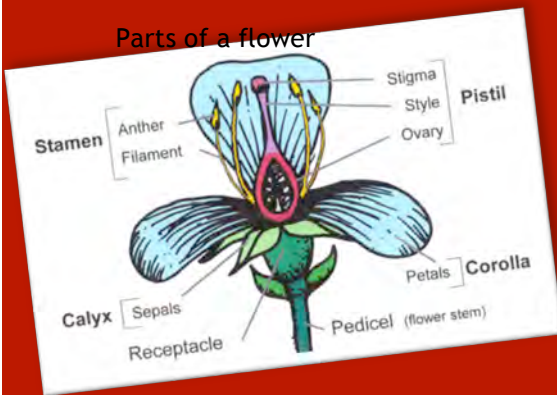
While in Oaxaca, Dan went into the countryside where he had seen many tillandsias in his earlier visit. The area has been developed and there are no

more tillandsias.

Dan spent some time in Mexico City before returning home, so we saw slides of some of his stops there - one of the most notable being a 400 feet wall planting. Thanks, Dan for a great show.

Seeds the Easy Way

Parts of a flower



Aechmea blanchetiana



Acanthostachys pitcasirnioides



For the vast majority of cultivated bromeliads, cross-pollination is required to obtain viable seeds. The crosses can be either between two separate clones of the same species or plants of two different species. In South Florida we get some non-discriminating pollinator service provided by various insects that visit bromeliad flowers for nectar, and especially, by hummingbirds in season, but you really need to carry out the crosses yourself if you want to ensure a particular result.

Several commonly cultivated species, however, produce massive amounts of viable seed without any effort on your part. These species are identified by the fact that all, or nearly all, available fruits mature and produce viable seed and the seeds produce plants identical in appearance to the parent. These plants may actually be pollinated without any external help - the pollination just takes place within the flower. The structure of the flower is such that pollen is deposited on the stigma at the appropriate time whether a pollinator is present or not. It is worth noting that many bromeliads, particularly species in the genus *Aechmea* and *Neoregelia* have the stigma placed right in the middle of the ring of anthers. In the absence of self-incompatibility, these plants can hardly fail to pollinate themselves. In other species, it is not even necessary to have pollination within the flower. Cells within the ovary (more precisely within the ovules) develop into fully functional seeds produced by the different possible methods, so I refer to them as self-seed for simplicity.

Some plants regularly produce the mature fruit and viable seeds, but the seeds have a high probability of being hybrid and will usually produce seedlings that differ in several ways from the seed parent. Species of *Dyckia* are especially notorious in this respect; most of the fruits on a blooming plant produce viable seed, but much of it results from unplanned crosses with other blooming *Dyckia* plants in the neighborhood. Many species of *Aechmea* also show a great readiness to cross with other blooming plants. In our collections, the group of species close to *Aechmea blanchetiana* produces at least a few fruits with viable seeds as a result of random cross-pollination every year. Species of *Aechmea* subgenus *Ortgiesia* also frequently produce a few to many fruits with viable seeds.

I am going to ignore these for the time being and concentrate on plants that meet the definition of self-seeding given above.

Both species of *Acanthostachys* in our collections reliably produce self-seed. The seeds of *Acanthostachys pitcairnioides* are particularly satisfying to work with (once you have extracted them from the rather dangerous tangle of spines at the base of the plant) due to their large size. The large seeds produce large seedlings that are able to tolerate less than ideal cultural conditions. This makes them an excellent choice for any person who would like to start a career growing bromeliads from seed.

Self-seeding species of *Aechmea* were among the most widely spread bromeliads in cultivation during the 1950's and 1960's. *Aechmea angustifolia* was one of these early species. The blue color displayed by mature seed-bearing fruit was frequently noted in early ads. Since all the fruit contained seeds, they all eventually turned blue. I have grown seeds from this species several times in the past. The resulting seedlings resemble the parents in all respects.

Aechmea bracteata produces flowers with very small sepals and petals - frequently an indicator that pollinators are not needed and not welcome. All of the flowers produce seeds and we occasionally have seedlings come up from seeds dispersed by birds. All of these seedlings, so far, have been of the large bright green clone that was prevalent in cultivation during the 1970's. I don't know whether the other clones now in cultivation behave similarly, although *Aechmea bracteata pacifica* does produce seeds from all available flowers. If you are interested in trying your hand with this species, the fruits are very dark and shiny at maturity.

Aechmea castelnavii, *Aechmea pubescens* and *Aechmea tillandsioides* are three more of the self-seeding species that were grown widely. *Aechmea castelnavii* fruits retain some shade of white during and through maturity. You may not notice any changes until they are well past maturity and begin to turn brown. Seeds of this species are large and easy to grow. *Aechmea pubescens* and *Aechmea tillandsioides* have fruit that turn blue at maturity.

Aechmea brevicollis was first introduced into cultivation here during the mid-1970's. It turns out that the species is hard to maintain in southern Florida through normal vegetative propagation. However, it is quite easy to grow from the automatically produced seeds.

Aechmea angustifolia



Aechmea bracteata



Aechmea eglariana



Billbergia kuhlmannii



Aechmea eglariana is apparently still rare in cultivation despite the efforts of the gang at Tropiflora. When I got a blooming specimen last year, I unexpectedly found that all flowers appeared to produce seed-filled fruit. There was only a small change in the color of the fruits as they reached maturity. Seedlings from the plant are growing well and have the appearance expected from self-seed, but are not yet large enough to confirm that they will replicate the original parent.

We cannot grow most species of *Billbergia* subgenus *Helicodea* in the Miami area without heroic efforts to provide a suitable environment, but one of the few species that do grow well for us also produces copious amounts of self-seed. *Billbergia kuhlmannii* produces brilliant short-lived pendant inflorescences. Fruits turn an orange-yellow at maturity and each contains dozens of large seeds.

At least one clone of *Canistropsis billbergioides* seems to produce self-seeds readily. The fruits are largely concealed within the stiff bracts of the inflorescence, but you can still see their tops turn orange at maturity. Since I have not made a particular study of *Canistropsis* fruits I may well be overlooking other clones or species that produce self-seed.

Most species of *Neoregelia* require cross-pollination to produce seeds. However, *Neoregelia pascoalina*, a rather large species, always produces viable seeds. I haven't grown any of these readily available seeds yet, so I can't verify that the seeds produce replicas of the parent. If any of you have grown the seeds out, let us know the results.

We can only grow 2 species of *Puya* in southern Florida, but one of these, *Puya mirabilis*, produces thousands of self-replicating seeds every time it blooms. These are particularly rewarding seeds to grow because, even though they are small, the resulting seedlings grow extremely rapidly. Starting from seeds, you can get blooming plants in under a year.

Many species of *Tillandsia* produce seed without pollination. You cannot pass by a collection of plants without seeing a puffball of seeds recently erupted from an old inflorescence. In the cases where all flowers in the inflorescence appear to have produced capsules, these are probably self-seed. The following is a very incomplete list of self-seeding species: *T. balbisiana*, *T. fasciculata*, *T. festuroides*, *T. gardneri*, *T. pruinosa*, *T. setacea*, *T. streptocarpa*, and *T. utriculata*.

Ursulaea mcvaughii and *U. tuitensis* were moved from *Aechmea* into their own genus in 1994. The fruits from every flower of *U. mcvaughii* produce viable seeds. They turn yellow at maturity and are easy to grow.

Self-seed is not so common among the species of *Vriesea*, but it does seem to occur. A *Vriesea procera* that bloomed for me last summer appeared to produce seeds from every flower, and several of the seeds germinated on the plant. Some of the resulting seedlings are still alive, so I should have the opportunity to find out whether they replicate the parent eventually. If you have seen other species that appear to produce seeds from every flower, please let us know.

One note of warning before you rush out to plant seeds, the albomarginated form of *Aechmea tillandsioides* produces viable seeds as well as any other clone; the seedlings, however, are incapable of producing chlorophyll. Without chlorophyll the seedlings are going to die as soon as the food packed into the seed is exhausted. You can expect any other albomarginated bromeliad that produces seeds without pollination to act the same way.

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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