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Editorial Advisory Board: David H. Benzing, Gregory K. Brown, Jason Grant, Pamela Koide, Thomas U. Lineham, Jr., Harry E. Luther, Walter Till.
Cover Photographs: Two stunning bromeliads in cultivation at the Marie Selby Botanical Gardens that have never been adequately illustrated in the Journal: Front: *Billbergia eloiseae*. Not only is Eloise Beach of Apopka, Florida a steadfast supporter of the BSI (see Beach et al. on p. 271), she has a spectacular bromeliad named for her. Back: *Vriesea simplex*, from Brazil, seen in bud here has beautiful zig-zag pendent inflorescences and large flowers. Photographs by Bruce Holst.

FEATURE ARTICLES

BROMELIAD SOCIETY EVENTS, BUSINESS AND NEWS

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Proliferating Pups

Herb Plever[1] **Photographs by the Author**

An article by Derek Butcher on the lexicography of the word 'pup' triggered the idea for this article. It got me to thinking about how the bromeliad family reproduces asexually and vegetatively. Of course all bromeliads produce seeds, and there are some such as *Puya raimondii, Tillandsia complanata* and *T. deppeana* that will only reproduce by making seeds, but not vegetatively. When they are mature enough to flower, and sometimes before that, many plants will produce small new plantlets, which are commonly called offshoots or offsets. In the Bromeliad world we call them 'pups'. In most bromeliads, pups appear at the base of the plant or grow out from the leaf axils; sometimes they grow on the inflorescence spikes at their tips or near the flowers, at the base of a spike, or at one of the internodes of the scape or stem of the inflorescence.

These pups are called viviparous or proliferating. Examples of species using this method of pupping (we now also use the term as a verb!), are *Orthophytum benzingii, O. gurkenii, Tillandsia aizoides, T. denudata* var. *vivipara*, some forms of *T. flexuosa, T. intermedia, T. latifolia,* some forms of *T. paucifolia, T. propagulifera, T. pyramidata, T. secunda,* and *T. somnians* (see FIGURES 1-3).

This started me thinking about the different types of asexual reproduction and the purpose(s) they served as evolutionary strategies for survival. Natural selection is what makes life go round in our universe. It is clear that a plant requires more nutrients to be able to reproduce both by seed and vegetatively. When fewer nutrients are available the plant will either have fewer seeds and more pups or visa versa. The trade off is that if the seeds become sterile, the plant has an alternate vegetative mechanism for survival [see G.S. Baracho, JBS 50(1): 10-13. 2000].

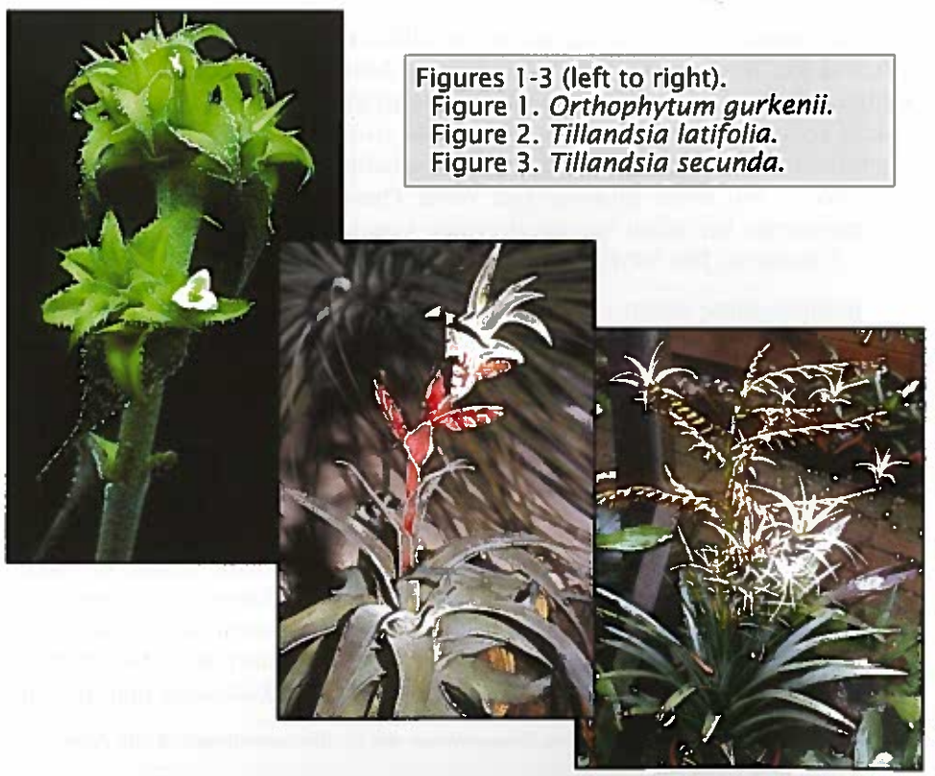
Is there some additional benefit for plants that have evolved the ability to produce pups on their inflorescence? David Benzing, in his ***BROMELIACEAE: Profile of an Adaptive Radiation*** (Cambridge Univ. Press, 2000) notes at p. 325: "... *Tillandsia* species that proliferate from the inflorescence often scramble over the ground, and sometimes grow into low shrubs, as does the facultative epiphyte *T. flexuosa*, native to semi-arid coastal strand habitats in Venezuela... Two varieties of *Tillandsia latifolia* dominate vast expanses of treeless Peruvian coastal desert according to a somewhat different arrangement. *Tillandsia latifolia* var. *major* forms relatively large rosettes... scattered across loose sand. Proliferative inflorescences produced by its smaller relative, *T. latifolia* var. *minor* bend forward under their own weight to produce successive rows of progeny oriented into the on-shore stream of life-sustaining, mist-laden sea air. *Tillandsia paleacea* marches up-

[1] Jamaica, New York. Reprinted from *Bromeliana* 46(1), the newsletter of the New York Bromeliad Society.

wind in similar fashion..." (Note: *The minor form of Tillandsia latifolia no longer has variety status, but it now generally represents the type species, sometimes called var. latifolia).*

For the survival of their species, these plants have adapted to life at the beach in the sand. But many saxicoles that grow on rocks, in crevices and gulches, etc., have made similar adaptations. In Dr. Benzing's book, he notes at page 325:"...Several members of *Orthophytum*...may rely on axillary inflorescences that regularly terminate as plantlets to colonize patches of soil on typically rocky substrates...Elongate, initially upright shoots tend to bend or twist downward...for spreading clonal growth."

Benzing's book gives instances of the variability of bromeliad species and of how the same species display different characteristics in different environments. At p. 323 he notes:"...Patterns vary within species. Recall that *Tillandsia utriculata* is monocarpic *(it only flowers once in its life - Ed.)* in Florida, but iteroparous *(it fruits in successive seasons - Ed.)* in Mexico. *Tillandsia secunda* produces offshoots on inflorescences and from leaf axils in northern Ecuador, but further south in the same country relies exclusively on seeds." Dr. Lyman B. Smith's Monograph reports that *T. secunda* grows terrestrially and on rocks and cliffs at high altitudes up to about 6000 feet (1830 m). Northern Ecuador is high mountainous and rocky while its south is somewhat lower, less rocky, and warmer, which favors the production and distribution of seeds.



Figures 1-3 (left to right).
Figure 1. *Orthophytum gurkenii.*
Figure 2. *Tillandsia latifolia.*
Figure 3. *Tillandsia secunda.*

Dr. Benzing further reports the interesting, related phenomenon that roots occasionally develop on inflorescences, especially *Tillandsia latifolia, T. somnians,* and *T. secunda*. Unfortunately there has been a paucity of reporting on proliferating pups and there has been absolutely no mention in the BSI Bulletin or Journal of such interesting plants. *Tillandsia somnians* proliferates its pups at the internodes of the scape of the inflorescence instead of on its branches. It would be fascinating to find out why *T. somnians* developed roots and meristem tissue at those internodes. Does the scape bend down or break upon drying to reach the ground or rocks below and thus provide a base for the new plants on the scape to grow and colonize? We need more habitat information about this plant.

In Memoriam: William R. Paylen

Dutch Vandervort[2]

William "Bill" Paylen passed away on June 29, 2005. He was 87 years old, a life long plant lover, and one of the gurus of my bromeliad world (FIGURE 4).

Those of you who knew him will be saddened. Those of you who never knew him missed a great experience. When I first met Bill he was one of the three great students of Bromeliads in Southern California. He, Fred Lenert, and Charles Wiley knew all that was known about bromeliads in their era. But among the three, Bill stood out because of his broad knowledge of other plant families as well — grasses, vines, cactus, succulents, orchids, rhododendrons, tropical fruits; you name it and he knew it inside and out.

Born August 14, 1917, Bill grew up in Indonesia where his father managed a large plantation. He was attuned to nature in his youth and then trapped in Holland by World War II. He made his way to the United States shortly after the war and worked as a rose budder, grafting flowering stock onto hardy root stock; as a lawn mower, and finally achieving recognition as a top landscaper. In his design career his work included major portions of the famous Lotusland garden of Madame Ganna Walska in Montecito, near Santa Barbara; The Getty Museum of Los Angeles, and numerous corporate and private yards and gardens. Among other assignments he once managed the orchid collection of Ronald and Nancy Reagan.

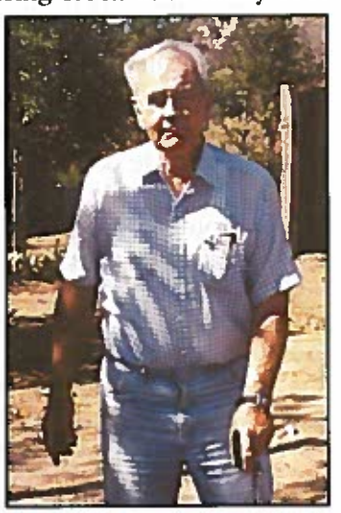


Figure 4. William (Bill) R. Paylen, at his home in Camarillo, California.
Photograph by Alice Woods.

World traveler, plant collector, generous friend to all who knew him, Bill bought an acre

[2] Ventura, California.

of parched, sandy wash in Camarillo, California at age 78. With one artificial hip already and another just months away he began the transformation of a barren yard with three half dead avocado trees, one half dead and one dead *Washingtonia filifera* palms to a beautiful vista of bromeliads, palms, cycads, flowering trees and sculptured lawn.

Though Bill succumbed after a long siege of diseases too dread and numerous to mention, he was happy and productive to the very end. Four days prior to his death he was contentedly devouring mango slices, slurping popsicles, and chatting with visiting friends. The night of his passing slipped peacefully away with his loving sister Gretel at his side.

Though Bill is gone, many of us will remember him for all of our lives.

Editor's note: Bill Paylen served as BSI President from 1971-1975, Vice-President from 1975-1977, Regional Director (California) from 1966-1971 and 1981-1982, was one of three people grandfathered in as accredited bromeliad judges in 1983, honored with Life Membership from the South Bay Bromeliad Associates in 1998, frequent local society officer and show manager, and traveler to Peru, Panama, and Costa Rica on bromeliad collecting trips. For more information on Bill, see the two articles in The Journal by Seth Napel, "The Many Gardens of Bill Paylen" [JBS 49(3): 120-123. 1999] and "Lotusland's Bromeliads - Caring for the Collection" [JBS 49(4): 174-176. 1999]. Many thanks to Geoff Lawn for his help in compiling this information.

Call for Nominations for the Wally Berg Award of Excellence

Theresa M. Bert, BSI Nominations Chair[3]

Introduction

The Wally Berg Award of Excellence was initiated in 1999 to honor the late Wally Berg (1927-2000) of Sarasota, Florida. Wally and his wife Dorothy were extraordinary bromeliad growers. Their private collection was one of the most diversified and unique in the world. The setting of their bromeliad gardens was magnificent and immaculate. Wally was an enthusiastic supporter of the BSI. He donated many rare plants sales and auctions that benefited the BSI, the Bromeliad Identification Center at Selby Botanical Gardens, research on the "Evil Weevil", and other worthy causes. He volunteered many hours of service at Selby Gardens. He had a broad knowledge of bromeliad horticulture and science and frequently spoke to bromeliad societies on a variety of topics, especially on his adventures exploring and collecting in Central and South America. He served many offices in the Sarasota Bromeliad Society. He introduced several *Aechmea* cultivars into culture and created several hybrids. He frequently won top awards, including Best in Show at World Bromeliad Conferences and Florida local and regional bromeliad shows, and a number of bromeliad species were named in his honor.

For a detailed history of the BSI Wally Berg Award of Excellence and a list of prior award winners and nominees, see http://www.bsi.org/bsi_info/awards/wally_berg.html. Some of Wally and Dorothy Berg's achievements and adventures are featured on the Florida Council of Bromeliad Society's website: http://fcbs.org/ under Photo Index—Programs—see Berg Cage and Bromeliads in Habitat.

Following are the award criteria and procedures for nomination. Individuals, couples, or members deceased within the past two years, are eligible.

New rules for 2006 state that nominees must be past or present members of the BSI and that nominators be present members in good standing.

Award Criteria

1. The individuals must be past or present members of the BSI.
2. The individuals should be bromeliad growers who are nationally or internationally recognized for diversity of species cultivated and excellence of cultivation.
3. The individuals should actively pursue one of the following activities:
   a. collecting and identifying bromeliads in natural environments, including collecting new species/varieties/cultivars; the members of the various bromeliad societies and organizations, including the BSI and the BIC, should benefit from this activity;
   b. promoting the appreciation and cultivation of bromeliads at the international level, including such activities as organizing and participating in collecting trips with international representation, giving presentations and seminars to national and international audiences, and writing manuscripts for publication in national or international books, journals, or other media (e.g. Internet, CD ROMS).
4. The individuals should actively support efforts to further the scientific, taxonomic, or cultural understanding of bromeliads through donation of time, effort, or money to recognized organizations, institutions, or groups of individuals (e.g., the BSI, BIC, Selby Botanical Gardens, bromeliad clubs or councils).
5. The individuals should be active in a local, regional, or national bromeliad society and be recognized by other members of that society for their contributions to the functioning of that society and its activities.
6. If the individuals are bromeliad hybridizers, they should be internationally recognized for excellence in one or more of the following categories:
   a. innovation in creating bromeliad hybrids,
   b. success in cultivation of bromeliad hybrids,
   c. promotion and distribution of bromeliad hybrids.

3. 9251 13th Ave. Cir. NW, Bradenton, FL 34209-8305. E-mail: nominations@bsi.org.

7. The individuals should be generally recognized as experts in one or more of the following aspects of bromeliads:
   a. ecology, evolution, or taxonomy,
   b. cultivation or hybridization,
   c. display or exhibition.

8. The individuals should be generally recognized for their generous nature in sharing knowledge of bromeliads and for personal giving for the benefit of other people interested in bromeliads and for bromeliad organizations at all levels.

Procedures for Nomination

1. Nominators must be present members of the BSI.

2. The nominator should submit the nomination in writing, by either letter or electronic mail. The nominator should provide a brief resume of the accomplishments of the nominee(s) in bromeliad-related activities (e.g., service, offices held, major awards won) and a letter describing the way in which the nominee(s) meets at least four of Criteria 2-8 listed above. That a nominee is or was a BSI member will be taken in good faith.

3. Past nominees may be re-nominated if they meet the current award criteria. Previous award winners are ineligible for re-nomination.

4. Please send nominations to Theresa Bert, Curator of the Wally Berg Award, 9251 13th Ave. Cir. NW, Bradenton, FL 34209-8305. E-mail: nominations@bsi.org.

5. Submissions must be received by April 1, 2006.

The winner will be selected by the BSI Board of Directors from eligible nominees. One award is made every two years. The winner of the 2006 Wally Berg Award of Excellence or his/her representative will receive the award at the 2006 BSI World Bromeliad Conference in San Diego, California. The winner's name will be published in the BSI Journal and posted on the BSI website.

If possible, please send nominations to the curator via electronic mail at: nominations@bsi.org, as it will greatly expedite the process. Thank you.

(Background photograph, Pitcairnia bergii, by Phil Nelson, with some PhotoShop work by the Editor)

Background photograph, *Pitcairnia bergii*, by Phil Nelson, with some PhotoShop work by the Editor.

Wandering Through Big Cypress Preserve, Florida

Tammy Marks[4] **Photographs by Ken Marks**

Florida is one of the few places in the United States where we can brag about native bromeliads. Spanish moss, of course, can be found from Argentina to southern Virginia, and it can be seen gracefully draping tree limbs off the sides of the roads. Spanish moss' proliferation prevents us from claiming sole rights to native bromeliads in the US, but nonetheless, we have beautiful preserves where you can wander through the cypress swamps and thickets searching for our native tillandsias.

The walks through the preserves are made easier and more accessible with boardwalks that lead you in and out of the areas, and the park rangers in the air-conditioned visitor centers are available to answer any questions you have. It is, of course, very civilized. A little mosquito spray to keep off the pests combined with a cool breeze, and you could almost imagine yourself wandering through the Tropical Café while waiting for your table for dinner.

Realistically, many of us prefer it this way, but how many of us have wondered what is it like to actually go into the Everglades or other nearby swamps and slosh through the undergrowth? When you peer down at that slow moving river and see clear down to the bottom, haven't you ever wanted to know what that Earl Grey tea feels like on your skin?

As it happens, Clyde Butcher, a renowned Florida photographer lends his name and his experience to an Annual Labor Day Weekend Gala to escort numerous, adventuresome souls for a three-day event and swamp walk in the

[4] Boca Raton, Florida.

Big Cypress Preserve in Collier County. Naturally, Clyde isn't personally escorting all of us on the swamp walks, but he is on hand to autograph any photos or books you may purchase, or just to talk if you like.

How do you prepare for such a walk? Snug walking shoes that won't get sucked off by the ooze, long pants to prevent scratching, and a great attitude. We arrived early at the Clyde Butcher Gallery, spent a few minutes checking in and immediately went to ogle Clyde's collection of photographs while we were still clean and dry. The beauty of the Everglades and the nearby swamp preserves are seen so clearly when captured by such an artist. It inspires you to run out and start snapping pictures at every cloud and tree in the landscape.

Many of the Florida and national environmental groups were on hand to lend a hand, Friends of Big Cypress National Preserve, Friends of Fakahatchee Strand, Rookery Bay National Estuarine Research Reserve, Florida Trail Association, and The Institute for Regional Conservation. Some of

the associations provided tour guides for the swamp walks. We gathered on the trail. There were about 20 of us plus three guides: one in the front to lead, one in the middle and one at the end for the laggards. The first step into the water isn't so bad. The water hadn't managed to seep in yet but eventually it hits your ankle and the cool water feels good on such a hot day.

But, with people waiting behind, you have to continue walking and the water slowly creeps up pass your knees. The sensation is exactly like walking down the steps of a cold swimming pool but without the option of just jumping in and getting it over with. The incline is not steep so you have the pleasure of extending this sensation. You take sharp gasps every time water finds new dry skin to wet.

We slowly make our way along this water trail, passing some cypress trees. The walking sticks are very handy, and our feet tentatively feel for firm ground or at least of firm sloshy ground, wary of the hidden logs that can snag a foot, or of deep sink holes inches from where someone can be standing firm. Eventually, the water reaches chest height and a few children in the group are swimming in certain areas. A misstep into a sinkhole would certainly mean a top to bottom shower in the impromptu stalls set up next to the trails instead of a quick rinse off.

Water, of course, is the single biggest element impacting these areas of southern Florida. We are wading in it. Overhead the clouds threaten to drench us in more. The plants and animals in this area depend on it to survive. It can neither be too wet nor too dry, too high, nor too low. It flows a mile a day until it meanders its way to Florida Bay and out to the Gulf of Mexico.

As you turn your attention to the environment around you, you start to see more details. There are apple snail eggs not more than 2 inches above water level clinging to the saw grass. Many of our native bromeliad species are here, *Tillandsia fasciculata, T. utricula-ta, T. balbisiana, T. variabilis, T. usneoides, T. recurvata,* and *T. paucifolia*. There are even a few *Tillandsia smalliana* (the natural hybrid between *T. balbisiana* and *T. fasciculata*). Some are right at water's edge and scattered on the fallen limbs of trees. High above you in the tree-tops, the silhou-ettes of bromeliad clumps can be clearly seen.

The Everglades and adjacent areas are not one dense swamp or an upland hammock. It is a combination of things. In the Big Cypress, we first walk through a field of young swamp cypress and the sunlight comes through. Then there is dap-pled shade and sunlight as we continue into more mature trees, and the canopy starts to cover us up as pond apple trees become more common. The pond apple tree is the primary host for the fabled Ghost Orchid. Though these leafless orchids are nearly invisible when not in bloom, it is difficult to pass a mature pond apple tree without searching its trunk for the green pho-tosynthetic roots of this swamp jewel.

Looking past our trail and just two feet away, our stirred-up and muddied water is crystal clear, though the color of iced-tea. The continuous moving sluice helps to clean the water, and keeps the mosquito population down as well.

There is not much evidence of damage from the Mexican weevil that is such a menace to many of Florida's bromeliads. The damage might be hard to spot, though, since fallen bromeliads would sink or be carried away by the water. In its native habitat, you can see how the *Tillandsia fasciculata* cap-tures the fallen debris in its leaves to create its own humus pile.

Soon our journey is at an end and we stumble back onto dry land. The hour walk passed much too quickly but the experience will last far longer. And next year, we'll certainly be back.

Ed. Note: The intrepid adventurer above is Mr. Craig Morrel.

Highlights of the 2005 BSI Board of Officers and Directors Meeting

Rusty Luthe, BSI Secretary

Following is a summary of items discussed or action taken at the Bromeliad Society International Board of Directors meeting held in Albuquerque, New Mexico on May 7, 2005. The reports reflect the expenses and activities of the calendar year 2004. (Note: This is not a verbatim report of the minutes, but was condensed by the Editor for readability).

The President Joyce Brehm called the Annual Membership meeting to order, and a quorum was established. There was no old business or any new business. No announcements were made. A motion was made and seconded to adjourn the meeting.

Following, the 2005 Annual Meeting of the Board of Officers and Directors was called to order, and a quorum was established. The following members were in attendance in addition to visitor Mary Whittemore.

Officers	Directors
Joyce Brehm – President	Gregory Brown – USA West
Jack Reilly – First Vice President	Gary Gallick – USA Texas
John Atlee – Membership Secretary	Larry Giroux – USA Florida
Ed Doherty – Treasurer	Martha Goode – USA Central
Bruce Holst – Editor	Reinaldo Irizarry – USA South
Rusty Luthe – Secretary	Ken Marks – USA Florida
	David McReynolds – USA Northeast
	Fred Ross – USA Louisiana
	Jay Thurrot – USA Florida

Unable to Attend: Michael Andreas (Florida), Theresa Bert (Florida), Luiz Felipe de Carvalho (International), Geoff Lawn (Australia), Jack Percival (California), Hiroyuki Takizawa (International), Peter Waters (International), Tom Wolfe (Past President).

The President asked for approval of the minutes from the last BSI Board meeting held at the Westin O'Hare Hotel, Rosemont, Illinois, on August 10, 2004. A motion was passed to approve the minutes from the last BSI Board meeting after changes have been made.

The President asked that all reports submitted by Officers and Standing Chairs be accepted as written. A motion was made and passed. The president

then extended a warm welcome to Jay Thurrot, the new Director from Florida, and to Rei Irizarry, who was appointed to replace his late wife, Gloria.

Officer's Reports

President: The President asked the Board to be sure they start using the new BSI logo for official matters and to see that affiliates have new logos available. The President gave another big thank you to the Chicago Society for hosting the WBC.

Vice-President: Report accepted as submitted.

Editor: The Editor discussed the delay in the publication schedule and various options were put forward to speed up the publication process. The Journal is still being mailed out approximately every two months. He also talked of reducing the numbers of copies that are printed to reduce a storage problem being experienced by the Publications Chair. Mr. Holst thanked all those that have contributed articles in the past year and made an appeal for continuing article contributions. He stated that there are no articles coming in that are at the beginner's level or for casual Bromeliad cultivation. The quality of the Journal was commended.

Membership Secretary: There was discussion on how percentages of members are reported. A motion was passed in order for membership figures to be rounded to the nearest whole percentage point and the decision about distribution of regional representatives to be based on this new value. There was discussion on how the membership roll numbers need to get to the Nominations Chair by September 1st so that call for nominations and the ballots can be mailed in the appropriate issue of the Journal. This was followed by discussion regarding the Membership Secretary's need for high-speed internet access. A motion was passed that the BSI cover the cost of a high-speed internet connection for the Membership Secretary.

Secretary: Report accepted as submitted.

Treasurer: The Treasurer noted that the 2005 budget would need to be amended to reflect the changes that have been made to costs and expenses established during the course of this meeting. It was noted that there are many within the BSI who contribute time and money to the BSI and receive no compensation whatsoever. A motion was passed to approve the amended 2005 budget to reflect the changes for the BSI Journal, the BIC, medallions & ribbons, and DSL for the Membership Secretary. Another motion was approved to accept the 2006 budget.

The Treasurer discussed the re-incorporation of the BSI in California, as the current incorporation has lapsed. He talked of the requirements needed by the state of California and the difficulty to satisfy their requirements. He discussed a related problem, which is our tax exemption. He has found that when the BSI initially filed for tax exemption in 1965, the BSI was listed as an agricultural organization. This can be remedied by reapplying for a new

tax exemption. This, however, will require changes to some of the bylaws to show that the BSI is not a social club. Both of these problems can be resolved by simply starting over with an incorporation and tax exemption application in Texas. A motion was approved to re-incorporate the BSI in Texas. *(Editor's Note: Subsequent to the meeting, it was determined that the BSI could continue its incorporation in the state of California).*

Standing Committees

Affiliate Shows. Carolyn Shoenau, Chair. The President noted that Carolyn Schoenau is running out of plaques and medallions and wondered if they should be reordered. The cost of the plaques is $28 and the cost of the medallions $5.15 each and sold to the affiliates for $6 each. Discussion followed as to how many should be re-ordered. A motion was passed to accept and keep the plaques and medallions. Another motion was passed to order 200 units (600 in all) of each color and to let the Committee Chair decide the minimum fee over cost, to charge the affiliate. It was noted that the Affiliate Show Report form should be posted on the BSI website. Ken Marks will put it up.

Affiliated Societies. Gene Schmidt, Chair. It was noted that the upcoming survey would help to answer questions regarding the direction of the BSI. It was further noted that there is an Affiliate meeting at the WBC and it was found to be useful. The President stated that Mr. Schmidt had done a great job so far with keeping the network of affiliate societies connected to the BSI through the regular column in the BSI Journal and getting new societies affiliated.

Archive and Historical. Janet and Robert LaRoe, Chairs. There was discussion regarding what to do with the old negatives from the BSI archives. A motion was passed that the negatives of past BSI Journals be offered to the Hunt Institute of Botanical Documentation for their historical value. More discussion ensued on the disposition of the old Cultivar Registration forms from D. Beadle ca. 1998 Registry. Current Registrar, D. Butcher, has scanned in these forms and has them on his computer, but the question of what to do with the hard copies was discussed. A motion was passed for Ken Marks to be authorized to look at the files that are in storage at Selby Gardens and continue discussion with the Board and the Cultivar Registrar on what to do with the hand written Cultivar Registration forms.

Bromeliad Research Grant. Gregory Brown, Chair. Dr. Brown talked of the current grant applications giving his recommendations for funding. He also talked of the setting an annual/biannual deadline for proposal submissions to allow for fair consideration of all proposals submitted. A motion was passed to fund the research projects of Thorsten Krömer and Brian Sidoti as requested by the committee Chair. The motion was then withdrawn following discussion of the roles of the Research Committee and that of the Board. It was determined that the Board is responsible for establishing the annual research budget and that the committee be responsible for how the funds are allocated, and later providing an accounting of how the monies were disbursed.

Conservation. No report.

Cultivar Registration. Derek Butcher, Chair. It was noted that there are now 7100 cultivar names. There was further discussion about reprinting an up-to-date Bromeliad Cultivar Registry (BCR). There have been few requests for a hard copy of the BCR. There also was discussion on what form the Registry Database should take, how it would get updated and distributed. K. Marks will look into this further. There followed discussion about the idea of finding a sponsor(s) for the Cultivar Registrar Award. G. Gallick will report back with recommendations. A motion was passed to authorize that an article shall be written for the BSI Journal regarding interest in sponsorship of the Best New Cultivar Award. The article shall be approved by Board before publication.

Finance and Audit. Elizabeth Patterson, Chair. Treasurer E. Doherty reported that E. Patterson was able to review his records. The President will ask the Chair for a report.

Judges Certification. Betty Ann Prevatt, Chair. There was discussion on the re-write progress of the Judges handbook and how to expedite its completion. The President also reported that New Zealand has been quite active in setting up Judges Schools.

Publication Sales. George Allaria, Chair. It was decided to not print an update of the 50 Year Index. Updates appear in the BSI website. There was again much discussion as to what to do with the surplus Journals. It was noted that some Journals have found their way to eBay. Many ideas were discussed including how these Journals should be shipped and to whom. A motion was made that the surplus Journals can be sent to affiliate societies, at their request, with the cost of shipping to be covered by BSI. These could then be distributed at the affiliate's discretion along with a sticker that states 'Compliments of the Bromeliad Society International'.

Seed Fund. Harvey Beltz, Chair. The president made a request for all to contribute to the Seed Fund as H. Beltz sells quite a bit. A request was made that the Seed Fund advertisement be reinserted into the BSI Journal. The Editor agreed to do so.

Slide Library. No report. This will now be called the Media Library.

Web Site. Ken Marks, Webmaster. Mr. Marks reported on the progress of the auction web site. He has created a user name for an eBay account; but before a full account can be created or any selling done, eBay and PayPal both require a credit card. He continued reporting on what the auction site will look like, what items will be auctioned. This led to talk of the BSI Library. Selby Gardens and the BSI Library have right of first refusal on any items that are donated, after which the items will go up for auction. The number of visits to the BSI website is up as well as the number of pages viewed per visit. A word of thanks was expressed to K. Marks for all the work he has done regarding the web site and the publishing of all back Journals on the web site. A motion was passed that the BSI obtain a credit card account.

Mulford B. Foster Bromeliad Identification Center. Harry Luther, Director. Editor B. Holst reported for Mr. Luther and stated that since the BIC has discontinued the BIC assistant position it will not need to be funded for the coming year. Mr. Luther is relying more on volunteer assistance. Discussion ensued to clarify the respective portions of the financial support of the BIC for which the Marie Selby Botanical Gardens and the BSI are responsible. It was noted that it would be a good time for an article in the Journal regarding the BIC, and also to have H. Luther send out letters on a more personal level to affiliates including reprints of articles and other information of interest, as a solicitation for continued donations to the BIC. A motion was passed reaffirming that the BSI will cover any BIC deficit from its general fund.

Special Committees

Nominations Committee. Theresa Bert, Chair. The President asked that the Standing Committee chairs slate be accepted as presented to the Board except for the chairs of Conservation and Media Library (Slide Library). A motion was so passed. A further motion was passed to accept Pierre Ibisch as new Conservation Chair and Keith Smith as new Media Chair (formerly Slide Library).

BSI Future Planning. Keith Smith, Chair. It was decided to put this off until the survey had been compiled.

BSI Survey. Michael Andreas, Chair. There was a discussion about to whom to send the questionnaire and how far back to go in the mailing of past members. Two to three years was far back enough. A motion was approved to accept the BSI questionnaire as submitted. Discussion continued regarding who will get the survey, how much the mailing would cost, and what would be the content of the mailing package. It was decided that the mailing should go back as far as January 2003 membership. A motion was passed to approve the distribution plan as submitted by committee. Another motion was passed to authorize $1,500 for production and mailing of survey as recommended. Before leaving this topic, the Board asked when this survey would be done. It was determined that September was a reasonable time frame.

Bylaws Review. There was a meeting of the President, Vice President, Secretary, Membership Secretary, and Treasurer to review the BSI bylaws. Changes that could be made at that meeting and those that required membership notification were discussed. A revised copy of the bylaws will be submitted to the Board in June 2005.

Wally Berg Award of Excellence. Theresa Bert, Chair. The President reported that the award criteria wording had been changed to read, "Nominees must be past or present members of the BSI. Individuals, partners or deceased members within the past two years, are eligible. Nominators must be current members of the BSI." This will be added.

World Conference. Jack Reilly & Mary Whittemore reporting. The president stated that since there is no 2nd Vice President, the job falls to the 1st Vice President's shoulders. J. Reilly has kindly consented to work on the Conference. M. Whittemore reported on the progress made so far, including hotel contract, speakers, etc. She also asked for volunteers for a couple of empty spots. There was also a call for plant donations for an upcoming plant auction in San Diego. These auctions have been quite successful at fund raising.

World Headquarters. Tom Wolfe, Chair. The President reports that Mr. Wolfe is working with Selby Gardens in further establishing the BSI World Headquarters. The Treasurer reports that there was a $1200 gift given to the BSI Headquarters that has a time constraint on it and that could be used to purchase another fireproof cabinet for the headquarters.

Additional Business

New Zealand as a BSI Region. The President discussed the possibility of recognizing New Zealand as a region. She mentioned that they have approx. 25% of the international membership. This involved approving them as a region, changing the Bylaws, adding to the directory as a region, and allowing them to have one director separating them from the international region. There are approx. 500 affiliate members of the New Zealand Bromeliad Society. Another topic discussed was the request for having the Journals to be shipped to New Zealand in bulk and then sending them out to the individuals from there. This may reduce their membership costs. A motion was passed to recognize New Zealand as a region and to notify the affiliates via the affiliates website and/or mail of the change, 30 days after May 7, 2005 before making the change. The change will then be made in the directory and Bylaws.

Purchase of Kiti Wenzel's Print Rights. Larry Giroux brought up the subject of purchasing the publishing rights to Kiti Wenzel's Bromeliad prints. These could then be used for cards, posters, etc. The President will follow up with L. Giroux and the Board Internet Relay.

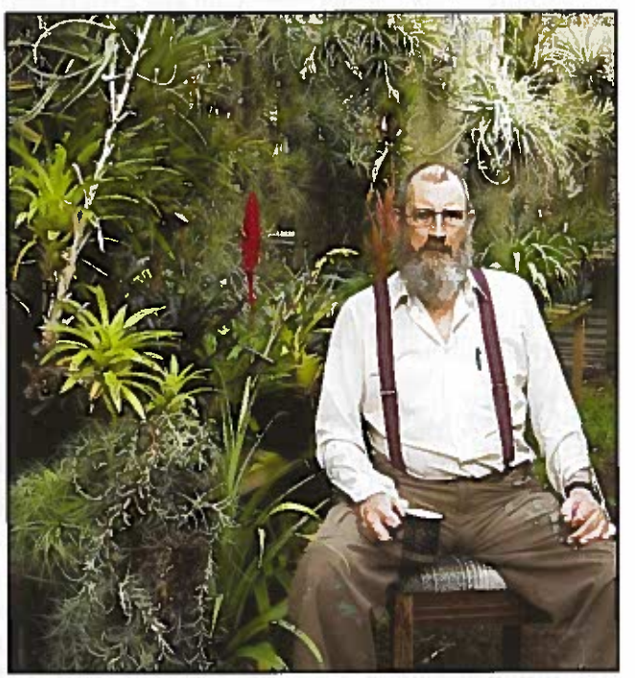
A motion was passed to adjourn the meeting. *The next Board Meeting will be held 6 June 2006 at the 17th World Bromeliad Conference, San Diego, California.*

Introducing: Andrew Flower, New BSI Editor

Bruce Holst, BSI Editor

My wife, Susan Murphy, and I have enjoyed editing The Journal of The Bromeliad Society these past three years. However, it is time to hand over the responsibilities to the next Editor, Andrew Flower, in New Zealand. We have endeavored to catch up with the publication schedule, but the joy and challenges of having young children has not always allowed time for the demanding job of Editor. With that said, we are very pleased to introduce Andrew Flower (FIGURE 10). Having worked with him during the past few months, I have learned that he is very committed to doing the best job possible to serve the BSI members and to working as hard as possible to provide the services that the Society needs. Let me assure you that long before you see his first issue (Jan.-Feb. 2006), Andrew has been busy working with our printers in Orlando, Florida to develop ways to transfer manuscripts quickly and efficiently via electronic means (the distance from New Zealand to Florida will be irrelevant!). He is aggressively seeking new advertisers, reaching out to the tremendous talent of the bromeliad world to find engaging articles for us all, and most importantly, learning what the membership wants.

Andrew's bromeliad-related activities began in the mid 1960s in Wellington, New Zealand, and he joined the BSI at about that time as well. His first major influence was Dr. Oeser's 1966 article on propagation of tillandsias from seed. Andrew corresponded with Dr. Oeser, received seed from him, and started growing it. In 1972 he made an extended business trip to the USA, the highlight being a 4-day stay with Mulford and Racine Foster in Orlando, kindly arranged by Victoria Padilla. During that trip he was also able to visit



Photograph by Andrew Flower.

Figure 10. Andrew Flower (2005), new Editor of The Journal of the Bromeliad Society.

George Kalmbacher at the Brooklyn Botanic Garden, thanks to Herb Plever whom he also visited, and to spend a day at the Missouri Botanical Garden in St. Louis.

From 1975 through to 1985, his marketing job with a multinational food ingredient company meant ever increasing trips to USA and Canada, Europe, and Asia (including a year living in Hamburg, Germany), all of which curtailed his bromeliad growing. He left the corporate world in 1986, set up his own computer software engineering business, and resumed the passion for bromeliads. By 1988, his seed propagating efforts led to the formation of his nursery, Anwyl Bromeliads (www.anwyl.com). The nursery developed from a vision in the 1960s of conserving species that may become extinct in their native habitat. The nursery now is designed to basically cover expenses and provide a mechanism for distributing seedlings. Surplus funds are spent on research, utilizing a professional horticulture consultant to help design ongoing nutrition trials and interpret the results. He also conducts ongoing CO_2 absorption trials, and routinely analyzes plant leaves as well as water quality and mineral composition. The nursery has 6 growing units with a variety of climates. Two digital thermo hygraphs monitor temperature and humidity ranges over time.

Andrew has considerable editorial experience as well. He was editor of the Bromeliad Society of New Zealand monthly Bulletin from 1994-1999, and 2002, at which time he prepared the copy, printed it on his own color printer, and distributed it. In 1995, he gave a paper to the Australian Bromeliad Conference in Adelaide on propagation of tillandsias. That year he also founded the Wellington Tillandsia Study Group, which is still in operation. He has made presentations to the Australian Bromeliad Conference in Cairns (1999) on water pressure deficit, to the Australian Tillandsia Participation Event on CAM Respiration (2000), on tillandsia nutrition (2002), and on computerized plant record systems and plant development from a genetic perspective (2003), and to the Australian Bromeliad Conference in Auckland (2003) on bromeliad nutrition.

Andrew has also been a member of the Bromeliad Society of New Zealand since the mid 1960s, the Bromeliad Society of Australia since 1990, and the German Bromeliad Society since 1991. He is also co-list owner, with Eric Gouda, of the BROM-L internet discussion group.

He enjoys photographing plants, and in 1996 was awarded first place in the cultivated bromeliad section of the Brazil Bromeliad Society's International Bromeliad Photography competition. He has traveled to Argentina photographing bromeliads and collecting seed. He has an extensive bromeliad library. On the academic side, Andrew received his MA in Philosophy with honors from the Victoria University of Wellington in 1992. In addition to the arts subjects for the BA and BA (Hons) degrees, he has completed individual undergraduate subjects in physics, chemistry, and biology including botany 101, as well as short courses in aseptic propagation.

Andrew and his wife, Lissa, live near Wellington, New Zealand. Lissa is a dermatologist and occupational medicine specialist. She owns her own medical centre, and is a Senior Lecturer at the Otago University School of Medicine.

The BSI is poised to play a greater role in not only relating membership, society, and horticultural information to the members in print and via electronic means, but becoming a more effective advocate for the conservation of bromeliads and their habitats. Look for future articles by Conservation Chair Pierre Ibisch in this regard. Finally, we thank you all for sending us your letters, manuscripts, photos of your favorite plants, and suggestions. We also wish to salute the editors before us for making The Journal an interesting, useful, and thought-provoking contribution to the world of plants.

Expect to see several issues in quick succession as we work to get the Journal on schedule.

We hope you will continue to support the BSI. Please join us in welcoming Andrew to the position of Editor!

Bromeliads on Coins

Chester Skotak, Jr.[5] **Photographs by the Author**

The short lived Central American Republic, which existed from 1823 to 1839, was the union of five provinces: Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica. These five provinces, which later became separate countries, began striking their own coinage in 1824.

In my opinion it is the most beautiful design ever put on a coin. (I laugh when I hear people say that these coins were designed and made by the first hippies). All silver and gold coins of the Central American Republic have a similar design, but I will describe in this short article the 8 *Reales*, which were legal tender in the United States until 1857.

On the obverse the inscription *REPUBLICA DEL CENTRO DE AMERICA* can be read around the outer margin (FIGURE 11) and at the center of the coin there are five mountains which represent the five provinces with a smiling, rising sun with full splendorous rays. On the reverse *LIBRE CRESCA FECUNDO* (freedom, growth and prosperity), along with the purity of the silver, the assayer and the mint mark showing where the coin was made (FIGURE 12). In the middle of the coin there is a Ceiba tree and the denomination "8." and an "R." on each side of the giant tree, most likely *Ceiba pentandra*. This was part of the design possibly because it was the most imposing tree species in the New World. At the base of the *Ceiba* there is a *Vriesea* species in full inflorescence (detail in FIGURE 13). The inhabitants of

5. Costa Rica.

Figure 11. Obverse of an 1861 8-Real coin from the Republica del Centro de America. The five mountains represent the five Central American provinces, Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica.

Figure 12. Reverse side of the 1861 8-Real coin showing a large tree with a species of *Vriesea* growing beneath it.

Figure 13. Detail of the *Vriesea*.

this new nation of fewer than 1.5 million people liked their coinage so much that even after the Federation split up, the design continued in Guatemala until 1851, Honduras until 1861, and Costa Rican coinage until 1850.

Every time I read some article or book that states the significance of each one of the details on this coin, they leave out one small but significant item, the flowering *Vriesea*. It may have been a symbol of the natural beauty of Central America during this period. There are depictions of pineapples on Barbados tokens dated 1788, but this is the first legal tender coin I've seen with a *Vriesea*. It's incredible to me that this bromeliad's beauty was appreciated in Central America over 180 years ago!

Living in the Understory with *Canistrum* and *Canistropsis*

Theresa M. Bert[6] **Photographs by Phil Nelson**

The bromeliad genera *Canistrum* and *Canistropsis* are native to the Mata Atlantica of Brazil (also called the Atlantic Forest), a highly diverse coastal mountainous rainforest between Alagoas and Santa Catarina states. Over 95% of the original habitat has been replaced by fields, pastures, and urban development, which has been ongoing since Europeans first started to colonize this beautiful region. Unfortunately, we will never know the full extent of the bromeliad diversity in that region. Nevertheless, the remaining beauty is nicely represented by these two genera.

Both genera grow principally in forest understory habitats. The Mata Atlantica forest trees are very tall, which allows for a wide variety of habitats beneath the exposed forest canopy. Epiphytes grow from tree trunks and limbs from just beneath the top of the canopy to near the forest floor. Most

Figures 14-16. Some colorful species of the genus *Canistrum*.
Figure 14 (above). *Canistrum montanum*.
Figure 15 (above right). *Canistrum lanigerum*.
Figure 16 (right). *Canistrum seidelianum*.

6. Bradenton, Florida.

Canistrum and *Canistropsis* species inhabit the lower reaches of this vertical ecosystem, as well as the forest floor, where they grow terrestrially in the leaf litter and mixed rocky/sandy/loamy ground. The two genera are nearly mutually exclusive in geographical distribution. *Canistrum* is found from Alagoas to Espirito Santo and has its center of distribution in Bahia, where the most species occur. *Canistropsis* is found farther south, from southern Bahia to Santa Catarina and has its center of distribution between Rio de Janeiro state and Saõ Paulo state. Within the distributions of these genera, most species have very limited ranges; some are known from only single localities.

Most species are small to mid-sized plants. Most have flower clusters reminiscent of a cross between the typical inflorescence of a neoregelia and a nidularium, two genera closely related to *Canistrum* and *Canistropsis*. Although they don't have spectacularly colored flowers, their inflorescences are beautiful because most have large red, orange, pink, or yellow bracts cupping the inflorescence. Most species have either graceful arching deep green leaves or rather stiff, mottled or striated leaves that make a cupped or arching rosette.

Canistrum aurantiacum, the largest species in the genus, has the distinction of being the subject of an entire Ph.D. dissertation (de Segueira Filho and Machado 2001). Although its range is restricted to two Brazilian states—Alagoas and Pernambuco, it can be quite abundant in certain remnant Mata Atlantica forest patches. Of the smaller canistrums, *Canistrum triangularae* is both beautiful and horticulturally interesting. It is a sun-loving epiphyte that grows high in the forest canopy on mountain slopes at about 2500 ft (760 m) elevation. It's the southernmost *Canistrum* species and its distribution alone extends the genus' range considerably. It was woefully misidentified in culture for years as "C. fosterianum v. pardinum," a variety of *C. fosterianum* that was never officially described. *Canistrum triangularae* has two different forms, a narrow-leaf form and a more common broad-leaf type. This is a beautiful little species with bright red bracts and white flowers in the inflorescence.

In the genus *Canistropsis*, two particularly interesting species are *C. correia-araujoi* and *C. seidelii*. *Canistropsis correia-araujoi* is a taxonomically problematic species that was originally thought to be a neoregelia and is now thought to be a natural hybrid between a neoregelia and a *Canistropsis*. Known only from Rio de Janeiro state, it has not been found in the wild since its first collection and may be extirpated due to expanding urbanization, agriculture, and deforestation. When grown in very bright light (e.g., in a pool cage), this species turns a rich reddish rusty color. Large clumps of well-spaced plants can be grown over time from a single individual as the starting plant. *Canistropsis seidelii* has many unique features. Rather than red bracts and a condensed inflorescence, this species has bright yellow bracts interspersed on an expanded inflorescence. Its stolons are especially long and its bract cups hold considerable water, in contrast to other *Canistropsis* species and probably because its inflorescence is elongate.

I grow *Canistropsis albiflora, C. correia-araujoi, C. billbergioides,* of which there are several forms, *C. burchellii, C. exigua, C. microps, C. pulcherrima, C. seidelii, C. simulans,* and a couple of unnamed species. I grow *Canistrum alagoanum, C. aurantiacum, C. auratum, C. lanigerum, C. sandrae,* and *C. triangularae*. Several others are grown at Selby Botanical Gardens, e.g., *C. montanum, C. seidelianum*. Despite the general shadiness of their natural habitats, many species in these genera can be grown in a wide variety of light conditions. I live in west-central Florida near the coast, where air temperature descends to freezing, on average, one night per year. I've had good success with shade-loving *Canistrum* and *Canistropsis* species in outdoor conditions with a little full sun and in a pool cage in areas partially shaded by other bromeliads. *Canistrum triangularae* grows outdoors in a location that gets 2-3 hours of full sun in the afternoon. *Canistropsis correia-araujoi* grows in a pool cage (about 25-35% shade) fully exposed to the sun all day. Nearly all others grow in a shadehouse that is shaded by trees for part of the day. It's easy to over-water species in these genera. They do well if potted in a loose mix of about 50% potting soil, 50% Perlite, and a small amount of charcoal bits. I use red volcanic rock pieces to hold the plants up in the pot, pour the soil mix on top, and tap the mix into the rock interstices. Most species easily withstand temperatures down to 40° F but get nipped if not covered in freezing temperatures.

Plants in these genera are easy to grow and they readily make a few pups each generation. I've had some species for many generations. They're beautiful, most bloom at the turn of the year (the South American summer), and are convenient to grow if you have little space for bromeliads and little sun in the spaces you do have. To learn more about *Canistrum* and *Canistropsis* and how to tell these genera and their close relatives apart, check out the colorful and informative books by Elton Leme (Leme 1997, 1998), of which, at least *Canistropsis* is available online through Selby Botanical Gardens and Tropiflora Nursery.

Literature Cited

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Leme, E.M.C. 1998. Canistropsis. Bromeliads of the Atlantic Forest (2). GMT Editores Ltda., Rio de Janeiro state, Rio de Janeiro, Brazil. 143 pp.

Ed. note: *The photographs included in this article and in some other recent articles were taken by Selby Botanical Gardens volunteer Dr. Phil Nelson as part of a project to image the collections at the Gardens. This project is funded in part through a grant by the Frank E. Duckwall Foundation. For more information, and more photographs/scans, visit www.selby.org.*

Figure 17. The habit of *Canistrum seidelianum*.

Figure 18.
Canistrum lanigerum.

Figure 19.
Canistropsis correia-araujoi.

Figure 20.
Canistropsis billbergioides.

BSI 2004 Financial Report

Ed Doherty, BSI Treasurer

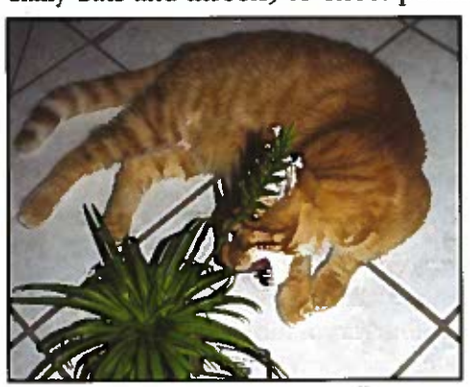
	2004	2004	2005
INCOME:	**Approved**	**Actual**	**Approved**
Advertising-Journal	$1,000	$225	$3,000
BSI Building Fund	$500	$1,000	$500
Color Fund	$2,000	$4,438	$3,000
Donations to BIC	$20,000	$12,286	$2,000
Donations to BSI	$800	$1,019	$800
Interest	$3,000	$2,733	$3,200
Judges Certification	$0	$68	$0
Medallions & Ribbons	$600	$399	$600
Memberships	$42,000	$33,461	$42,000
Life Memberships	$800	$1,600	$800
Prepaid Postage	$600	$428	$500
Publications	$10,000	$14,784	$10,000
Scientific Seminar 2004	$500	$855	$500
Seed Fund	$700	$90	$700
Slide Program	$100	$0	$100
Deficit/(Profit)	$0	$15,451	$6,520
WBC 2004	$55,000	$71,008	$0
WBC 2004 Refunds		($2,310)	$0
WBC 2006		$7,665	$5,000
TOTALS	**$137,600**	**$165,199**	**$79,220**
EXPENSES:			
BIC	$12,000	$18,980	$13,000
Credit Card Charges	$3,000	$1,549	$800
Director/BSI Mtg	$1,500	$2,379	$1,500
Grants	$2,000	$0	$1,000
Journal:Allowance	$3,000	$3,000	$3,600
Journal: Envelopes	$0	$0	$0
Journal: Mail Service	$13,500	$8,510	$10,000
Journal: Expenses	$1,000	$1,357	$1,000
Journal: Printing & Photos	$29,000	$22,204	$29,000
Journal: Equipment	$600	$0	$720
Bookbinding	$300	$0	$0
Judges Certification - Exp	$0	$53	$300
Life Membership	$1,800	$1,880	$1,800
Medallions & Ribbons	$2,100	$361	$650
Membership: Contract	$4,800	$4,800	$4,800
Membership: Expenses	$2,500	$2,506	$2,500
Merrill-Lynch Charges	$300	$300	$300
Miscellaneous	$1,000	$291	$500
Nomination Committee	$200	$0	$100
President's Expenses	$100	$0	$100
Publications	$5,000	$6,391	$5,000
Publications Storage	$300	$756	$750
Scientific Seminar 2002	$0	$0	$0
Scientific Seminar 2004	$4,000	$5,175	$0
Secretary's Expenses	$100	$0	$100
Seed Fund	$400	$0	$400
Slide Program	$100	$0	$50
Treasurer Expense	$100	$0	$50
Web Site	$500	$494	$700
WBC 2004	$40,000	$84,174	$0
WBC 2006	$0	$0	$0
California Sales Tax	$400	$41	$500
Illinois Sales Tax	$4,000	$0	$0
BSGC/SDBS	$4,000	$0	$0
TOTALS	**$137,600**	**$165,199**	**$79,220**

Bromeliad Catnip?

Bruce Holst, BSI Editor

Photographs by the Author

A *Tillandsia monadelpha* collected a few years ago at the Boracayan Wildlife Refuge in Costa Rica was beginning to flower in the Selby Gardens greenhouse. Since it is a night-blooming species, Harry Luther asked me to take it home and get some photographs of it with the flowers fully open. 'Round about midnight, I brought the plant down to the floor to get some shots. The perfumed white flowers were pouring out their heavy scent in an effort to entice a moth or two to make a visit. While we didn't have any suitable pollinators in our house to perform the deed, I soon found out that our housecat quickly became besotted with this inconspicuous plant. I'm not sure if he was attracted to the floral odors being given off, the tasty leaves, or if it was just green plant heaven for an indoor cat, but I had to forcibly keep him from devouring this precious Selby accession! Night-blooming bromeliads are known for producing strongly fragrant or unusual (to us!) smells in order to lure nocturnal animals (especially bats and insects) to effect pollination. A nectar reward is often provided for services rendered. Pollen from these flowers is usually dusted onto the visiting creature's head, and then transferred to a receptive stigma upon a visit to the next nectar source. With his huge head and broad tongue unsuited for penetrating the delicate confines of the flower, I don't think my cat would make an effective pollinator, but he sure loved that plant.



Figures 21-23. A common(?) cat enjoys the smells, touch, and taste of the fragrant, night-blooming *Tillandsia monadelpha*.

Tillandsia Symposium

Review and discussion of a Bromeliad genus in transition.

To be held: June 7, 2006
World Bromeliad Conference, San Diego, California

There is more interest in the study and classification of Tillandsia at this time than at any other time in history. Scientists on several continents are working on the ecology and taxonomy of this challenging group. At the same time, a large following of enthusiastic commercial and hobby growers devote their interest and energy to growing these interesting plants as horticultural specimens.

The Problem and the Opportunity

The genus, as currently recognized, is being examined by scientists around the world, who use a variety of tools and techniques--and often reach very different conclusions. *One thing is for sure, Tillandsia, as we currently know it, will change over the coming decades.* Whether the new taxonomy will be a stable classification that reflects the total of what is known about the species and species groups, or will suffer an extended state of flux, with little agreement among scientists, may depend on the degree to which they communicate during the process.

Your or your Bromeliad Society's contribution in support of this symposium will facilitate communication among *Tillandsia* taxonomists and inform *Tillandsia* enthusiasts of the reasons behind taxonomic changes. We have commitments for nine presentations by established scientists, as well as by several students who will impact the future of Tillandsia classification.

We need your contribution to help defray travel and lodging expenses, so it can happen.

Please mark your donation as "*for Tillandsia Symposium*" and mail it to Ed Doherty, 3533 Milton Ave, Dallas TX 75205-1221.

If there is enough interest in this symposium, the BSI may organize a larger symposium in the future that would allow more *Tillandsia* experts to participate.

JOURNAL OF THE BROMELIAD SOCIETY INDEX
Volume 55, 2005

Covers (unnumbered pages) are listed as if numbered. Page numbers in **bold face** refer to photographs or illustrations. New species or those with status change are shown under the appropriate genus in both *italics* and **bold face**.

Events Calendar

Australia

April 29-30, 2006. *Bromeliad Society of New South Wales Autumn Show.* Wellbank, Concord.

United States

April 1-2, 2006. *Bromeliad Society of Houston Spring Bromeliad Sale.* Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Apr 1, 9-5, Apr 2, 11-4. For more information, contact bromeliadsociety houston.com or 713-858-3047.

April 22-23, 2006. *Bromeliad Society of South Florida Annual Show.* Fairchild Tropical Botanic Gardens (reciprocity admission with certain gardens allowed), 10901 Old Cutler Road, Coral Gables, FL 33156. Apr 22-23, 9:30-4. For more information, contact Robert Meyer, at 305-668-3344.

May 26-28, 2006. *Bromeliad Society of Houston Standard Bromeliad Show & Sale.* Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Sale: May 26, 12-5, May 27, 9-5, May 28, 11-4; Show: May 27, 2-5, May 28, 11-4. For more information, contact bromeliadsocietyhouston.com or 713-858-3047.

June 7, 2006. *World Bromeliad Conference Judges School 3.* Bromeliad Society International. Town and Country Resort Hotel, Mission Valley, San Diego, California, USA. The all-day school will be held in San Diego. Pre-registration, including a small fee, is required. For more information, contact Betty Ann Prevatt, JCC Chairman, at 239-334-0242 or email bprevattpcc@aol.com.

June 6-11, 2006. *World Bromeliad Conference*, Large show and sale, judged competition, lectures, social events, and more. Sponsored by the Bromeliad Society International and the San Diego Bromeliad Society. Town and Country Resort Hotel, Mission Valley, San Diego, California, USA. Hotel rates are $124 per night. The rate is good for any three days during the Conference. For more information, contact BSI Membership Secretary, 1608 Cardenas Dr. NE, Albuquerque, NM 87110, USA. E-mail: membership@bsi.org; www.bsi.org.

September 16-17, 2006. *Bromeliad Society of Houston Fall Bromeliad Sale.* Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Sep 16, 9-5, Sep 17, 11-4. For more information, contact bromeliadsociety-houston.com or 713-858-3047.

September 30, 2006. *Florida Council of Bromeliad Societies' Extravaganza*, Sale, banquet, and rare plant auction. Miccousukee Resort and Gaming Convention Center, Miami, FL USA. For more information, contact www.fcbs.org.

BSI Membership... A Bargain!

Eloise Beach, Tom Wolfe & Bruce Holst

Being a member of the BSI is more than any one thing. Think of it as being part of an extended family. With your membership, you can learn about your family history, contact distant relatives, find out about current events, see pictures of your favorite relatives (and plants!), and contribute to the conservation of a fascinating and important group of plants. In nature, bromeliads are sometimes referred to as keystone species, that is, they provide an important source of food and shelter for many of the creatures of the tropical and subtropical forest canopies. In our yards and public places, they provide a source of beauty and tropical imagery, and in our minds, they remind us of nature's beauty and intricacy.

When you are a member of the Bromeliad Society International, you will...

1. Receive this Journal of the Bromeliad Society, six times per year.

The Journal is the flagship publication of the BSI and is intended for the amateur and professional growers as well as the bromeliad scientist and conservationist. The Journal is well illustrated in color and black and white and contains information and advice for all levels.

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- FREE BSI Directories. The 2005 membership directory allows for seeking the contact information of bromeliad hobbyists, affiliate groups, scientists, and conservationists worldwide. You can also find contact information for BSI officers, directors, and committee chairs. This document is available in Adobe PDF format.
- FREE: *An Alphabetical List of Bromeliad Binomials.* You would have to pay $10 at the BSI store for this up-to-date listing of all known species of bromeliads by renowned expert Harry Luther of the Bromeliad Identification Center. This listing is essential for newsletter editors who wish to spell names correctly and for anyone wishing to know the current thinking on bromeliad nomenclature.

- FREE: Seed Fund Listing. The seed fund, managed by Harvey Beltz contains a listing of bromeliad seed available for sale or exchange. Enrich your collection and help support the BSI by purchasing or exchanging seed.
- FREE Media Programs Listing. Visit this area if your local society needs a quick program.

Besides the above membership perks, all members and the general public can learn much more. The BSI web site provides the following:

- Events Calendar. Find out what is happening in your area, or travel to another region to meet like-minded bromeliad folk.
- Bromeliad Cultural Information. Want to know more about growing bromeliads? Visit this area for some expert information and download or print a useful guide.
- Bromeliad Taxonomic Information. Bromeliad nomenclature is changing. Keep up with the new thinking by visiting this area of the web site.
- Bromeliad Hybrid/Cultivar Information. All visitors can search the BSI Bromeliad Cultivar Registry Online Database for information on plants, hybrids, hybridizers, as well as link to other Bromeliad Databases.
- Images. See photos of many of your favorite bromeliads, or use this area to identify that unknown plant in your collection.
- Online Book Store. Buy bromeliad books and related items via the secure online store, such as the *Cultural Handbook, Bromeliad Glossary, Bromeliad Cultivar Registry, and Handbook for Judges & Exhibitors.* Here you will also find CD's, Journal binders, BSI pins, and more.
- Plant Sources. Find out where to get those interesting species you saw in the photographic gallery.
- Directories. This useful section lists all BSI affiliated societies and includes contact information and meeting times and schedules. Find also the listing of BSI Officers, Directors, and Committee Chairs.
- Talk Amongst Yourselves. Join the online discussion focusing on bromeliads that are held through three different groups:
  - BSI Growers Round Robin
  - The Bromeliad Taxonomists and Growers Discussion List (brom-L)
  - Bromeliads-for-beginners Yahoo Group

BSI Bylaws. Once you are hooked into growing bromeliads, lend your talent to the organization by helping to govern the society. Download a copy of the bylaws which, provide the operating guidelines used by, and frequently consulted by the governing body.

- BSI History. The honorary trustees of the BSI are those people who have contributed above and beyond. See more information about them on the web site.
- Support the BSI. Anyone can make a tax deductible donation online through the secure website to help support the Bromeliad Identification Center, Journal Color Fund, BSI World Headquarters Fund, & the BSI General Fund.

3. Don't Have a Computer or Internet Access? The BSI also supports many activities throughout the year.

Bromeliad Cultural Brochures in full color may be purchased from the store to be used as a tool for education and attracting new members.

Competitive Shows & Exhibitions featuring bromeliads. Sanctioned shows may award the prestigious Mulford B. Foster Best of Show Horticulture Award and the Morris Henry Hobbs Best in Show Artistic Award. The BSI offers medallion show awards to affiliates for a nominal fee.

Internationally Accredited Bromeliad Judges are trained and required to attend continuing education courses along with maintaining high standards for judging competitive shows.

Mulford B. Foster Bromeliad Identification Center at Marie Selby Botanical Gardens in Sarasota, Florida, where you can send your unidentified species for identification at a nominal cost of $5 per plant.

Registry of Cultivars and Hybrids maintained by the BSI that provides a clearinghouse for the registration of new cultivated bromeliads.

Slide Program Rentals are available to affiliates for a small fee. Contact Keith Smith (see inside back cover) for more information.

Wally Berg Award is given at the World Conferences to recognize worthy individuals of their contributions to the bromeliad world.

World Bromeliad Conference & Auctions. The WBC is staged every two years and offers discount registration to BSI members. Auctions sponsored by the BSI have become one of the most exciting aspects of the Conference as attendees try to outbid one another in an effort to secure a rare plant or item for their collection while raising thousands of dollars to support the Mulford B. Foster Bromeliad Identification Center located at the Marie Selby Botanical Gardens.

Victoria Padilla Memorial Bromeliad Research Grant Fund promotes research and conservation of bromeliads.

The Presence of *Werauhia nutans* in Mexico

Thorsten Krömer[7], Adolfo Espejo[8], Ana Rosa López-Ferrari[8] & Amparo Acebey[7]

Photographs by Thorsten Krömer

The genus *Werauhia* was described by Grant (1995a), for sixty-six taxa previously attributed to *Vriesea* section *Xiphion*. Most members of this genus have a nocturnal anthesis, a general lack of brilliant coloration, mostly fleshy frequently secund bracts and flowers, bilaterally symmetric and often zygomorphic corollas, dactyloid petal appendages, stigma with a cupulate-type morphology, and stout, dark colored capsules. Many species of *Werauhia* are known to bechiropteriphilous, which means pollinated by bats (Grant 1995a, Benzing 2000, Krömer 2004). Their floral syndrome thus includes relatively large, bell-shaped (campanulate) flowers with brown or green bracts, greenish to whitish petals, and often a specific smell.

At this time *Werauhia* comprises ca. 93 species (see Grant 1995a, 1995b, 1995c, 2000; Luther 1998, 2002a, 2002b, 2002c; Pierce & Aranda 2000; Pierce 2001; Morales 2003a, 2005; Barfuss et al. 2004; The International Plant Names Index 2006). The distribution of *Werauhia* ranges from southern Mexico throughout Central America, the West Indies, Northeastern Brazil to Bolivia. However, its center of diversity is found in Costa Rica and Western Panama, where about 80 of these species are distributed (Morales 2005). For Mexico, Espejo et al. (2004) have reported six taxa: *Werauhia gladioliflora* (H. Wendl.) J.R. Grant, *W. nocturna* (Matuda) J.R. Grant, *W. pectinata* (L.B. Sm.) J.R. Grant, *W. pycnantha* (L.B. Sm.) J.R. Grant, *W. vanhyningii* (L.B. (L. B. Sm.) J.R. Grant, and *W. werckleana* (Mez) J.R. Grant.

During a field trip for a current research project, T. Krömer and A. Acebey collected two specimens of *Werauhia* on the slopes of the San Martín Tuxtla volcano, located in the northeastern region of Los Tuxtlas, in the state of Veracruz. This material could not be identified to any of the species of this genus reported from Mexico. After a careful revision of bibliography, bromeliad databases, type specimens, and Mexican and foreign collections, we concluded that these specimens pertain to *Werauhia nutans* (L.B. Sm.) J.R. Grant. This species was previously known as *Vriesa nutans* L.B. Sm. only from the type specimen collected in Costa Rica (Smith 1960; Smith & Downs 1977; Utley & Utley 1994; Luther 1995). Additionally, in Mexico there exist two further collections of the species, one from the area of Santa María Chimalapa, in the state of Oaxaca (*P. Tenorio & T. Wendt 19335*, depauperate) and another from the state of Chiapas (*E. Martínez S. & M.A. Soto A. 18654*).

In Mexico, *Werauhia nutans* co-occurs with other bromeliads such as *Catopsis sessiliflora, Tillandsia punctulata, T. viridiflora,* and a still unidentified

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Figure 24. View of the summit of the San Martín Tuxtla volcano and its mostly undisturbed humid montane forest at about 1000 m elevation.

Figure 25. Dense colonies of *Werauhia nutans* in the tree trunk area due to strong vegetative reproduction.

Figure 26. The inconspicuous, arching inflorescence of *Werauhia nutans* is projected into the open air providing space for wing movements of the pollinating bat during hovering or feeding bouts.

Figure 27. Bell-shaped night blooming flower of *Werauhia nutans*.

species of *Werauhia* in the lower montane forest of the San Martín Tuxtla volcano between 650-1400 m elevation. As most of the original forest extent of the region of Los Tuxtlas had been cleared by the year 1990, the lower slopes of the volcano are currently covered by a vegetation mosaic dominated by pastures, with small patches of remnant trees and different types of field crops surrounding the remaining forest fragments (FIGURE 24). At about 1000-1550 m elevation mostly undisturbed humid montane forest can be found, while the summit of the volcano is covered by dwarf cloud forest. A preliminary checklist of the bromeliads occurring in this area lists 32 species in 9 genera, including five species of *Werauhia* (Krömer & Acebey, in press), whereas *W. nutans* and *W.* spec. (*T. Krömer & A. Acebey 2207, 2507*) increase the number of species from Mexico reported for this genus to eight. A detailed description of these two species is published in the Bromeliaceae of The Flora of Veracruz (Espejo et al. 2005).

Although *Werauhia nutans* is so far only known from two records in the Los Tuxtlas region, it is a locally abundant species in some spots along trails below 1000 m elevation. It is epiphytic and due to its strong vegetative reproduction it forms dense colonies mainly on the trunks of trees in the understory level (FIGURE 25) where its inconspicuous, arching inflorescence is projected into the open air (FIGURE 26). The few (5-11) white flowers open on consecutive days at dawn (FIGURE 27). This species is likely pollinated by any one of the nine nectar-feeding bats (Phyllostomidae: Glossophaginae and Phyllostominae), that occur in this area (Estrada & Coates-Estrada 2001). Similar to *Werauhia gladioliflora*, a species co-occuring at 700 m elevation, the flowers of *Werauhia nutans* fit like a "head-mask" on the elongated rostrum of the nectar-feeding bat, while the exposure of the inflorescence provides space for wing movements of the bat during hovering or feeding bouts (Krömer 2004).

It should be mentioned, that Morales (2003b) in his treatment of Bromeliaceae for the Manual de Plantas de Costa Rica considered *Werauhia nutans* as a synonym of *Werauhia viridiflora*, although without giving a broader explication for his decision. *Werauhia viridiflora* itself is being accepted as quite a variable species with a wide geographical range, which probably represents a complex of several species. However, Utley & Burt-Utley (1994) in their treatment of *Vriesea* for the Flora Mesoamericana considered both as distinct species. As to our knowledge (J.F. Morales, pers. com.) the type of *Werauhia viridiflora* (*Pitcairnia viridiflora* Regel) is lost, it was not possible to make a specific revision to solve this unclear nomenclature. Furthermore, all specimens revised within this study without doubt corresponded to the type of *Vriesa nutans*, which was examined by A. Espejo and A.R. López-Ferrari at the National Herbarium of the United States (US). For these reasons, we prefer to use *Werauhia nutans* as scientific name for the Mexican specimens.

Werauhia nutans (L.B. Sm.) J.R. Grant, Phytologia 79: 255.1995. — *Vriesea nutans* L.B. Sm., Phytologia 7: 175. 1960. Type: Costa Rica, San José, on tree, road from Turrialba to Moravia, *M.B. Foster 2717* (Holotype: US!).

DISTRIBUTION: Costa Rica (San José) and Mexico (Chiapas, Oaxaca, and Veracruz).

SPECIMENS EXAMINED: **Mexico**. Chiapas: Mun. Ocosingo, en Laguna Ocotalito, a 12 km al NE de Monte Líbano camino a Chancalá, *E. Martínez S. & M.A. Soto A. 18654* (MEXU); Oaxaca: Mun. Santa María Chimalapa, cabecera del río Solosúchil, arroyo Garrobo, sierra Tres Picos, *P. Tenorio & T. Wendt 19335* (MEXU, UAMIZ); Veracruz: Mun. San Andrés Tuxtla, colonia agrícola militar Montepío, rancho Pouchoulen, *T. Krömer & A. Acebey 2005* (EBT, MEXU, UAMIZ, XAL), Mun. San Andrés Tuxtla, ejido Ruíz Cortinez, falda del volcán San Martín Tuxtla, *T. Krömer & A. Acebey 2303* (EBT, MEXU, XAL).

HABITAT: A rare, but locally abundant epiphyte in tropical rain forest and cloud forest, 650-1400 m elevation.

PHENOLOGY: Flowering December to February. Cultivated flowering plants in the live collection of the "Los Tuxtlas" Biological Research Station (EBT) in April-May.

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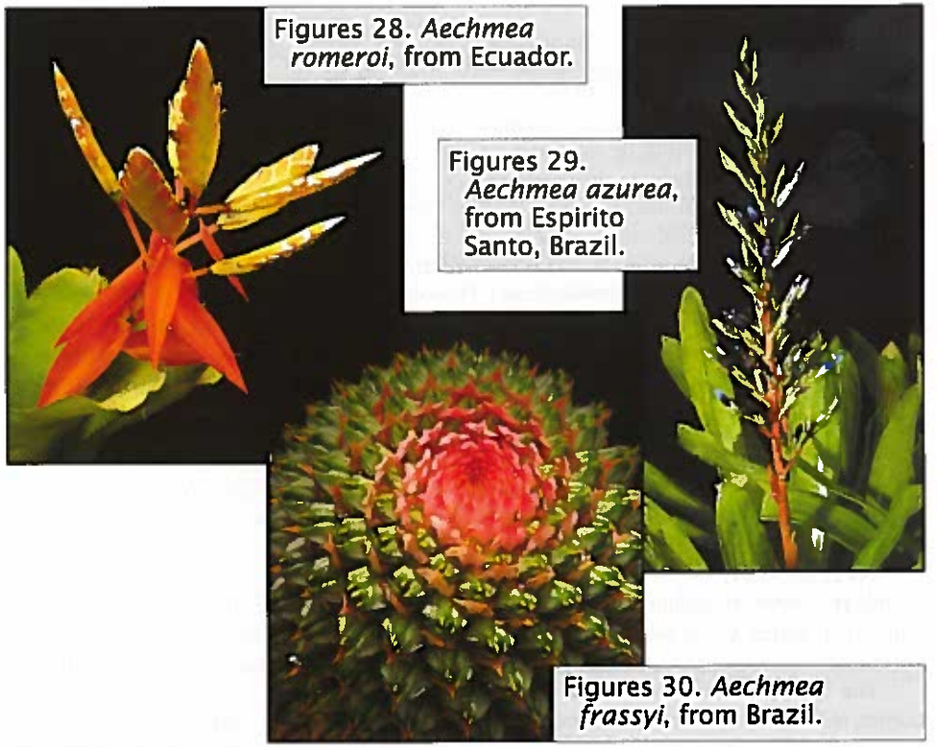
Bromeliad Symmetry — Photographs by Phil Nelson

The symmetry and coloration of bromeliads is remarkable, and can be seen here in these few species of *Aechmea*, all of which are pictured here in the Journal for the first time. *Ed.*



Figures 28. *Aechmea romeroi*, from Ecuador.

Figures 29. *Aechmea azurea*, from Espirito Santo, Brazil.

Figures 30. *Aechmea frassyi*, from Brazil.

The Bromeliad Society International

The purpose of this nonprofit corporation is to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world. You are invited to join.

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Figure 31. *Vriesea simplex*, a relatively widespread species, from Colombia to southeastern Brazil, has beautifully colored, pendent inflorescences. This handsome species has only been pictured once in the Journal, and only in black and white [see JBS 22(2): 47. 1972]. This particular plant is in cultivation at the Marie Selby Botanical Gardens.