

BROMELIANA

PUBLISHED BY THE NEW YORK BROMELIAD SOCIETY

(visit our website www.nybromeliadsociety.org)

December, 2012

Volume 49, No. 10

EPIPHYTES - an overview

by Harry Luther

(This article by the late Harry Luther is reprinted from Bromelcairns #5, 2012, newsletter of the Cairns B.S.)



Tillandsia growing in salty mangrove marsh



Hydric forests in Florida can be an airplant paradise



Right - This Peruvian tillandsia grows at 3400 meters elevation, not far below the snow line
Far Right - Cool (not cold) cloud forests usually support the richest epiphyte loads



Epiphytic plants use other plants for physical support. True or holo-epiphytes spend their entire life perched on a host. At least 10% of the species of all vascular plants are epiphytes, ie. at least 25,000. Most species of epiphytes are native to warm, wet forests, while most are small or compact, some grow very large. Epiphytes may be very numerous on certain hosts and even small trees may bear a heavy epiphyte load.

Even warm temperate rain forests may support a few vascular epiphytes. In regions subject to freezing, many epiphytes are restricted to swamps and riverine habitats. A few kinds of epiphytes can even tolerate periods of below freezing weather. Hydric forests in Florida can be an airplant paradise. At the opposite

climate extreme, some epiphytes thrive in near desert conditions. Where trees are scarce, structures such as buildings, fences etc. will often support epiphytes. Epiphytes in very dry regions are often small but can produce large colonies and they are able to exist (and thrive) in extreme habitats. (See photos on pg. 2)

Under certain conditions, epiphytes have taken to growing on rocks. Normally an epiphyte, *Aechmea nudicaulis* has been seen growing in a well drained terrestrial habitat - on an Atlantic Ocean beach. The Brazilian endemic genus *Alcantarea*, grow as lithophytes, or rock dwellers.

Araceae, the aroid family, contains many epiphytes. *Anthurium andreaeanum* is native to very wet

NEXT MEETING - Thursday, December 20th, 2012 at 6:30 P.M. at the home of **Michael Riley and Francisco Correal, 101 West 104th Street nr. Columbus Ave.** (Take the 7th Ave. #1 train or the Independent A, B, or C trains to 103rd St.)

HOLIDAY PARTY! - Due to space limitations our traditional end of the year party is open only to members and their spouses or significant others. Michael and Francisco will provide the main courses; **please RSVP them at 212-666-2395 if you plan to attend. AND, let them know if you will bring a side dish, salad, fruit or dessert.** You've seen Michael's fabulous collection of bromeliads, aroids, gesneriads, ferns, orchids growing epiphytically on his living room walls, but a revisit will still be a treat.

rainforests in SW Colombia and NW Ecuador. Some anthuriums produce a rosette of foliage to channel water and debris to their root system. Other **Araceae**, such as **philodendron** are scandent (climbing) hemiepiphytes that spend only part of their life disconnected to the ground. (Primary hemiepiphytes start life as epiphytes and later root into soil. Secondary hemiepiphytes reverse the process, starting as terrestrials and then as epiphytes. *Editor*)

Asclepiadaceae, the milkweed family, has many species of epiphytic **Hoya**. The succulent foliage and adventitious roots of many hoyas make life on a limb

possible. Members of the genus **Dischidia**, a close relative of hoyas, often produce specialized foliage to house ants that protect and “feed” them.

The begonia family **Begoniaceae** contains over 100 species of epiphytes and scandent (climbing) hemiepiphytes. The succulent **Begonia loranthoides** is native to African rainforests.

Bromeliaceae is one of the most studied and best known family with many epiphytic members. Tank epiphytes are best represented in wet forests. Some tank bromeliads can reach massive size and are important components of the local ecosystem. The hot, wet lowlands of Amazonian South America are home to a number of much cultivated, ornamental bromeliad species, eg **Aechmea chantinii**.

Bromeliad tanks can support dozens of species, both plants and animals, and have been called “biodiversity multipliers” and “keystone” species. In many habitats, bromeliads provide the only still, open water for a variety of biota. To the surprise of many, new species of bromeliads are discovered every year. In wet Neotropical forests, bromeliads are conspicuous and beautiful additions to the landscape. A few bromeliads, such as a pitcairnia in Ecuador, are hemiepiphytic vines, not the usual limb perching epiphyte.

Tillandsia, with over 400 species, is the largest genus in the bromeliad family, and inhabits nearly the entire range of the family. Tillandsias inhabit some very stressful habitats such as the Atacama desert in Peru, and are also common epiphytes in dry forests. Bromeliads are important to animals for food, shelter and water. The bright colors appreciated by horticulturists are also attractive to birds which are important in

vectors of pollen and seed.

Cactaceae is not often thought of when epiphytes are discussed but over 100 species make their living in trees. **Zygocactus**, the holiday cactus, are often found as twig epiphytes in Brazilian cloud forests. The night flowering **selenicereus** is found in dry forests in Central America.

Ericaceae, the blueberry family, has many species of epiphytes in both the new and old world tropics. There are over 500 species of epiphytic **Rhododendron** in East and SE Asia, mostly in cool cloud forests.

The **Pteridophytes**, a number of distinct families, have hundreds of epiphytic species. Among the best known and widely cultivated members of the genus **Platyserium** are the staghorn ferns.

Species of **Polypodium** and related genera are often epiphytes. Birdnest ferns from many areas of the tropics and subtropics are usually epiphytic, mimicking tank bromeliads in form and function. Many epiphytes are ant associated, ferns being no exception. The hollow rhizomes of the **Lecanopteris** house ant colonies in its native rainforest canopy. Some fern allies such as **Huperzia** are obligate epiphytes, unable to survive long on the forest floor.

The **Gesneriaceae**, a mostly tropical family is mainly restricted to wet habitats. Some of the most spectacular Gesneriads are restricted to ever-wet cloud forests. The **Colomnea arguta** is native to the mountains of Panama. The flowers of **Drymonia** are produced on long, slender peduncles, perhaps to get clear of the foliage and debris on the branches of the rainforest tree which is its home. The genus **Clusia** in the family **Guttiferae** is widespread in tropical American forests. Many species are hemiepiphytic stranglers.

The **Marcgraviaceae** is a little known family of epiphytes and hemiepiphytes restricted to the Neotropics. The **Melastomataceae** family has a pantropical distribution with hundreds of epiphytic species. The tropical Asian genus **Medinilla** alone has

nearly five hundred species many of which are epiphytes. The genus **Blakea** from the American tropics also contains hundreds of species of epiphytes. A few species from the SE Asian **Pachycentria** are ant associated epiphytes. The **Nepenthaceae**, the old world tropical pitcher plants, have a few epiphytic species such as **N. truncata**.

The **Orchidaceae** is one of the largest families of flowering



Dry desert tillandsia



Dry forest tillandsia

plants and contains the greatest number of epiphytes.

The majority of orchids are compact and small to tiny. Orchids usually produce a flower with a distinct petal called a labellum often with some sort of guide markings. Often orchid flowers are so modified in shape it is difficult to identify the parts. The roots of many orchids are not attached to any substrate; this is most common on small twig orchids.

Orchids are found on all continents except Antarctica but are most diverse and numerous in the wet tropics. Orchids, like many other groups of epiphytes, also have associations with ants. *Myrmecophila* has hollow pseudobulbs to house its

ant colony.

Peperomiaceae contains over five hundred species most of which are epiphytes. *Rubiaceae* has a number of epiphytic taxa such as the Brazilian *Hillia* sp. *Hydnophytum mosleyanum* an 'Ant Plant' with a hollow caudex that houses ants.

The ginger family, *Zingiberaceae* is not usually thought to contain epiphytes but several dozen species grow on trees in SE Asia.

In conclusion, epiphytism is widespread among vascular plants, in at least 100 families and at least 25,000 species most commonly in warm moist regions. □

MORE ON THE ORLANDO WBC

by Herb Plever

Before making additional comments on the World Bromeliad Conference held this past September, I need to make two corrections to my November report on the conference.

1. In referring to one of the *Tillandsia* entries in the show, *Tillandsia* 'Steve', I erroneously gave its seed parent as *T. cacticola* (crossed with *T. fasciculata*.) The correct parentage is *T. chiapensis* × *T. fasciculata*.

2. I am informed that the awards that were presented to Nat DeLeon and me for 50 years of service to BSI were created and funded by the Bromeliad Society of South Florida, not BSI. Nat has contributed to and served BSI, south Florida and the bromeliad world much more than 50 years. He was already a director of BSI when I joined in 1961.

I have now attended all 21 World Bromeliad Conferences since 1972. We have had some great and some not-so-great ones; the great and good ones had a strong impact on those growers who were fortunate in being able to attend them. That impact led attendees to be more enthusiastic and active in their clubs and more supportive of BSI, as well as to become better growers. I have been thinking about the differences between those conferences - especially about what made some WBCs more successful than others.

In the better conferences, all of the events and activities were well organized, and they made attendees



Tillandsia 'Steve'

feel welcome and cared for. The host had people at every event to answer the questions and to facilitate the needs of attendees. Good organization did not necessarily improve with each WBC. In fact it is strange that I have a strong impression that the best organized and conducted conference was the very first one in Houston in 1972.

I think that when a local host is able to get many people to take responsibility for planning and carrying out the various functions, then the events are better organized and presented. Of course, a lot depends on how many local members are active and how many are enthusiastic about doing the hard work of hosting a conference.

And that is where the BSI and neighboring local clubs come in. It helps when the host is able to establish a collegial, cooperative relationship with each neighboring club, so that their members will enter show plants and volunteer to work at the conference as good colleagues should do. BSI advances initial funds to enable the host to make deposits for the hotel venue and other contracts. But it is clear that the BSI World Conference Committee, which has had past experience in working on a WBC, must also play a cooperative role in assisting the host with respect to seminar speakers and giving advice on budget, etc.

It is important that the roles of the local host and BSI be more clearly defined by the BSI Board of

Directors to enhance stronger organization and conforming to show rules and identification. Seminars should present a balance of different areas of interest to growers. Some past WBCs have presented diverse seminars such as habitat exploration, and scientific reports: on specific genera, on identification, ecology, and on DNA clades of the bromeliad family tree, etc. (we have not heard a recent report on the latest findings from the bromeliad DNA research being done by molecular biologists, such as Dr. Walter Till of Vienna.)

I should add that the above comments are not intended as a criticism of the diverse array of seminars in Orlando. I attended and enjoyed them all. But what has long been missing in this good mix has been seminars on horticultural topics, which may be of even greater interest to attendees than the above topics. I think we can all profit from having panels of experienced growers who can discuss (and even disagree with each other) potting mixes, fertilizing, greenhouse cultural management, water composition and pH, and forcing blooms on plants being groomed as show entries. Since there is always a paucity of plants in full bloom at most show, I'm surprised that growers show so little interest in learning how to use ethylene pills and other chemical bloom inducers.

The 2014 World Bromeliad Conference will be held in Honolulu, Oahu, Hawaii. There is less than 2 years to plan for and put in place the strong organization and ground team of workers that will be essential for a successful conference. This challenge will be even greater than usual, because there is but one Bromeliad Society with only 15 BSI members in all of Hawaii, and a few of them are commercial nursery people.

There are a number of large bromeliad nurseries and also growers with large collections. Most of these are situated on the Big Island or Maui, which presents a logistical problem of getting plants for displays and for the show in Oahu. Agricultural restrictions may prevent outsiders from bringing plants to the conference. Clearly we need the BSI leadership and our Board of Directors to start now to institute plans to assist the Hawaii Bromeliad Society in putting on a good conference. The first step should be to organize a strong Hawaii WBC conference committee (with more than just a few members) that will establish a supportive collegial relationship with the Hawaii Bromeliad Society.

I'm looking forward to revisiting Hawaii in 2014. There is so much to see and do; you can plan for a great 2 or 3 week vacation. You'll see great bromeliads, the Pearl Harbor memorial, the Lyon Arboretum, beautiful Kauai and Maui and the incredible Big Island of Hawaii. The Big Island has many places to

visit: deserts with petraglyphs, coffee and pineapple plantations, glass-bottomed underwater submarine excursions in Kona, an astronomical observatory at the top of Mauna Kea with a huge telescope that will allow you to see distant galaxies, and you can see how the Big Island is building out as molten lava pours into the sea from the active Kilauea volcano.



Molten lava pouring into the sea from Kilauea volcano

N E W S and N O T E S

2013 DUES will be due and payable at the end of this month. Single and joint memberships are \$25.00; the domestic subscription rate for BROMELIANA is still \$8.00 and an overseas subscription is \$12.00.

Please mail your check payable to N.Y. Bromeliad Society to Barbara Lagow, 54 West 74th Street, #603, N.Y.C. 10023 or pay your dues at the Holiday Party meeting on December 20th.

PROPOSED ELECTION SLATE - Mimi Gussow, Pres., David McReynolds, V.P., Barbara Lagow, Treas., Herb Plever, Editor. Directors: Cynthia Percarpio, Veronica Saddler and Victoria Ehrlich. The election will be held at the December holiday party meeting when other nominations also can be made.

NO MEETINGS REMINDER - There will be no meetings in January and February.

<u>OFFICERS</u>	<u>DIRECTORS</u>
President.....Les Graifman	Cynthia Percarpio
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BROMELIANA is published 9 times a year by the New York Bromeliad Society, c/o Herb Plever, 172-34 133rd Avenue # 8A, Jamaica, NY 11434. email addr: hplever@nyc.rr.com