BROMELIAD SOCIETY OF SAN FRANCISCO

May 2009

NEWSLETTER

Our next meeting will be held on **Thursday, May 21, 2009** at 7:30 PM
Recreation Room, San Francisco County Fair Building, 9th Avenue at Lincoln Way, Golden Gate Park, San Francisco

May Program

Adventures in Honduras

Late last year our president, **Carl Carter**, planned a trip to Honduras. Unfortunately, Carl had to cancel the trip but **Bruce McCoy** and **Peter Wan** were happy to fill in. Bruce and Peter had the expertise of a local guide who was able to optimize the time and plant material they got to see. There are many tillandsias that are found in our collections that come from Honduras. Unfortunately, some of these are now uncommon in habitat, such as *Tillandsia hondurensis*. Come to the meeting this month for a colorful show on the bromeliads of Honduras.

This photo of *Tillandsia hondurensis* is by Pam Koide and is courtesy of the Florida Council of Bromeliad Societies.

Here is **Peter Wan**, our speaker this month, inspecting a bromeliad in Honduras. Come to our meeting this month to find out what bromeliad this is. Photo is courtesy of Peter Wan

April Refreshments

Roger Lane, Peter Wan, and **Richard Ostricher** signed up for refreshments this month.

March Meeting

Last month, **Guillermo Rivera** provided an excellent slide show on a trip he has organized to see the bromeliads and cacti of Peru. Based on the slides of many very unusual tillandsias, there are some of our members who have started to save our money for a trip to Peru in August 2010. One of your editor's favorite fragrant tillandsias will be on the tour: *Tillandsia humilis*. This trip culminates in a visit to Machu Pichu ruins. Guillermo will be leading a tour to Peru September 8-24 2009 as well as the same trip next year. For additional information, please visit www.cactusexpeditions.com.ar.

California Academy of Sciences Bromeliad Needs

Kristen Natoli, staff horticulturist for the California Academy of Science has submitted this wish list to our society for bromeliads

Bromeliad Wish List

Thank you to all the Bromeliad Society members who attended the recent tour at the California Academy of Sciences. Your input on the exhibits was much appreciated. I wanted to resubmit our guidelines with my email contact information for anyone who may be able to suggest suitable plants, provide plants or connect me with good suppliers.

As I mentioned during the tour our Herpetologist is interested in working with a few volunteers to improve the Anaconda exhibit which will soon benefit from a misting system and improved lighting. Please contact me at the email below if you are interested. Thanks again for all your help,
Kristen Natoli

Staff Horticulturist
California Academy of Sciences
knatoli@calacademy.org

Criteria for Bromeliad Selections

- Amazon Rain Forest Exhibit
  - Native to Amazon drainage basin
  - Species, not hybrids
  - Colorful but natural looking. Colorful flowers a plus.
  - Unusual patterns or texture are desirable
  - Tolerant of low light
  - Pest free (especially hard scale), but no pesticide applications with in 30 days of introduction into the rain forest
  - Specifics
    - Epiphytes for tree crotches and artificial branches and artificial vines: small stature desired
    - Terrestrials: any size OK. Tolerant of a wide range of soil conditions and moisture levels is very desirable.

- Costa Rica Rain Forest Exhibit
  - Native to Costa Rica (could be adjacent countries if plant is especially desirable)
  - Species, not hybrids
  - Colorful but natural looking. Colorful flowers a plus.
  - Unusual patterns or texture are desirable
  - Tolerant of shade to part sun
  - Pest free (especially hard scale), but no pesticide applications with in 30 days of introduction into the rain forest
  - Specifics
    - Able to be mounted on a vertical wall is very desirable. Small to mid-size stature.
    - A few large Tillandsias would be desirable.
    - A few terrestrials could be used. Tolerant of a wide range of soil conditions and moisture levels is very desirable.

Tom Koerber

Bruce McCoy spoke with **Tom Koerber** who said that he's broken his hand and wrist and is unable to drive or tend his plants. His wife has also been sick recently and he's having trouble helping her now. He wants to be a part of the June sale but won't be able to groom and bring his plants in. He suggests that maybe the BSSF might want to purchase plants from him for the sale to sell. We'd need to go to his house, select the plants and then transport and prepare them for sale. He thinks he might have 100 or so to sell. He wanted me to float the idea with our society. We will discuss this at this month's meeting. Hopefully, some of you members in the East Bay will be able to help with this problem.

Kristen Natoli
Staff Horticulturist

Strybing 42nd Annual Spring Plant Sale

Our contribution to the Strybing Sale in selling bromeliads was a great success. We do not know how much money we made for Strybing, but the *Billbergia* Hallelujah clumps were very popular.

We want to thank all of our members who contributed their plants and time for this sale in which our society makes no money – everything goes to Strybing. This sale does provide us the opportunity to promote our society, our June sale, and other activities that we have planned. Special thanks goes to **Marilyn Moyer** for organizing our participation and **Dan Arcos** for generating handouts to promote our society.

June Plant Sale

Our combined plant sale with the San Francisco Succulent and Cactus Society will be on June 13th and 14th this year at the County Fair Building. Setup will be on Friday, June 12th from 3 PM to 8 PM. Sale schedule is

- Saturday - Setup: 8 AM to 9 AM, Sale: 9 AM to 5 PM
- Sunday - Setup: 8 AM to 9 AM, Sale: 9 AM to 4:30 PM, Clean-up: 4:30 PM to 6:30 PM

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:

- Entering some of your premium plants in our Bromeliad display area
- Selling your own plants
- Working at the show/sale.

Remember if you plan to sell your plants, **25%** of the sales will be kept by the club.

If you are selling plants at this sale **Roger Lane** will be the collector of your bar code requests. There will be a form to request your price codes at this month's meeting. If you can not provide you request at this month's meeting you have until **Saturday May 30th** to give them to Roger. **No bar code requests will be accepted after this date.** The bar code sheets have 80 bar code items per sheet and they are more impervious to water than our old tags. You can not mix prices per sheet (all 80 items per sheet must be same price). **There is a $2.00 charge per sheet**. If you can not make our May meeting, call Roger at 650-949-4831 or e-mail at rdodger@pacbell.net.

One of the conditions of selling your plants is helping out at the sale for a minimum of 4 hours during Saturday or Sunday. Let's try not to have everyone sign up only for the last 4 hours on Sunday.

Please start saving your boxes and paper bags. We never seem to have enough on the second day of the sale.

Our Visit to the California Academy of Sciences

Last Saturday night (May 9th) about 35 of our members and guests visited the rainforest dome after the facility had closed to the public. We all had an enjoyable time and some of us made suggestions to Kristen Natoli as to how to improve the exhibits. Many pictures were taken and a few of us went to dinner with Kristen after our visit.

Unfortunately, while we were at dinner, **Peder Samuelsen's** van was broken into and much valuable equipment was stolen including his new camcorder that had pictures of each of us at the tour. Be forewarned that parking on 9th Avenue near the Hall of Flowers is not as safe as we had believed!

The Bromeliaceae of Honduras

This article is by A. J. Gilmartin and was translated by **Daniel Arcos**. It is being reprinted from the January 1980 newsletter of the Bromeliad Study Group of Northern California.

It would be interesting to compare the Bromeliaceae population of Central and South America while keeping in mind what we know of these two areas. We have in South America the Bromeliaceae of Columbia (Smith 1957), in Central America Bromeliaceae of Guatemala (Smith 1958), and this text (Gilmartin 1965). The species of Columbian Bromeliaceae have been intensely studies beginning in the last century [19th – Ed.] with the collections of Andre (Smith and continuing with various collectors from the United States and Columbia (Smith 1957). Likewise, many botanists have actively worked in Central America, such as P.C. Standley, L. O. Williams, and A. Molina (Popenoe 1964).

The species and distinct varieties of the Bromeliaceae registered in Honduras up until the present time in 97. There are still sectors of Honduras where little is known and it is probable that this small country has a few other species that have yet to be collected. Ninety-seven species in the area of Honduras, approximately

44,441 square miles, can be compared with 372 species registered in 439,530 square miles in Columbia (Smith 1957) and 124 species in Guatemala's 45,452 square miles (Smith 1958 and South America Handbook, 1940 for national areas). Furthermore, the two Central American countries of which we have information have as a unit area between two and three times more numbers of bromeliads than are registered in Columbia.

The apparent density of bromeliad species in Central America can be attributed to various factors. First, it has been exaggerated that bromeliads have been collected in the pine forests of Central America in large numbers – especially the Tillandsioideae – simply because they are beautiful. For example, in an open forest such as the pine forests, the epiphytes are clearly seen, much more clearly than in a dense jungle or a rain forest. The pine forests are still very extensive in parts of Central America such as Honduras (Molina 1964). Therefore, it is natural that these epiphytic species have been collected more intensely than their counterparts in densely vegetated areas, as in Columbia, for example. In Columbia, according to Cuatrecasas (1958) the "major basic formation that covers a great part of the country is virgin neotropical jungle," which is basically impenetrable.

Secondly, it is very probable that a substantial amount of the rich species diversity of bromeliads in Central America represents a greater wealth of species than is contained in northern South America, e.g., Columbia. Why does there exist a greater diversity of species in Central America purportedly further from the center of the family's origin than northern South America. The center of origin, as Smith (1957) suggested, could be Columbia itself. The solution may be

1. that species colonizing Central America have survived in greater proportion, and
2. that Central America offers a more hospitable habitat, or series of habitats for bromeliads.

In spite of the probability that the species actually were dispersed in all directions, there were more successful colonizations in Central America. The following explanation is proposed. First, I would like to emphasize that what follows is speculative. There is little data available regarding mechanisms of pollination and dispersal, which makes the explanation of the biogeography difficult. Continuing with the hypothesis, pine forests occur in Central America, but not in Columbia. In the pine forests of Central America, the quantity of light is not insufficient for successful bromeliad colonization. According to Pittendrigh (1951), insufficient light is probably the critical limiting factor in the establishment and survival of epiphytic bromeliads. Just as in pine forests an abundance of light is found; by comparison, there is less in the rain forest. It can be observed that in xerophytic communities, the above does not hold; while there is plenty of light, it is the lack of humidity that restricts the Bromeliaceae to the xerophytic species only; for example *Tillandsia ionantha* Planch and *T. recurvata*. However, in the pine forests of Honduras and in Central America in general, humidity (fog) and abundant light reaching the ground level where bromeliads grow create a favorable environment for them. It was in these forests where the author first encountered the notable phenomenon of having side-by-side and at the same distance from the ground, the so-called xerophytic bromeliads, e.g., *T. fasciculata* Sw and *T. recurvata* L, and species usually considered mesophytes, such as *T. punctulata* Schlecht & Cham and *Catopsis montana* L.B. Smith. It is especially in the pine forests that bromeliad species accumulate and hybridize.

Colonizing species, surviving in greater numbers in the pine forests, might be expected to introduce new genes into the population and, with isolation, might form new species. The necessity of isolation for the formation of new species is already well known and is relative to Central America. (Absolutely, for animals, but in plants new species can arise spontaneously in a single generation through the process of allopolyploidy with no isolation at all rk). First, the topography of Central America provides the isolation, since it is an area very active tectonically in recent geological time. Secondly, there exists an ecological isolation provided by the proximity of the two distinct plant communities, the cloud forest that begins at 1600 meters and comprises the greater part of the highlands, and the open mixed pine forest that reaches to the edge of the cloud forest. The dividing line between these two associations is quite abrupt – there is hardly any transition zone. One could stand with one foot in the pine forest and the other in the cloud forest. The author did exactly that on the trail on Mt. Uyuca leading to the farm of the Escuela Agricola Pan Americana.

In such a situation, there exists much endemism. The analysis of Smith's (1938) notes on the distribution of species suggests that approximately 50% of the species of the subfamily Tillandsioideae recognized by Smith are restricted to Central America (Figure 2). Those species from Cuba, Haiti, Puerto Rico, and Panama have been excluded when these locations were the only ones noted (1). At the present time approximately 40% of the species recorded in Honduras are restricted to Central America.

In summary, one can explain the diversity of species of Bromeliaceae recorded in Honduras (present work) and in Guatemala (Smith 1958) in part to

1. a disproportionate number of epiphytic bromeliads that have been collected in Central America due to the high visibility of bromeliads in the pine forests; and
2. an indigenous wealth of bromeliad species arising from the favorable light and humidity of the pine forests allowing greater accumulation of species and a higher rate of speciation affected by increased rates of hybridization, both in the past and continuing through the present.

Figure 2	
INCIDENCE OF TILLANDSIODEAE SPECIES IN CENTRAL AMERICA	
Central American "endemics"	89
Central America and South America	23
Central America and Mexico	25
Mexico to South America (cosmopolitan)	12
Mexico	26

1. Panama is considered a buffer zone between Central America and South America. When at the exclusion of the isles to the east of Honduras, Standley says in respect to the Valle de Lancetilla in eastern Honduras, "If anyone has occasion to study the distributional data of the species listed from the Lancetilla region he will be impressed by the monotonous repetition of the phrase 'widely distributed in tropical America.' It is of such plants that the flora of coastal Central America principally consists. This same flora ranges from Mexico southward along the Atlantic Coast of Central America to the humid portion of northern Columbia." The situation described by Standley is on the east coast and is very distinct from the situation of species in the interior of Honduras.

Here is one of the many tillandsias found in Honduras: *Tillandsia seleriana*. Photo is by Graham Alderson and courtesy of the Florida Council of Bromeliad Societies.

Catopsis subulata is one of the best of the Catopsis species and is found in Honduras. Photo is by Jarka Rehak and courtesy of the Florida Council of Bromeliad Societies

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

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BROMELIAD SOCIETY
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Come to see bromeliads from Honduras this month!