

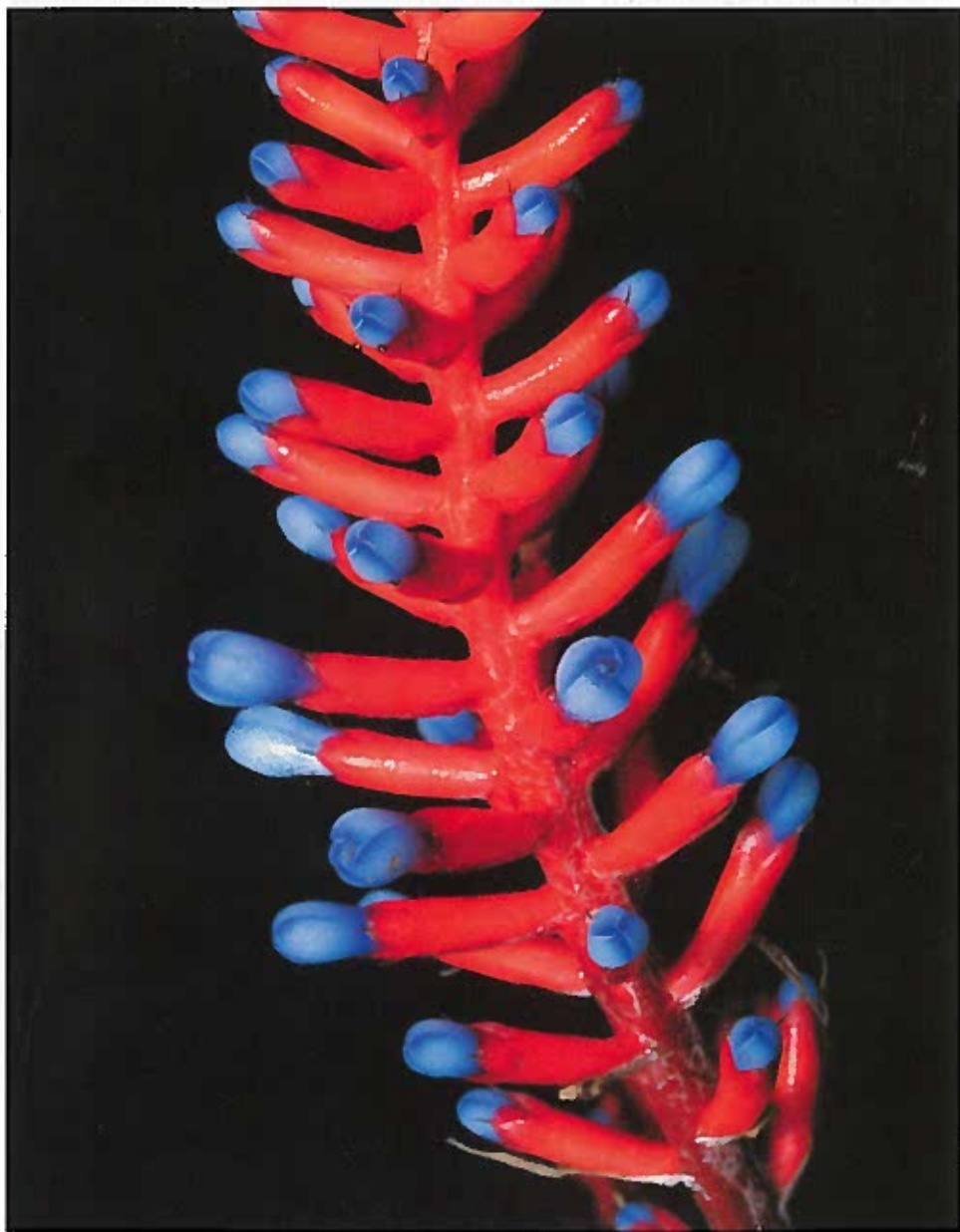
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Cover photographs. *Aechmea apocalyptica* is a small to medium size, hardy and very colorful epiphyte from southern Brazil described by Father Raulino Reitz in 1962. The pictured specimen from Selby Botanical Gardens predates the type collection by more than twenty years. Mulford B. Foster collected this plant in September 1939 in Sao Paulo state, Brazil. That his collection (Foster 464) is still in cultivation is a testament to its durability and horticultural merit. Submitted by Harry Luther. Photograph by Phil Nelson. **Back:** Drawings by Penrith Goff. See article by Steven Wagner in this issue for more information.

FEATURE ARTICLES

A Biological Survey of the Cordillera Mosestenes, Bolivia	Thorsten Krömer & Michael Kessler	243
Michigan Bromeliad Grower, Penrith Goff	Steven Wagner	260
Bromeliad-spotting from a Train	Leo Dijkgraaf	270
The Real Identity of <i>Aechmea turbinocalyx</i>	Ana Paula Gelli de Paria and Tânia Wendt	279

BROMELIAD SOCIETY BUSINESS AND NEWS

Highlights of the 2003 BSI Board of Directors Meeting	Rusty Luthe	250
Inaugural BSI Cultivar Registration Awards, 2004	Geoff Lawn	257
WBC 2006: Welcome to San Diego!	Robert Kopfstein	261
Welcome New Members!	John Atlee	263
Affiliates in Action	Gene Schmidt	264
BSI 2003 Financial Report	Ed Doherty	268
BSI News & Meeting Announcement		269
Index		272
Events Calendar		276
Errata		277
Donations to the Bromeliad Society International		278

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A Biological Survey of the Cordillera Mosestenes, Bolivia

Thorsten Krömer¹ and Michael Kessler

The Cordillera Mosestenes (FIGURE 1) is about 130 km long, 20-25 km wide and rises up to an elevation of 2050 m. It is located in the Department of Cochabamba and because of its inaccessibility probably contains the largest completely uninhabited and biologically unexplored areas of the Bolivian Andes. With an estimated annual rainfall of 4000-7000 mm, the Cordillera Mosestenes is one of Bolivia's most humid regions. Mean annual temperatures range from approximately 25°C at 300 m to 12°C at the summit. Although parts of this mountain chain belong to the reserves Isiboro-Sécure and Altamachi, a biodiversity survey was urgently needed to provide land managers with the necessary information to help protect the region.

Our survey took place from August 28 through September 29, 2003, and included a multidisciplinary team of experienced tropical biologists including Dr. Manuel Macía, Iván Jimenez, Juan Fuertes, ourselves (botany), Dr. Eric Yensen, Teresa Tarifa, Fernando Guerra (masto zoology), Dr. Sebastian K. Herzog (ornithology), Dirk Embert (herpetology), and Caroli Hamel (entomology). A major aim of the survey was to describe the biological diversity of the Cordillera Mosestenes and to compare the data with other regions influenced by humans.

The starting point of this expedition was the city of Cochabamba. After a three-day stay for the logistical organization, where approximately 1 ton of equipment had to be packed, our group of 11 scientists was brought by bus to the small village of Tablas Montes. From there we flew by helicopter of the Bolivian air force to our target area (16°13'S, 66°24'W) in Isiboro Sécure National Park. We landed at the shore of a lagoon situated in the middle of a montane rain forest at 1300 m elevation (FIGURE 2). This approximately 90 m long and 30 m wide lagoon was probably formed by a landslide some decades ago, as indicated by the half-decomposed tree trunks standing in the water.

After setting up camp in immediate proximity to the lagoon, several paths were cut into the surrounding forest to allow easier access to study areas. These paths led from elevations of 1200 m up to a ridge at 1600 m, and included a mosaic of three different forest types. While the steeper hillsides were mostly covered with younger forests and bamboo thickets, the less steeply inclined areas were covered by older forest stands with 20-25 m and in few cases also 35 m tall trees whose horizontal branches were densely covered with epiphytic bromeliads, orchids and ferns (FIGURE 3). The low ridge forest differed from these two forest types mainly by the presence of thick moss mats (FIGURE 4).

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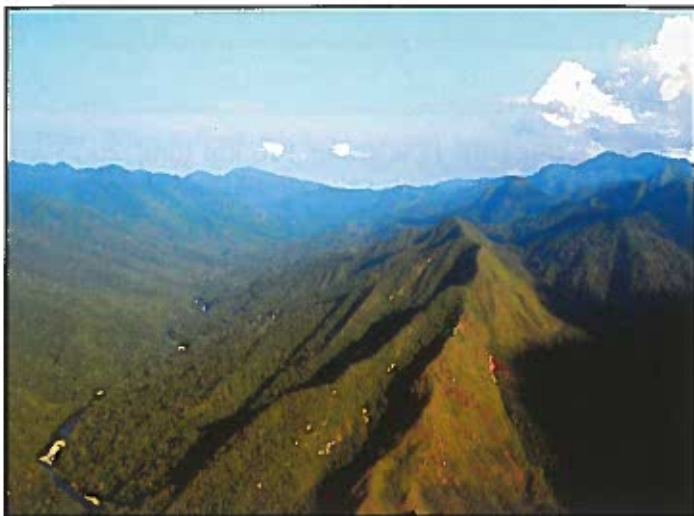


Figure 1.
View over the
montane forest
of the Cordillera
Mosetenes.

Photograph by M. Kessler.

Figure 2.
Bolivian Air
Force helicopter
landing at the
lagoon shore.

Photograph by T. Krömer.

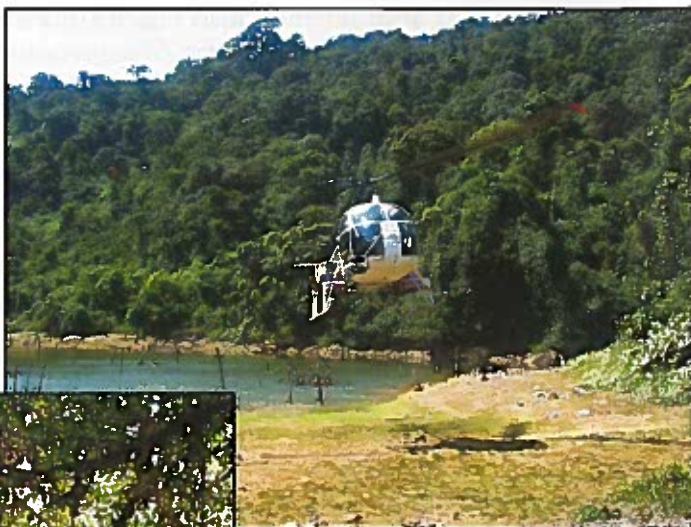


Figure 3. Branch
of wild fig tree
covered with
vascular epiphytes.

Photograph by T. Krömer.



Figure 4. Stunted
ridge tree covered
with moss mats.

Photograph by M. Kessler.

Figure 5. Epiphyte sampling using
single rope technique.

Photograph by T. Krömer.



Figure 6. Processing
of the collected
plants at the camp.

Photograph by D. Embert.

Figure 7. Living collection
of orchids near the camp.

Photograph by T. Krömer.



For the botanical studies, we constructed 20 sampling plots with a size of 20 x 20 m each, and focused on inventories of the following plant groups: Acanthaceae (acanthus), Araceae (aroids), Bromeliaceae (bromeliads), Cactaceae (cacti), Arecaceae (palms), and Pteridophytes (ferns). In addition, epiphyte species were recorded in nine of these plots, including mostly Orchidaceae (orchids), Piperaceae (peperomias), and Ericaceae (tropical blueberries), which were sampled by climbing into the crowns of nine large trees using the single-rope-technique (FIGURE 5). The method we used for the epiphyte sampling was recently described by Gradstein et al. (2003). After our daily work in the plots, we botanists usually came back to the camp heavily-loaded for the "processing", i.e., sorting, numbering, and pressing of the collected plants (FIGURE 6).

During the fieldwork, we collected almost 1000 plant specimens, among them 31 species of aroids, 16 bromeliads, 3 cacti, ca. 120 orchids, and approximately 200 ferns. Since most orchids were not in bloom, the collected plants were kept alive (FIGURE 7) for transport to the greenhouses of the *Fundación Amigos de la Naturaleza* (FAN) in Santa Cruz for later identification by the Bolivian orchid specialist R. Vásquez.

The 16 bromeliads found belonged to seven different genera (TABLE 1) of which *Guzmania* (7 species) was the most diverse. We can compare these numbers with two other study areas surveyed by Krömer (2003) in La Paz department, namely Sapecho situated at 600-1200 m elevation in submontane forests, and Cotapata at 1600-2200 m in montane forests. For *Guzmania*, Mosetenes had more species than either Sapecho (5 species) or Cotapata (4). However, both of the other sites had a higher total species number (even without considering terrestrial bromeliads), with 20 and 21, respectively. At Sapecho, nine bromeliad species, including the two genera *Aechmea* (3) and *Weraubia* (2), were found that were not recorded either at Mosetenes or at Cotapata. On the other hand, at Cotapata there were nine species of *Tillandsia*, a genus almost completely lacking at Mosetenes (1 species).

Most bromeliad species in Mosetenes were epiphytic, but some species in the open ridge forest, e.g., the colorful *Guzmania squarrosa* (FIGURE 8) or *Tillandsia asplundii*, also frequently grew on the ground. Only two obligatory terrestrial species were recorded, *Fosterella* cf. *albicans* and *Pitcairnia* sp. Most epiphytic bromeliads showed a wide (500-1000 m) or very wide (> 1000 m) elevational amplitude (TABLE 1). Only *Guzmania madisonii* and *Pitcairnia* cf. *riparia*, until now only known in Bolivia from two and three collections, respectively, have ranges of less than 500 m (Krömer et al. 1999, Krömer 2003).

We expected to find some new species in such a remote area, although we have so far been unable to identify one of the *Pitcairnia* species. So far, none of the bromeliads are endemic for Bolivia, rather, apart from *Fosterella* cf. *albicans*, which can also be found in northwestern Argentina, most species are relatively widespread and occur in the montane forests along the

TABLE 1. List of the bromeliad species found in the study area of Mosetenes with indications to life-form (ep = epiphytic, ter = terrestrial), elevational range in Bolivia and distribution in the Neotropics [ARG = Argentina, BOL = Bolivia, BRA = Brazil, COL = Colombia, EC = Ecuador, GUY = Guyana (incl. Suriname and French Guiana), MAm = Central America (Costa Rica and Panama), PER = Peru, VEN = Venezuela].

Bromeliad Species	Life-form	Elevational Range in Bolivia (m)	Distribution in the Neotropics
<i>Fosterella</i> cf. <i>albicans</i>	ter	900-2150	ARG, BOL
<i>Guzmania killipiana</i>	ep	1150-2500	BOL, ECU, PER
<i>Guzmania madisonii</i>	ep	1200-1400?	BOL, ECU
<i>Guzmania marantoidea</i>	ter (ep)	1300-2650	BOL, PER
<i>Guzmania melinonis</i>	ep	300-1400?	BOL, BRA, COL, ECU, GUY, PER, VEN
<i>Guzmania roezlii</i>	ep	550-1450	BOL, BRA, COL, ECU, GUY, PER, VEN
<i>Guzmania sphaeroidea</i>	ep	1150-1500	BOL, COL, ECU, VEN
<i>Guzmania squarrosa</i>	ep (ter)	1100-1600	BOL, COL, ECU, GUY, PER, VEN
<i>Mezobromelia pleiosticha</i>	ep	850-1600	BOL, COL, ECU, GUY, PER, VEN
<i>Pitcairnia</i> cf. <i>brittoniana</i>	ter (ep)	1200-1700	BOL, COL, ECU, GUY, MAm, PER, VEN
<i>Pitcairnia</i> cf. <i>riparia</i>	ep	1300-1600	BOL, ECU, PER
<i>Pitcairnia</i> sp.	ter	-	-
<i>Racinaea schumanniana</i>	ep	1050-2700	BOL, COL, ECU, MAm, PER, VEN
<i>Racinaea spiculosa</i>	ep	300-2500	BOL, BRA, COL, ECU, GUY, MAm, PER, VEN
<i>Tillandsia asplundii</i>	ep (ter)	1350-2500	BOL, ECU, PER
<i>Vriesea heterandra</i>	ep	600-1550	BOL, ECU, COL, VEN

Andes of Bolivia to Venezuela (TABLE 1). Some species can also be found in the Amazonian lowland forests of Brazil and Guyana or even north to Costa Rica. This confirms that epiphytic bromeliads (in contrast to their terrestrial relatives) usually have quite wide distribution ranges caused, among other reasons, by highly efficient dispersal mechanisms (e.g., tiny winged seeds, bird-dispersed berries) which represent adaptations to their canopy habitat (Kessler 2002). In contrast, the (mainly) terrestrial genera *Fosterella* (27 species/19 endemics), *Greigia* (8/6), *Pitcairnia* (15/8), and *Puya* (57/47) show especially high numbers of endemic species in Bolivia (Krömer et al. 1999, Ibisch et al. 2002, Will et al. submitted).

Fortunately, we had mostly good weather (only two rainy days) during the three weeks in the field, although for the elevation of 1300 m it was relatively cold with nightly minimum temperatures of ca. 6°C. These low temperatures were caused by cold subpolar air fronts, called *sures* or *surazos*, which influenced the weather at the time of our stay. In addition, we were lucky to have neither accidents nor serious problems with stinging insects or poisonous snakes, such as the coral snake (FIGURE 9). The only large animals we observed were a deer, capuchin monkeys, and several opossums



Photograph by T. Krömer.

Figure 8.
Guzmania squarrosa
growing on the ground
in the open
ridge forest.



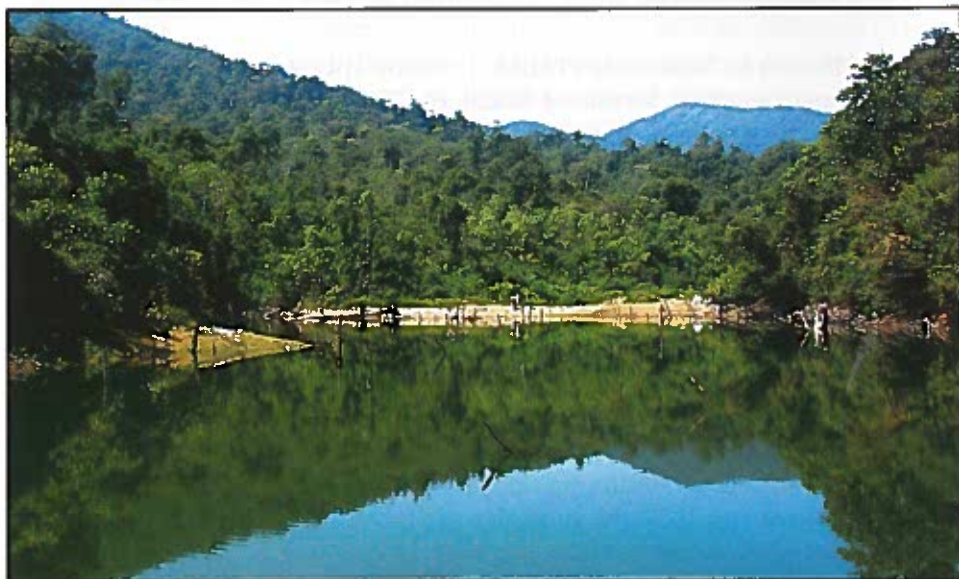
Photograph by D. Embert.

Figure 9. Coral snake.



Photograph by
D. Embert.

Figure 10.
Opossum
freed from
the trap.



Photograph by T. Krömer.

Figure 11. View over 'Laguna Carachupa.'

(Spanish: *carachupa*), which ran into the positioned traps many times, but were freed again the next morning (FIGURE 10). However, one of the greatest surprises of our study was the relative paucity of large mammals such as the Andean bear, peccaries, spider monkeys, tapirs, or large cats. Besides innumerable insects, including an impressive variety of colorful butterflies, the fauna of the study area consisted mainly of the numerous birds and frogs, who pleased us with their vociferous "concert" in the morning as well as at night.

Our return flight into civilization was delayed by three and a half days because of political uprisings since our helicopter was diverted to La Paz. We were very relieved to finally return, even though it was difficult to depart the idyllic "Laguna Carachupa" (FIGURE 11).

Acknowledgements

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Highlights of the 2003 BSI Board of 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 at the Westin O'Hare Hotel, Rosemont, Illinois, USA on August 10, 2004. This is not a verbatim report of the minutes, but edited for readability.

The meeting was called to order by the President Tom Wolfe. The President noted that there were no visitors at the meeting. There were 18 officers and directors present and a quorum was established.

Officers	Directors	
John Atlee - Membership Secretary	Michael Andreas - Florida	Ken Marks - Florida
Ed Doherty - Treasurer	Joyce Brehm - California	David McReynolds - Northeastern States
Bruce Holst - Editor	Larry Giroux - Florida	Rick Richtmyer - Texas
Rusty Luthe - Secretary	Martha Goode - Central States	Fred Ross - Louisiana
Jack Reilly - Vice President	Gloria Irizarry - Southern States	Hiroyuki Takizawa - International
Tom Wolfe - President	Geoff Lawn - Australia	Peter Waters - International

Unable to attend: Theresa Bert (Florida), Gregory Brown (Western States), Luiz Felipe Carvalho (International), Gary Gallick (Texas), Jack Percival (California).

Officer Reports

The president asked for approval of the minutes from the last BSI Board meeting held at the Westin O'Hare Hotel, Rosemont, Illinois on June 14, 2003. Several further corrections were discussed and the Secretary has made the changes in the final copy of the minutes and has sent copies to the Board members. A motion to approve the minutes was made and passed.

President. Mr. Wolfe welcomed Keith Smith to the Board for the 2004-2006 term and noted that Hiroyuki Takizawa and Rick Richtmyer will be leaving the Board at the end of their second terms. They are thanked for their valuable contributions to the BSI Board. The President talked about the continuing efforts to establish a world headquarters at the Marie Selby Botanical Gardens in Sarasota Florida. He mentioned that Selby Gardens is excited about the continuing relationship with the BSI. The President then went on to say a thank you to the Board for their support, input, and service to the BSI during his six years as President.

Vice President. Mr. Reilly mainly discussed the World Conference. There are several items that are placed further along on the meeting agenda and would be discussed at that time.

Secretary. Mr. Luthe reported that there were three votes taken during the

year. The first vote was for the date change of the Chicago WBC; the second was for having the 2006 WBC in San Diego; and the third was the Wally Berg Award.

Membership Secretary. Mr. Atlee mentioned that international membership is trending upward. A discussion regarding the membership database and who should maintain a backup of the database followed. A motion was made and passed that a copy of the membership database should be forwarded on a monthly basis to the recording Secretary for backup purposes. Discussion followed regarding whether this should be a Bylaws change or not. This will be addressed later in the year.

Treasurer. Mr. Doherty pointed out that there is some budget information that he is not receiving and as a consequence his 2005 budget projection contains some 'guess work.' Periodic purchases such as Awards and Medallions that are made irregularly are hard to predict. Mr. Doherty then went on to discuss the Padilla Fund and its' assets as it is used for research grant funding. Discussion followed regarding the ongoing contributions to the Padilla Fund and how to keep it growing. A motion was made and passed to move \$2,000 from the General Fund to the Victoria Padilla Fund.

Editor. Mr. Holst, noted that the number of copies printed has been reduced from 1700 to 1400 issues. He thanked those who have contributed and asks that the articles continue to come in. Discussion ensued regarding how to bring the publishing of the Journal onto an on-time schedule, including reprinting more articles from the early volumes of the Journal.

Standing Committees

Affiliated Shows. Submitted by Charlien Rose. No discussion.

Affiliated Societies. Submitted by Gene Schmidt. It was noted that there is a group in the Philippines seeking affiliation.

Archives & Historical. Submitted by Robert & Janet LaRoe. The President discussed how he and Bruce Holst met with the LaRoe's at the Marie Selby Botanical Gardens and talked with them about sorting through the boxes of archival/historical materials already at Selby. It was noted the importance of collecting and preserving these materials and the growth of the BSI headquarters at Selby into a resource center where these materials are made available to members.

Conservation. No report submitted. The President noted that perhaps the Nominations Committee should start a search for a new chair for the Conservation Committee.

Cultivar Registration. Submitted by Derek Butcher. There were three winners of the Cultivar Registration Award. Sharon Peterson of Hawaii, John Arden of California, and Vic Przetocki of Australia. They will receive their certificates via mail as none of the winners attended the WBC. A motion was made and passed that the Cultivar Registrar establish formal criteria for the Cultivar Registration Award to be approved by the Board.

Finance and Audit. No report submitted.

Judges Certification. Submitted by Betty Ann Prevatt. There was a discussion regarding whether BSI Certified Judges should receive credit for judging a non-standard show. A motion was made and passed to approve the recommendation of the JCC, that they continue for another year to grant BSI affiliates the option of having a BSI Standard or BSI Judged bromeliad show, to be reviewed at the next BSI Board meeting. A second motion was made and passed that the JCC shall clarify the criteria for awards given/not given for these shows. (Refer to the first motion).

Mulford B. Foster Bromeliad Identification Center. Harry Luther presented his report and stated that his duties don't change much from year to year. He notes that amateur submissions are still low, despite the low cost of identification at \$5 as opposed to, e.g., the orchid identification center, which charges \$25 per submission. Mr. Luther pointed out that there are still a lot of undescribed species in the wild and also in cultivation.

Publications Sales. Submitted by George Allaria. The President discussed options for disseminating books, Journal back issues, etc. He felt that the best way to do this would be to hand these items to G. Allaria for him to decide on their sale venue in the hopes of generating some income for the BSI. There was general agreement to this suggestion.

Research Grant. Submitted by Gregory Brown. It was noted that the Chairman of the Research Grant Committee and the Treasurer should remain in contact regarding the funds that are available and their disbursement.

Seed Bank. Submitted by Harvey Beltz. No discussion.

Slide Library. No report submitted. Discussion ensued regarding the need for upgrading of the library. K. Smith expressed interest in working with the current/new Chairman on expanding the library. It was noted that the slide library should be transferred to CD/DVD.

Web Site. Submitted by Ken Marks. A thank you and a round of applause were offered to Mr. Marks for his monumental effort at getting the back issues of the BSI Journal online. Mr. Marks mentioned that the website is receiving lots of traffic and is up from the previous year. He talked of the move to a larger server to allow for increased space available for the website. A discussion followed regarding access to the members only areas of the website. The password will be published at the bottom of the Officers/Directors page in the Journal for access to the member's only areas.

Special Committees

Nominations Committee. Submitted by Theresa Bert. The following slate of officers was submitted and accepted: President, Joyce Brehm; 1st Vice President, Jack Reilly (second term); 2nd Vice President, Ron Schoenau; Membership

Secretary, John Atlee (returning); Secretary, Rusty Luthe (returning); Treasurer, Ed Doherty (returning); Editors, Bruce Holst & Susan Murphy (returning).

Director positions for the 2005-2007 term were uncontested and approved as follows: Florida, two candidates, Ken Marks & Jay Thurrott; Louisiana, one candidate, Fred Ross; Texas, one candidate, Gary Galick; International, one candidate, no candidate as of June 7, 2004 (Editor's note, Francisco Oliva-Esteve was subsequently selected to fill this post).

The slate of committee chairs was submitted and accepted as follows: *Affiliated Shows*, Carolyn Schoenau (elected by separate ballot, see below); *Affiliated Societies*, Gene Schmidt; *Archives & Historical*, Robert & Janet LaRoe; *Bromeliad Identification Center*, Harry Luther; *Conservation*, John Utley; *Cultivar Registration*, Derek Butcher; *Judges Certification*, Betty Ann Prevatt; *Publications Sales*, George Allaria; *Research Grants*, Greg Brown; *Seed Fund*, Harvey Beltz; *Slide Library*, Christopher Krumrey; *Web Site*, Ken Marks.

A motion to accept the Nominations Committee's recommendations as listed for the Board positions was made and passed. Mr. Wolfe noted that the Directors are to be voted in by their regions and not by the Board. He also noted that we still need an International Director. He stated that it would be advertised in the Journal and that next year we will be in need of an additional International Director. Another motion was made and passed to accept the Committee Chairs as listed by the Nominations Committee.

A vote was then taken for the Affiliate Chairs position. Carolyn Schoenau was elected the new Affiliate Shows Chair. It was stated that a letter of appreciation should be sent to Ms. Rose thanking her for her years of dedication to this very important aspect of the BSI. A letter will be drafted for the President and Secretary to sign. This has been done - Sept 2004.

A motion was made and passed to nominate and elect Terrie Bert as Nominations chair for the next year.

Old Business

Cultural Manual - Ms. Brehm stated the new Cultural Manual has been doing quite well, although it needed an errata. The BSI has sold 4,518 copies. Ms. Brehm notes that we are covering the cost of the shipping of these manuals as a service from the BSI. She also notes that almost half of the current edition has been sold and that most of the cost of printing has already been recovered. Mr. Wolfe thanked Joyce and Herb Plevier for their excellent work on getting the updated Cultural Manual completed.

2004 Conference - Jack Reilly updated the Board on the status of the Conference. The Conference handbook is beginning to be put in order. There are over 500 pages most of which is/will be scanned and put on CD. It was proposed that the new 2nd Vice President get involved with the organizing of the handbook. Joyce Brehm notes that the document with the require-

ments for the BSI/local club participation is outdated and needs to be readdressed and entered in to the Bylaws. The Board will take this up in the coming year(s). There was continuing discussion about the costs involved in producing a World Conference. This will be passed over to the new 2nd Vice President, Mr. Schoenau.

Wally Berg Award of Excellence - Mr. Tom Wolfe proposed a Bylaw change to include the parameters and criteria of the Berg Award. He presented possible wording for the Bylaw changes. Bylaws Article IV B. (Special Committees). Wording: The Board shall elect a voting member of the Society to serve as a curator of this committee at each World Conference meeting. The Committee shall place a notice in the September/October issue of the BSI Journal preceding a world conference stating a deadline for the nominations. All nominations should be sent to the curator of the committee. Every effort should be made to solicit nominations from each region. Follow the criteria set forth in the standing rule #4 (which is the criteria for the award)

These were discussed as well as posthumous awards, criteria, and multiple awards. It was noted that nominee's should appear on the website. It was generally considered appropriate to nominate posthumous awards as long as the recipient had expired within the two-year period that is from conference to conference.

A motion was made and passed to send back to the Wally Berg Award committee suggestions from the Board regarding the criteria for the award. Further discussion followed about getting the notice and criteria published in the Journal in a timely matter for the membership to have time to submit nominees. The President felt that this change should take place sooner than later and requires Board discussion on the board relay.

Ms. Terrie Bert was elected to the post for another term.

New Business

The budget for 2004/2005 was discussed during the Treasurer's report. Mr. Wolfe calls for any further questions or comments. None were heard. A motion was made and passed to accept the budget as submitted.

Mr. Geoff Lawn presented his ideas on having a portion of the website devoted to biographies the past and present Honorary Trustees and Wally Berg award winners. Ken Marks commented that he would be very happy to include a section on the website, even a 'who's who' of the bromeliad world that would be a dynamic document. A motion was made and passed that G. Lawn will develop information and biographies on BSI Trustee's and Berg Award recipients for publishing on the BSI website.

Mr. Lawn asked what incentives there are for societies to affiliate with BSI. He stated that from the outside the BSI appears to be an American society. Mr. Wolfe volunteered to email and have posted on the website, a list of

individual/affiliated society membership benefits. J. Brehm pointed out that for the last 3 years the BSI has made concessions to help attract and facilitate international societies to affiliate with the BSI. Mr. Wolfe notes that the new logo design now includes 'International'. J. Brehm pointed out that the new logo requires a bylaw change.

Mr. Wolfe brought the topic of Journal overruns to the table. Bruce Holst outlined where the Journals went before the print run was reduced. Discussion ensued regarding the Journals that J. Allaria and D. Cathcart have in storage. The idea of selling them online such as eBay was discussed. Mr. Wolfe offered the idea of sending the latest Journal including a back issue to any new member as soon as they pay their dues. J. Atlee accepted the idea and will institute it. The idea of a new member welcome package was discussed. There were many ideas of items both in existence now such as the cultural sheet or manual, and possible future products like an identification manual. Also past/current issues of the Journal along with a past issue order form.

World Conference Co-host proposals (Standing Rule 6(4)) L, 1-8 of the Bylaws has been deleted. Now in Standing Rule 3 (4). This is a wording change coupled with the First and Second Vice President descriptions. G. Lawn asked for clarification on how societies are selected to co-host the WBC. It was pointed out that the co-host society needs to be an affiliate and that any affiliate who volunteered, and there has never been more than one, was selected.

Mr. Holst suggested new wording to correct a problem with Bylaws Article IV B (5). The wording should read: Term of Office: Each director shall serve for three years beginning on January 1st following the election and ending December 31st or until his/her successor has been elected. The previous wording was not clear as to when a director would begin his/her term. The change has been made in the Bylaws - Sept 2004

Referring to Standing Rule 10 and Standing Rules 13 for processing of donations to the BSI, Mr. Holst pointed out that currently there is only a listing in the Journal to recognize the Donor and feels that a letter of thanks would be in order. He also stated that a Director of Development would be a good idea in the future. Discussion followed outlining the possible solutions. Mr. Wolfe pointed out that there is confusion in how this issue is addressed in SR 10 and SR 13 and feels that they should be combined. He also stated that there is already in existence a form for members to designate where they would like their donations applied and that inserting it into the Journal before mailing would be a very good idea. It was decided to publish the list of donors twice a year. Notification of the donations received by the Membership Secretary will be forwarded to the Treasurer. The Treasurer will then inform the President so that a letter of appreciation can be sent to the donor in a timely manner.

Ken Marks suggested that we should have an online auction located at the BSI website. Discussion lead to the idea of using the market power of eBay and link to the auctions from the BSI website. It was noted that this is a good fund raising opportunity that we should be using. Keith Smith volunteered to work with G.Allaria to test the waters on this idea by selling a mix of items.

George Allaria was authorized to increase the size of the rental space in order to properly store published items. J. Brehm pointed out that it is stated in the Bylaws that the Publications chair is approved to acquire the space needed to store the published items.

A motion was made and passed to accept the San Fernando Valley Bromeliad Society as a new affiliate. Mr. Wolfe notes that he has all the required information from the society as stated in the Bylaws

Ms. Brehm noted that the various Committee chairs and members should have access to the Board relay as they have important issues to present to the Board over the course of a year. It was discovered in the discussion that due to how the Board relay addresses are used, may have been the reason the rest of the Board did not receive some of the annual reports. A motion was made and passed to set up a separate relay for the Officers, Directors, and Committee Chairs.

Michael Andreas felt that it was time to establish a new standing committee for the development and oversight of the new world headquarters at Marie Selby Gardens. A motion was made and passed to establish a new standing committee. J. Brehm noted that a description will need to be added to the Bylaws (Standing Rule 6) and the Board should elect the Chairman for a 1-year term. A motion was made and passed to nominate Tom Wolfe to chair the new World Headquarters oversight committee and to establish a duty description for the chairperson.

Ms. Brehm noted that directions for accessing the members-only pages on the internet were being posted in the Journal.

Ms. Brehm suggested that a hard copy of the membership roster be printed and issued with an issue of the Journal and perhaps include them in a 'New Members Packet'. K. Marks felt that a printed copy on an 'as needed' basis would be the solution. It was stated that a single mailing to all members should be done. A motion was made and passed that a one time hard copy of the membership roster be sent to all members as an insert to the Journal.

2006 World Bromeliad Conference. Ms. Brehm discussed the various options and venues that are being looked at for the WBC in San Diego California. There was lengthy discussion as to the where and why of the Board meeting location.

Inaugural BSI Cultivar Registration Awards, 2004

Geoff Lawn, BSI Director, Australia

Following current BSI Cultivar Registrar Derek Butcher's initial idea for the BSI to formally recognise the achievements of bromeliad hybridists and to encourage more cultivar registrations, the Board of Directors approved the creation and trial of this biennial Award at its June, 2003 annual Board meeting. An interim proposed set of Award criteria (to be ratified by the Board) was printed in JBS 53(5):213 (Sept./Oct. 2003).

At the WBC Chicago Banquet, newly-elected President Joyce Brehm announced the winners for their cultivar registrations for the preceding 2-year period (Jan. 2002-Dec. 2003) were John Arden (California), Sharon Petersen (Hawaii) and Vic Przetocki (Western Australia). Regional Conference delegates accepted the Award Certificates and letters of appreciation on behalf of these first-time recipients who were not in attendance.

Congratulations to these bromeliad breeders, altogether from contrasting backgrounds and with different goals, who have penned their own profiles here.

Sharon Petersen (FIGURE 12)

I began acquiring a few bromeliads in the mid 1980's. Soon I became an insatiable collector. Every grower, nursery, garage sale, or mail order source was explored and utilized as I sought to learn all I could about this exciting family of plants. People moving to the mainland or retiring to a condominium could expect Sharon to haul away their entire collections. I joined the Hawaii Bromeliad Society and served as vice president and then president. Eventually I realized that I had amassed a truly extensive "gene pool" of both species and hybrids and perhaps should try to creating some new hybrids myself. I consulted a friend, Hatsumi Maertz, one of the founding members of the Hawaii Bromeliad Society and a noted hybridizer, about the fine art of hybridizing. Hatsumi was happy to teach me how it was done and even supervised some of my earlier hybrids. I was amazed at how well it seemed to be working! My zeal for hybridizing soon replaced my compulsion for collecting! A back injury in 1994 confined me to only light work and I used the time to hybridize full time. I was able to plant out 800 crosses from that year. More greenhouses were built over the next few years to house the colorful new hopefuls and just as they began to reach maturity-disaster struck! A worker applied foliar fertilizer six times too strong. In a matter of days it looked like they had been hit with a flame thrower. Hundreds rotted and died immediately, while others lingered and struggled to produce a pup or two. It took over two years to recover from the damages. When things improved and a new crop of salvaged pups and replacements were starting to color up workers spraying nearby, managed to drift the herbicide, Roundup, through several of the greenhouses, one breezy afternoon. Again I



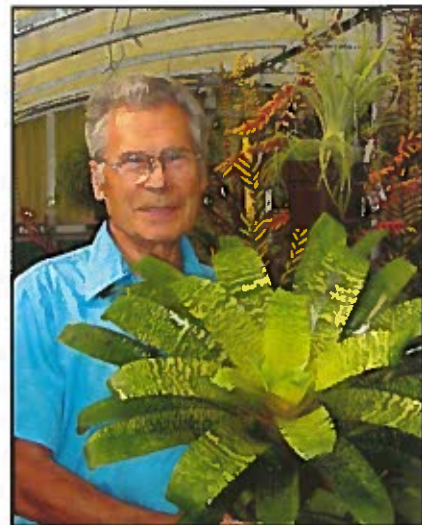
Photograph by Robin Petersen.

Figure 12. Sharon Petersen, and her two loves.

Although I did "have a dream," I was shocked at the amount of grit and determination it would take to see it realized. As with any success, I did not do it all on my own. Good friends were there to support and encourage me. Hatsumi Maertz, David Shiigi, and Cheryl Basic were all there to bolster me through some of the hard times. When I had stopped hybridizing, another good friend, Ray Coleman, treated and sent me a plant ready to bloom, knowing I could not let it go to waste. Sure enough, he got me back to hybridizing again. Although I have worked with *Vriesea*, *Aechmea*, *Billbergia*, *Cryptanthus*, and other genera, my main focus and continued favorite is still, the *neoregelia*. I have registered about 80 new hybrids and have a good number of others still "in the works." Aloha, Sharon

John Arden (FIGURE 13)

Born 1926 in Latvia. After graduating from basic education, I entered in Forestry Service School. A year later, due to WW II, I was forced to flee communism and went to Germany. After the war, I worked for the US military in civilian capacity. I came to the US in 1951 and have since been living in Southern California. I worked most of my life as a machinist for the aerospace industry in the Los Angeles area. My hobbies are hiking, exploring, and photography. I have exhibited my photographs in international salons. I climbed Mt. Kilimanjaro in East Africa at the age of 50. I then, discovered bromeliads and my other hobbies faded away. I joined the South Bay Bromeliad Associates and have been a



Photograph by John Arden.

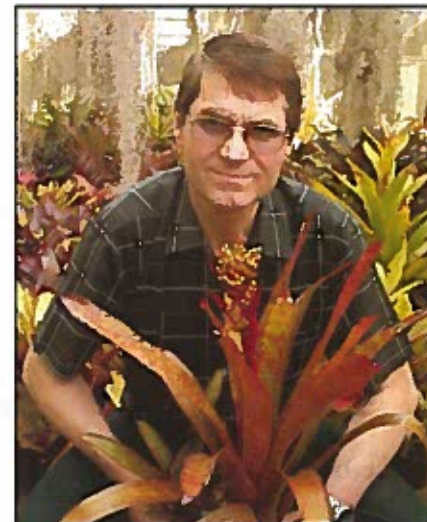
Figure 13. John Arden.

had to start over, salvaging what pups I could from the dying mothers and growing a new generation. A third disaster came in the form of an adverse reaction to an insecticide and while it didn't kill the plants, it made them bloom prematurely and pup. In all, it has taken me ten years to produce the hybrids that I am now registering. I was beginning to think God didn't want me growing any new bromeliads! Finally now, I am actually able to see the results of my labors.

member since. One year after joining the Bromeliad Society, I started hybridizing. I retired and moved to Vista, San Diego County in 1988. My hybridizing work flourished here. In 1996 I was forced to stop hybridizing. I simply ran out of space to grow the hybrids. Seven years later I restarted very limited hybridizing. Now, I no longer am involved with growing the hybrid seeds. I am fortunate to have good friends who will grow them. Presently I have 500+ hybrids in my possession. As of August 2004, I have 80+ registered hybrids in my name. My hybridizing work was done mostly with *vrieseas*, however there have been also some *tillandsias*, as well as *Vriesea* x *Tillandsia* and *Vriesea* x *Alcantarea* crosses.

Vic Przetocki (FIGURE 14).

I was born in a country town east of Perth, Western Australia in 1951. My parents shortly after decided to move to Perth. At the ripe old age of 18 I joined the Royal Australian Navy. In 1975, one year after being back in civilian life, I met my wife to be Yvonne. I began growing bromeliads in 1979 and joined the Western Australian Bromeliad Society in 1982. Since that time, except for a one-year period, I have held various positions on the committee. The Society in 2003 honoured Yvonne and I with life memberships and it is something we will always cherish. I began seed propagation in 1982 but began hybridising in earnest in 1983 and so far have registered 117 cultivars on the BSI Website. My residential block is 780 square metres in size so I have to be ruthless with my seedlings and if good enough tend to name about three plants from each cross. I have created *Aechmea*, *Billbergia*, *Cryptanthus*, *Neoregelia*, *Orthophytum*, *Vriesea*, Bi-generics and *Tillandsia* hybrids, of which the latter I have only just started. Lack of space is becoming an issue and I have slowed down creating new crosses but there are enough still in development to keep me busy for the next 5-10 years. Whenever Yvonne sees me drying seeds now, she says "I thought you stopped hybridising." My problem is that if I see two plants that I think have the potential to create something of beauty, then out come the tweezers and pollen brush. I would like to thank the BSI and appreciate the Bromeliad Cultivar Registration Award given to me in recognition of my contribution towards the betterment of bromeliads.



Photograph by Yvonne Przetocki.

Figure 14. Vic Przetocki.

Michigan Bromeliad Grower, Penrith Goff

Steven Wagner¹

South East Michigan is a long way from the native habitat of many Bromeliads from tropical South America. The distance of miles and different weather conditions has not stopped the travel of Bromeliads to the northern states. Not only will you find Bromeliads being grown in Michigan, you may be surprised to learn that the Great Lake State has a Bromeliad Society. Penrith Goff is the President of The South East Michigan Bromeliad Society. The talented Mr. Goff is also the editor of his society's newsletter. This interest in Bromeliads began when Penrith was a young boy and came across the occasional article in garden magazines. Penrith and his wife Ingeborg have been married since 1962. They live in Northville, Michigan, which is 30 miles west of Detroit.

The S.E. Michigan Bromeliad Society was founded in the mid-1970's. At that time most of the members lived in or near Detroit. At present, most of the forty society members are widely dispersed in the metro area. To compromise, the meetings are held in different locations each month. Some members will find the meeting conveniently close to home. Other members will find the location too far away to travel. The S.E. Michigan Bromeliad Society holds its annual show and sale at the Matthaei Botanical Gardens, Ann Arbor, Michigan.

Mr. Goff grows in a 9' x 22' lean-to greenhouse. Weather is the first and foremost challenge. At the beginning of the growing season, the Michigan temperature can rise and then plummet, keeping Bromeliad growers on guard. All this is repeated at the end of the growing season, Mother Nature's reminder that winter is on the way.

During the winter season, it is not unusual for the sun to make an appearance only one or two days a week. On one occasion, after weeks of winter clouds, the sun came out and burned a *Neophytum* which Penrith had grown in full sun all summer long.

When asked what Mr. Goff enjoys about bromeliads his reply was, "I enjoy the endless range of plant form and architecture, the incredible color, and the drama of the blooming process, the fact that being so temperature tolerant, and free of pests and diseases they are very easy to take care of. I enjoy the fact that, regardless of season, there are always things in bloom, and that very many bromeliads are strikingly beautiful plants even when not in bloom. I am also constantly amazed at their dogged insistence on surviving."

Continued on page 288 (Back Cover)

¹ Orlando, Florida

WBC 2006: Welcome to San Diego!

Robert Kopfsstein¹

Photographs by the Author

The next World Bromeliad Conference will be in 2006 in San Diego. Between now and then we in San Diego will give you a series of brief articles about this very special corner of the continental United States.

Usually when Americans think of colonial America it's New England that immediately comes to mind. However the West Coast was also part of this heritage. In the late 1500's Sir Francis Drake sailed his *Golden Hind* up the California coast. By the mid 18th century both the Spanish and Russians had settlements in what was to become the golden state.

Two Spanish missions — both restored — are in San Diego: the eponymous San Diego de Alcalá east of downtown and San Luis Rey in Oceanside, north of the city. Old Town, just north of downtown, commemorates both the Spanish influence with its original adobes and the 19th century Anglo influx of fortune seekers. In town the Gaslamp Quarter with its ongoing rehab of the commercial brick and stone buildings is now home to a plethora of chic restaurants, including French cuisine, Spanish tapas, Italian pasta, and English pub grub.

For the plant lover San Diego is a veritable bonanza of opportunities to explore. Balboa Park (designed a century ago by landscape architect Kate Sessions) is planted with thousands of species of subtropical plants. The San Diego Zoo and the San Diego Wild Animal Park are not only famous for their extensive animal collections, but the plants are also a major part of their world class exhibits.

To the north of the city Torrey Pines State Reserve not only preserves the endemic *Pinus torreyana* but also the most endangered ecosystem in the U.S.: the California coastal sage scrub. At Quail Botanical Gardens you can visit the largest collections of bamboo on display (to date, more than 104 species in the ground). [FIGURES 15-17].

Recreation and tourism are major components of the San Diego economy. Sports are a way of life in Southern California and San Diego offers golf courses, cycling routes along the river and around Mission Bay, surfing at several beaches and hiking trails on the coast as well as in the mountains. Shopping in duty-free Tijuana over the Mexican border in Baja California is an adventure — especially if you love to bargain.

A trip to the 2006 BSI World Bromeliad Show in San Diego will give you the opportunity to mix with fellow bromeliad enthusiasts and to experience a taste of the good life usually taken for granted by those cosseted Californians.

¹ 6903 Kellyn Ln, Vista, CA 92084

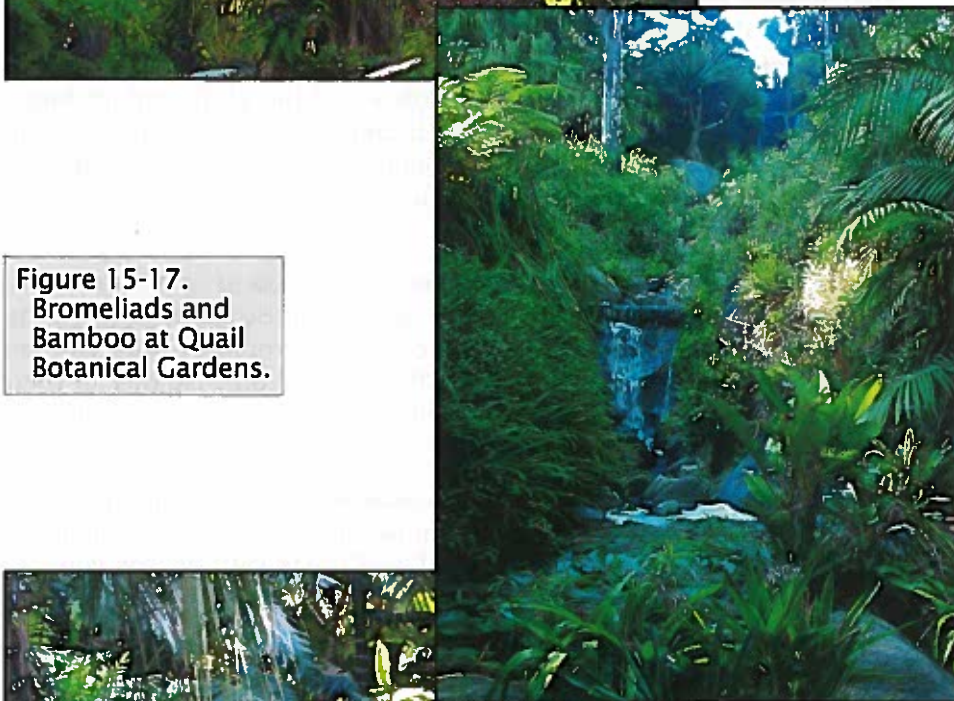


Figure 15-17.
Bromeliads and
Bamboo at Quail
Botanical Gardens.

Welcome New Members!

John Atlee, BSI Membership Secretary

Welcome! The BSI is not only an institution, but we are real live bromeliad growers, researchers, and conservationists. Please let us know how we can help. See the inside back cover for contact information.

Pascual Abenzoa (USA)	D Gabriel (USA)	Sotaro Misawa (Japan)
Luis Q. Abiva, Jr. (Philippines)	Noreen Tolman & Kenneth Gardner (USA)	RG Morin (USA)
Charles E. Abrahamson (USA)	Kenneth & Gloria Graham (USA)	John Morris (USA)
Nelwyn B. Anderson (USA)	Kelly Griffin (USA)	Paul Muraida (USA)
Ron Appleton (USA)	Ross Griffith (USA)	Toshiyuki Nagahashi (Japan)
Chuck & Patricia Bailey (USA)	Kristy Haberfield (Australia)	Elena Nazarova (Russia)
Kullawadee Boonsook (Thailand)	Patrick L. Hadsall (USA)	John Noonan (Australia)
Klaus Buchholtz (Australia)	Yoshinori Hirai (Japan)	Ginny & Carey Oliphant (USA)
Susanne Cioci (USA)	Diana Holt (New Zealand)	Alan & Neridah Phythian (Australia)
Elisabeth Colby-Smith (New Zealand)	Barry W. Holtz (USA)	Jason Poma (USA)
Chris Davis (USA)	Carolyn Husrt (Australia)	Luiz Oscar M. Ribeiro (Brazil)
Doug Davis (USA)	Kyoko Ishimaru (Japan)	Rachel E. Schmidt (USA)
Kumthorn Dechsakulthorn (Thailand)	Bob Johnson (USA)	Lola J. Stark (USA)
Michael O. Dillon (USA)	Patricia Kuoni (USA)	Sean Stevens (USA)
Steve Dollerd (USA)	Chris Maler (USA)	Peter Tayler (New Zealand)
Christine Dudding (USA)	Joe M. May (USA)	Santo Toscano (USA)
James Fergus (USA)	Stephen Flood & Julie McIntyre (Australia)	Jerri C. Wiesenfeld (USA)
	Caroline & Bill McCullagh (USA)	Darwin Bromeliad Society (Australia)
	Jon & Donna Mcvety (USA)	Gardens Department, Orpheus Island Resort
	Michael Medved (USA)	

Moving?

If your address is changing, even if your move is a temporary or seasonal one, you should notify the BSI Membership Secretary four to six weeks in advance. Even when you are temporarily away, your bulk mail is either discarded by the Post Office or, as in the case of your JOURNAL issue, is returned to us at a postage due cost of .99 cents within the USA.

If you are moving, or have recently moved, please send your name, the old and new addresses, and the effective date to: John Atlee, BSI Membership Secretary, 1608 Cardenas Dr. NE, Albuquerque, NM 87110 or by e-mail to membership@bsi.org.

Affiliates in Action

Gene Schmidt, BSI Affiliated Societies Chair

The San Diego Bromeliad Society is proud to welcome Pamela Koide, owner and operator of Birdrock Tropicals Nursery, as their newest honorary lifetime member. Pam has been honored for her many generous contributions to our Society - and for her expertise in bromeliad culture. Pam has supported the SDBS with gifts of plants, educational programs and lectures, and with her advice. She has taken a big role in the success of the annual shows; and her beautiful floor displays are always a hit of the show. Pam is known internationally in the bromeliad world, and is currently a member of the Editorial Advisory Board of the Journal of the BSI. Congratulations, Pam, on becoming an honorary lifetime member of the SDBS. (The Bromeliad Blade, newsletter of The San Diego Bromeliad Society, Vol. XXXI, Issue 2, February, '04)

Lynn Hudson, newsletter editor of the Cairns Bromeliad Society Inc. of Australia, writes of the recent twentieth anniversary of the CBS (FIGURE 18). Following their transfer from Brisbane to Cairns, Verna and Robert Hudson formed the Cairns Bromeliad Study Group in May 1984. The aim of the group was "to promote and develop interest in bromeliads through friendship" and this aim and the logo of *Billbergia zebrina* have been retained. A few of the inaugural group are current members; others have relocated to southern districts. Current Membership is 94 financial members, including 14 country members and 5 juniors whose ages range from 7 to 11 years (for more on the junior members, please see the following paragraph). Grace Goode OAM is an Honorary Life Member for her assistance with "Bromeliads X" plus her services and dedication in promoting bromeliads. For a few years growth had been stagnant until 1997 and with the decision to host the Tenth Australian Bromeliad Conference in Cairns, interest and membership boomed and the group became an incorporated entity in May 1998, and the name was changed to the Cairns Bromeliad Society Inc. The median age of members is 38 years - this also means some cannot attend every meeting due to family commitments, but attendance averages over thirty and usually there are two new members each month. Bromeliads are grown to a very high standard - Cairns is the perfect climate to grow bromeliads. Meetings are still held at members' homes and the hope is to continue as this practice adds a warm dimension to the meetings, and is a good chance to check out plant growth and gain new ideas for members' gardens. Lynn hopes the Cairns Bromeliad Society continues as it is today - colouring peoples lives as well as their gardens. (Bromelcairns, newsletter of the Cairns Bromeliad Society Inc., 2004 #3) As an example of their success with young members, Lynn writes of James Fenske, age 10 (FIGURE 18, green shirt). James has been growing seed for twelve months, using a 2 meter by 1.5 meter seed growing house with an automatic sprinkler system. At the November meeting James brought in examples of his success, a tray of *Tillandsia gardneri* germinated seed plus a slab of *Tillandsia streptophylla* seedlings. He stood in front of the group and explained how long the seeds took to germinate,

how he took them off the mesh trays with tweezers and hot glued them onto the slab of polystyrene covered with shade cloth. When we first met James he was shy and quietly spoken and it was just great to see the confidence he has gained over that time. It was just as good to watch the faces of the other members as they listened to this handsome, well-mannered young boy explain what he had done. The CBS is very proud of James's achievements. (Bromelcairns, newsletter of the Cairns Bromeliad Society, 2004 #6)

Congratulations and a huge "Thank You" to Dulcie Doonan, who was awarded Lifetime Membership of the Illawarra Bromeliad Society Inc. of Australia. Dulcie was one of the inaugural members when the Society began back in March 1992, and since then she has worked so energetically for the success of the Society. Illawarra Bromeliad Society members hope that Dulcie will continue to be an active part of the Society for many years to come, with their many thanks according to editor Eileen Killingley. (Newslink, newsletter of the Illawarra Bromeliad Society Inc., January 2004)

Herb Plever, editor of *Bromeliana*, publication of the New York Bromeliad Society, includes this article written by Stephan Reeb and reprinted from NATURAL HISTORY, November 2004. Although not about bromeliads, it is thought provoking for those of us living in highly industrialized areas. Remember the blackout of August 2003, which shut down power plants across much of the northeastern United States and southeastern Canada? For...chemists and meteorologists, that was an opportunity to directly measure...the air pollution caused by plants burning fossil fuels. Lackson T. Marufu and his colleagues at the University of Maryland in College Park compared air samples taken over central Pennsylvania a mere twenty-four hours into the blackout with samples earlier that day over unaffected Maryland, as well as samples collected in 2002 over the same spot in Pennsylvania under similar weather conditions. The investigators report that during the blackout, levels of airborne sulfur dioxide - a factor in respiratory illness, acid rain and damage to architectural materials - dropped by more than 90%, and low-altitude ozone by about 50%. Haze and smog decreased drastically as well, extending visibility by more than 25 miles. Road traffic stayed about the same, as did the amounts of its typical pollutants. Apparently, fossil-fuel burning power plants generate more pollution, relative to vehicles, than had been estimated. ("The 2003 North American electrical blackout: An accidental experiment in atmospheric chemistry," Geophysical Research Letters 31:L13106 July 15, 2004) (Bromeliana, The New York Bromeliad Society, Vol. 42, No. 1, January 2005) The New York Bromeliad Society now has a web site at: www.newyorkbromeliadsociety.org.

A new bromeliad group is being formed in the Hervey Bay/Maryborough area of Queensland, Australia, through the efforts of Debbie and Justeen Kruger. The initial meeting held at Debbie's home was attended by 43 people, and the new society is being called The Fraser Coast Bromeliad Society. The Bromeliad Society of New South Wales Inc. has made a generous donation of books both for selling and for the basis of a library for the new

society. We wish The Fraser Coast Bromeliad Society many years of success in encouraging the spread of bromeliad culture! (Bromeliad Newsletter, Bromeliad Society of New South Wales Inc., Vol. 23, No. 1, January 2005)

Much work is being put into the upcoming Bromeliads XIII Conference being held in Brisbane, Australia from October 14-17, 2005. There has been considerable expressions of interest in the conference, and it could be one of the largest local conferences ever. It was announced that Mr. David Shiigi from Hawaii and Mr. Bruno Rezende Silva from Brazil will be delivering four talks during the conference covering a wide range of topics. Inquiries to: Bromeliads XIII Conference Committee, c/o Bromeliad Society of Queensland Inc., P.O. Box 565, Fortitude Valley, QLD 4006, Australia. (Bromeliaceae, The Bromeliad Society of Queensland Inc., Vol. XXXVIII, No. 4, July-August 2004)

Geoff Lawn writes of the University of Queensland (UQ) and the Queensland Department of Primary Industries (QDPI) both being involved in the genetic modification of pineapples. Field trials of GM pineapples (*Ananas comosus* cv *ěSmooth Cayenne*) were previously approved under the Genetic Manipulation Advisory Committee (GMAC) system and recently, licenses have been granted for the continuation of the trials. The UQ pineapple plants have been modified to control flowering. The organization was granted its original license to conduct field trials in 1999. With the current license granted under the Office of Gene Technology Regulator (OGTR), the proposed field trials will continue until 2007. The QDPI have modified the pineapple plants for blackheart reduction (browning of the flesh) and to delay flowering. The approval of this application enables continuation of the trials, which commenced in 2000 under the GMAC system, until 2008. For further details on the UQ's application, visit: www.ogtr.gov.au/ir/dir027.htm. For the QDPI application, visit: www.ogtr.gov.au/ir/dir028.htm. (Bromeliaceae, The Bromeliad Society of Queensland Inc., Vol. XXXVIII, No. 2, March-April 2004).



Photograph by
Geoff Parker.

Figure 18. Members of the Cairns Bromeliad Society on the occasion of their 20th anniversary.



Photograph by Karen Andreas.

Figure 19. Len Trevor accepting a BSI certificate of affiliation on behalf of the Sunshine Coast Bromeliad Society of Queensland, Australia.

support, and we wish them many years of success.

An Affiliates/Newsletter Editors Meeting was also held in Chicago, attended by several BSI Directors and a good many newsletter editors. Unfortunately, the founding member of this meeting, Gene McKenzie of the Caloosahatchee Bromeliad Society, was in very poor health and could not attend the conference. She passed away only a few days later, and will certainly be missed and remembered by those of us who meet in the future to discuss those matters she felt very deeply about. I would like to compliment the Bromeliad Society of Greater Chicago on their efforts to put on a very successful world conference. Although many factors contributed to a smaller turnout, I cannot remember a conference that had more hospitality and a focus on individuals having a great time (if I had known the food in Chicago was that good I would have visited years ago!) Once again, our compliments to those members who worked so hard to provide a memorable experience for all.

BSI affiliated societies web sites announced are: Bromeliad Society of South Florida at: www.timewolf.net/BSSF or www.bromeliadsarea.family.com. Bromeliad Society of Broward County (FL) at: www.bromeliad.societybc.com. Please contact the BSI web master Ken Marks to establish a link from the BSI web page to your society's web site.

The BSI was very pleased to present two new affiliated societies at the 2004 World Conference in Chicago, IL. The first certificate of affiliation went to the Sunshine Coast Bromeliad Society of Queensland, Australia, represented by Len Trevor (FIGURE 19). The second certificate of affiliation went to the San Fernando Valley Bromeliad Society of California, represented by Frank Hayen (FIGURE 20). The BSI thanks them for their



Photograph by Karen Andreas.

Figure 20. Frank Hayen receiving a BSI certificate of affiliation on behalf of the San Fernando Valley Bromeliad Society of California, with Affiliated Societies Chair Gene Schmidt looking on.

BSI 2003 Financial Report**Ed Doherty, BSI Treasurer**

	2003 Approved	2003 Actual	2004 Approved
INCOME:			
Advertising-Journal	1,000	\$3,871	1,000
BSI Building Fund	0	\$200	500
Color Fund	4,000	\$3,199	2,000
Donations to BIC	2,000	\$2,138	20,000
Donations to BSI	1,000	\$677	800
Interest	7,000	\$2,840	3,000
Medallions & Ribbons	500	\$890	600
Memberships	41,000	\$38,565	42,000
Life Memberships	0	\$800	800
Prepaid Postage	3,400	\$493	600
Publications	10,000	\$5,996	10,000
Scientific Seminar 2004	0	\$0	500
Seed Fund	450	\$622	700
Slide Program	200	\$0	100
Deficit/Profit	0	\$23,608	0
WBC 2004	14,500	\$4,720	55,000
WBC 2004 Refunds		(\$1,310)	
TOTALS	85,050	\$87,307	137,600

EXPENSES:

BIC	12,000	\$13,232	12,000
Credit Card Charges	1,000	\$784	3,000
Director/BSI Mtg	800	\$1,682	1,500
Grants	2,000	\$1,000	2,000
Journal - Allowance	3,000	\$2,500	3,000
Journal Envelopes	1,500	\$0	0
Journal - Mail Service	13,500	\$7,509	13,500
Editor's Expenses	900	\$1,221	1,000
Journal - Printing & Photos	33,000	\$30,884	29,000
Editors Equipment	0	\$964	600
Bookbinding	0	\$0	300
Judges Certification - Exp	100	\$0	0
Life Membership	1,800	\$1,800	1,800
Medallions & Ribbons	600	\$644	2,100
Membership - Contract	4,800	\$4,800	4,800
Membership - Expenses	2,500	\$2,759	2,500
Merrill-Lynch Charges	0	\$300	300
Miscellaneous	0	\$0	1,000
Nomination Committee	100	\$0	200
President Expense	100	\$0	100
Publications	5,000	\$14,290	5,000
Publications Storage	0	\$0	300
Scientific Seminar 2004	0	\$0	4,000
Secretary Expense	100	\$0	100
Seed Fund	100	\$375	400

Slide Program	50	\$0	100
Treasurer Expense	100	\$13	100
Web Site	500	\$654	500
WBC 2004	1,000	\$1,896	40,000
WBC 2006	0	\$0	0
California Sales Tax	500	\$0	400
Illinois Sales Tax	0	\$0	4,000
BSGC	0	\$0	4,000
TOTALS	85,050	\$87,307	137,600

BSI News

A Standing Committee chair and a regional Board member were added to the roster of the BSI Board at the World Conference in Chicago. Carolyn Schoenau as Affiliated Shows Chair, and Keith Anderson as the Director for the California region, replacing Joyce Brehm for the rest of her term (2002-2004).

Keith Anderson has helped with the last three world conferences in sales. He is an avid grower and always "steps up to the plate" when help is needed.

Carolyn, an accredited BSI judge since 1982 and a certified master judge, and her husband Ron, have been growing bromeliads since 1974. They joined their first bromeliad society, the Bromeliad Society of Central Florida in 1975 and the BSI in the same year. Carolyn is also a member of Seminole Bromeliad Society, Florida East Coast Bromeliad Society and the Gainesville Bromeliad Society (GBS), was the treasurer of the GBS from 1986-1995, BSI Membership Chair from 1996 to 2003, and a representative to the Florida Council of Bromeliad Societies for many years. Along with Ron, she has co-chaired plant sales at World Bromeliad Conferences in Orlando (1980), Miami (1988), and Tampa (1992). She was co-chair and finance chair of the 1996 World Conference held in Orlando. She has attended every World Bromeliad Conference since New Orleans in 1977.

Leaving the Board of Directors at the end of 2004 after having served two terms each are Hiroyuki Takizawa (International) and Alan "Rick" Richtmyer (Texas). We appreciate their support of the BSI! New Directors for the 2005-2007 term are Francisco Oliva Esteve (International) and Jay Thurrot (Florida). Look for more information in a future issue. Directors renewing for a second term (2005-2007) are: Geoff Lawn (International), Ken Marks (Florida), and Fred Ross (Louisiana). Welcome back!

MEETING ANNOUNCEMENT: There will be a general annual meeting of the Board, May 7, 2005 at the Airport University Inn, 1901 University Blvd. SE, Albuquerque, NM 87106, Tel. 505-247-0512, Fax 505-842-6040, Toll Free: 800-920-1901. The Inn will offer free transportation to and from the airport.

Bromeliad-spotting from a Train

Leo Dijkgraaf¹

Photographs by the Author

Many organized tours to Ecuador have in their package the trip by train in the province of Chimborazo from Riobamba to Alausí and on to Sibambe.

The ride, for the most part at altitudes over 2000 meters elevation, offers some spectacular scenery of the Andean range, especially in the part south of Alausí called 'El Nariz del Diablo' (the devil's nose). What this train ride makes so special is the possibility to travel on the roof of the train (FIGURE 21). This seems more dangerous than it really is, for the pace of the locomotive is slow and one has good grips. Even catering is provided for, and ticket control takes place on the roof. Be also prepared for giving a push to a carriage that got stuck during shunting operations at a switchback! (FIGURE 22)

At several points the face of the rocks comes very close and here it is that bromeliads enter this story; it is like travelling through a rock garden adorned by different species. I leave the identification to the specialists but believe that *T. latifolia* and *T. portillae* are present here (FIGURES 23, 24).

To take photographs from the roof of a moving train is no easy task and one can only shoot haphazard, hoping for some sharp images. I advise everybody undertaking this trip to be equipped with a state of the art digital camera with an image stabilizer and good zoom range. Still better would it be to hire a car and travel the road that runs parallel to the railway at varying distance, however I am not sure the places with bromeliads are visible from there. In any case, this habitat is worth a closer look.



Figure 21. Riding atop the train.



Figure 22. Passengers helping to shunt a car.



Figures 23 & 24. Some bromeliads along the route.

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

-A-

<i>Aechmea amicornum</i>	165
<i>amorimii</i>	280
<i>ampla</i>	167
<i>apocalyptic</i>	52,55,241
<i>aquillega</i>	153-157
<i>azurea</i>	74,75,152
<i>blanchetiana</i>	75,165,166,167
<i>bracteata</i>	103
<i>bromeliifolia</i>	192
<i>calyculata</i>	52
<i>castanea</i>	144
<i>caudata</i>	54
<i>coelestis</i>	52,55
<i>correa-araujo</i>	196
<i>Covata</i>	53,54
<i>curranii</i>	279,281
<i>distichantha</i>	79
<i>fasciata</i>	51,124-129,126,127
<i>floribunda</i>	280
<i>fulgens</i>	27,152
<i>gamosepala</i>	53,54
<i>kerteszlai</i>	51
<i>lanata</i>	280
<i>lingulata</i>	153-157,235-236,280
<i>marauensis</i>	152,165,167
<i>mexicana</i>	222
<i>microcephala</i>	30
<i>miniata</i>	27,152
<i>multiflora</i>	144,192
<i>nudicaulis</i>	104-107,124
<i>orlandiana</i>	51,288
<i>pabstii</i>	165,166
<i>perforata</i>	31,144
<i>pimentel-velosof</i>	53,55
<i>pitcatmiioides</i>	152
<i>recurvata</i>	51,54,55
'Reginald'.....	27,27
<i>spbaerocephala</i>	31,192
<i>strobilacea</i>	152
<i>tillandsioides</i>	22
<i>triangularis</i>	192
<i>turbinocephala</i>	281,284
<i>victoriana</i>	31
<i>Alcantarea extensa</i>	158,159
<i>imperialis</i> [correct name: <i>A. glaziouana</i>].....	223
<i>regina</i>	10,17,233,233
Aline Raynal-Roques, see Roguenant, Albert.....	180-181
<i>Ananas comosus</i>	22,48
Anderson, John.....	199
Anderson, Nelwyn.....	199
Andreas, Karen. Chicago, Our Kind of Town!.....	195-200
<i>Androlepis skinneri</i>	79
Arden, John.....	258-259

-B-

Barfuss, Michael. Molecular Phylogeny in Subfamily Tillandsioidae (Bromeliaceae) Based on Six cpDNA Markers: An Update.....	9-17
---	------

<i>Billbergia amoena</i>	192
'Curly Top'.....	88
'Misty Steel'.....	88
<i>pyramidalis</i>	122,123,192
<i>sanderiana</i>	192
Biogeography and Conservation of the Bromeliad <i>Tarantula Pachistopelma rufonigrum</i> (Araneae, Theraphosidae) in Rio Grande do Norte, Brazil.....	153-157
Biological Survey of the Cordillera Mosetenes, Bolivia, A.....	243-249
Birds and Bromeliads in Costa Rica.....	222-225
Book Review.....	
<i>Vidalia</i> , a New Scientific Journal on Bromeliads.....	86
Bromeliads for the Contemporary Garden.....	135
Bromeliad Endophytes and the Serendipity of Science.....	28-32
Bromeliad Relics in Chicago.....	21-27
Bromeliads: Believe it or Not!.....	78,232
Bromeliad-spotting from a Train.....	270-271
BSI Business.....	
Affiliates in Action.....	17-20,264-267
BSI 2003 Financial Report.....	268-269
BSI News.....	269
BSI Website Members-Only Area.....	133-134
Call for Nominations for the Office of Director.....	203-204
Deceased Honorary Trustees of the BSI.....	90-91
Donations to the Bromeliad Society International.....	278
Donations to the BSI.....	131
Errata.....	277
Events Calendar.....	276-277
Grace M. Goode, Order of Australia Medal Recipient.....	34-36
Highlights of the 2003 BSI.....	
Board of Directors Meeting.....	250-256
Inaugural BSI Cultivar Registration Awards, 2004.....	257-259
New BSI Board Member O'Keith Anderson.....	227
New BSI Director [President] Joyce Brehm.....	226
WBC 2006: Welcome to San Diego!.....	261-262
Welcome New Members!.....	263
Butcher, Derek.....	
<i>Aechmea perforata</i> L.B.Sm.....	144
'Brentwood'.....	175
Cultivar Corner.....	27,130-131
Nurserymen's Names.....	204
Plant Patents, Plant Breeding Rights, Whatever!.....	178-179
<i>x Androlaechmea</i> 'O'Rourke'.....	79

-C-D-E-

Carvalho, Luiz Felipe. Travels to the South of Bahia State, Brazil 164-167.....	
<i>Catopsis berteroniana</i>	165
<i>morreniana</i>	196
Charles Coolbaugh, a Hybridizing Artist.....	122-124
Chicago, Our Kind of Town!.....	195-200
Choate, Ray. The University of Adelaide Library Celebrates the Life of Marie Robinson.....	136-137
Colgan, Len. Exploring Bolivia with FAN.....	206-211
Cool Plants at the Atlanta Botanical Garden.....	171-174
Coolbaugh, Bernice.....	122-124,123
<i>Cryptanthus</i> Anne Collins'.....	288
'John Judge'.....	196
'Peppered Bronze'.....	88

Cultivar Corner.....	27,130-131
De Proft, Maurice. Flower Biology and Fertilization of <i>Aechmea fasciata</i>	125-129
Dear Editor.....	233
DeLeon, Nat.....	138
Determan, Ron.....	172
<i>Deuterochloa longipetala</i>	210
Dijkgraaf, Leo. Bromeliad-spotting from a Train.....	270-271
Diversity and Ecology of Epiphytic Bromeliads Along an Elevational Gradient in the Bolivian Andes.....	217-221
Doonan, Dulcie.....	265
<i>Dyckia</i> 'Brittle Star'.....	196
Ehlers, Renate. A New Species of <i>Tillandsia</i> , and the History of KK 180.....	55-59
Endangered Bromeliads Available in Horticulture.....	176
Epiphytism of <i>Aechmea lingulata</i> (Bromeliaceae) on <i>Pilosocereus</i> sp. (Cactaceae) in Tabuleiro Woodland, Northeastern Brazil.....	235-236
Exploring Bolivia with FAN.....	206-211

-F-G-

Faria, Ana Paula Gelli de.....	
The Real Identity of <i>Aechmea turbinocalyx</i>	279-284
Insights on the Phylogenetic Relationships of <i>Aechmea</i> and Related Genera in Subfamily Bromelioideae.....	147-151
<i>Fascicularia bicolor</i>	216
Fenske, James.....	264
Flower Biology and Fertilization of <i>Aechmea fasciata</i>	125-129
Foster, Mulford.....	23,79
<i>Fosterella albicans</i> (cf.).....	246
Francisco Chi May, see Ramirez-Morillo, Ivon M.....	112-121
German Carnevali Fernández-Concha, see Ramirez-Morillo, Ivon M.....	112-121
Giroux, Larry. In Remembrance of Gene McKenzie.....	201-202
Goode, Grace.....	34-36,35,264
Grace M. Goode, Order of Australia Medal Recipient.....	34-36
Grant, Jason. Report on Bromeliads at Monocots III Symposium, Ontario, California, 2003.....	234-235
Gregory K. Brown, see Tuthill, Dorothy E.....	28-32
Gregory K. Brown, see Faria, Ana Paula Gelli de.....	147-151
Gregory K. Brown, see Tuthill, Dorothy E.....	103-109
Gregory, Mary. Painting Bromeliads.....	168-170
Growing Small Grey-Leafed Tillandsias.....	59-64
<i>Guzmania monostachia</i> and its Varieties at the Allures de Banao Ecological Reserve, Central Cuba.....	160-162
<i>Guzmania calothyrsus</i>	219
<i>erythroblepis</i>	160
<i>berrenae</i>	11
<i>insignis</i>	13
<i>lingulata</i>	160
<i>madisonii</i>	219,246
<i>monostachia</i> var. <i>monostachia</i>	160,161,163
<i>monostachia</i> var. <i>variegata</i> M.B. Foster.....	160,161,163
<i>monostachia</i> var. <i>alba</i> Ariza-Julia.....	160,161
<i>monostachia</i>	160,163
<i>musalea</i>	11
'Olive'.....	197
<i>squarrosa</i>	246,248

-H-I-J-K-

Hayen, Frank.....	267
Henderson, Merv.....	18
<i>Hobenbergia disjuncta</i>	152
<i>ramageana</i>	153-157
<i>ridleyi</i>	155
<i>stellata</i>	155

Holst, Bruce.....	
<i>Vidalia</i> , a New Scientific Journal on Bromeliads.....	86
Cool Plants at the Atlanta Botanical Garden.....	171-174
Horich, Clarence Kl.....	186
Hornung-Leoni, Claudia. Uses of the Giant Bromeliad, <i>Puya raimondii</i>	3-8
Hudson, Lynn.....	264
Ibisch, P.L.....	101
Inaugural BSI Cultivar Registration Awards, 2004.....	257-259
Ine Vervaeke, see De Proft, Maurice.....	125-129
Insights on the Phylogenetic Relationships of <i>Aechmea</i> and Related Genera in Subfamily Bromelioideae.....	147-151
Introducing: <i>Aechmea azurea</i>	74
Josh Pomeroy, see Tuthill, Dorothy E.....	103-109
Kent, Jeffrey. Endangered Bromeliads Available in Horticulture.....	176
Kick Me...Hurricane Magnets, Exploding Heaters, and Tar Water.....	229-231
Koide, Pam.....	264
Kopstein, Robert. WBC 2006: Welcome to San Diego!.....	261-262
Krömer, Thorsten.....	
A Biological Survey of the Cordillera Mosetenes, Bolivia.....	243-249
Diversity and Ecology of Epiphytic Bromeliads Along an Elevational Gradient in the Bolivian Andes.....	217-221

-L-M-N-

Lawn, Geoff. Inaugural BSI Cultivar Registration Awards, 2004.....	257-259
Lee, H. Alton. Charles Coolbaugh, a Hybridizing Artist.....	122-124
Leme, Elton.....	
Studies on <i>Orthophytum</i> , an Endemic Genus of Brazil - Part I.....	36-43
<i>Pitcairnia nortefluminensis</i> , a New Species from Rio de Janeiro, Brazil.....	182-185
Leme, Elton.....	144
Len Colgan, see Ehlers, Renate.....	55-59
Leonardo David de Souza Tinoco, see Santos, Roberto Lima.....	153-157
Long Journey for <i>Tillandsia cyanea</i> , A.....	186-188
Luciano Barreto Martins, see Santos, Roberto Lima.....	153-157
Luthe, Rusty.....	199
Luther, Harry. Introducing: <i>Aechmea azurea</i>	74
Maria das Gracas Almeida, see Santos, Roberto Lima.....	153-157,235-236
Maria Solange, see Santos, Roberto Lima.....	153-157,235-236
Marks, Ken.....	
Bromeliad Relics in Chicago.....	21-27
BSI Website Members-Only Area.....	133-134
Kick Me...Hurricane Magnets, Exploding Heaters, and Tar Water.....	229-231
Long Journey for <i>Tillandsia cyanea</i> , A.....	186-188
Marks, Tammy. Not All Ideas are Golden.....	138-139
Mary Rosabella Samuel, see Barfuss, Michael.....	9-17
McLaughlin, Mike.....	172
Mérida (Venezuela), The City of Bromeliads.....	163-164
<i>Mezobromelia butchisonii</i>	11
<i>pleiosticba</i>	11,218
Michael Kessler, see Krömer, Thorsten.....	243-249
Michigan Bromeliad Grower, Penrith Goff.....	260,288
Molecular Phylogeny in Subfamily Tillandsioidae (Bromeliaceae) Based on Six cpDNA Markers: An Update.....	9-17
Murphy, Susan A. Bromeliads: Believe it, or Not!.....	232

<i>Neoregelia</i> Alpha'	123-124
'Beefsteak'	88
'Beta'	124
<i>carolinae</i> forma <i>tricolor</i>	130
<i>carolinae</i> var. <i>tricolor</i>	130
<i>concentrica</i>	88,130
<i>cruenta</i>	104-107
'Dear Olwen'	89
'Ferris'	88
'Happy Thoughts'	88
hybrid	196
'Janet Gregory'	170
'Olwen Ferris'	88
<i>pascodiana</i>	165
'Red Marble'	88
<i>sp.</i>	78
Tricolor'	130
New Species of <i>Tillandsia</i> , and the History of KK 180, A	55-59
New Variety of <i>Tillandsia incarnata</i> from Ecuador, A	180-181
<i>Nidularium innocentii</i>	223
Not All Ideas are Golden	138-139
Nurserymen's Names	204

-O-

Obituary	
Ferris, Olwen	89
McKenzie, Gene	201-202
O'Rourke, Fay	79
<i>Ocagavia andina</i>	212-216,215
<i>carnea</i>	212-216,215
<i>elegans</i>	212-216,214
<i>litoralis</i>	214,215,212-216,240
<i>litoralis</i>	212-216
<i>Ocagavia</i> : Very Attractive Chilean Endemics	212-216
Oliva-Esteve, Francisco. Mérida (Venezuela), The City of Bromeliads	163-164
<i>Orgiesia tillandsioides</i>	51
<i>Orgiesia</i> - The Adaptable <i>Aechmea</i>	51-55
<i>Ortobophytum albopictum</i>	66
<i>alvimi</i>	40,43
<i>amoenum</i>	66
<i>burle-marxii</i>	37,66
<i>burle-marxii</i> var. <i>seabrae</i>	67
<i>compactum</i>	37
<i>disjunctum</i>	37
<i>esteresi</i>	37-39,38,41
<i>fosterianum</i>	37
<i>fosterianum</i> var. <i>esteresi</i>	37
<i>glabrum</i>	37
<i>batschbachii</i>	67,69
<i>beleniceae</i>	49,67,68-67-70
<i>borridum</i>	39-43,40,42
<i>humile</i>	67
<i>lymanianum</i>	43
<i>magalbaesii</i>	37
<i>navioides</i>	67,69
<i>sucrei</i>	37,39,41
<i>vagans</i>	70,72-74
<i>zanonii</i>	70,71,72,72-74

-P-

Painting Bromeliads	168-170
Parkhurst, Ronald W. Bromeliads: Believe it or Not!	78
Patricio Novoa, see Zizka, Georg	212-216
Peterson, Sharon	257-258

<i>Pitcairnia cf. riparia</i>	246
<i>corcovadensis</i>	182,183
<i>flammea</i>	182,184
<i>flammea</i> var. <i>flammea</i>	184
<i>flammea</i> var. <i>spinulosa</i>	184
<i>nortefluminensis</i>	182-185,183,183
<i>Pitcairnia nortefluminensis</i> , a New Species from Rio de Janeiro, Brazil	182-185
Plant Patents, Plant Breeding Rights, Whatever	178-179
Pleber, Herb. Where Have All the Nurseries Gone?	75-77,80-81
<i>Portea alatisepala</i>	165,192
<i>grandiflora</i>	165
<i>leptantha</i>	192
<i>petropolitana</i>	192
Portraits of Bromeliaceae from the Mexican Yucatan Peninsula-IV: <i>Tillandsia dasytiritifolia</i> Baker: Taxonomy and Reproductive Biology	112-121
Prince, Moyna. Birds and Bromeliads in Costa Rica	222-225
Przewocki, Vic	258,259
<i>Puya atra</i>	101
<i>ferruginea</i>	101
<i>berzogii</i>	99-101
<i>humilis</i>	101
<i>ibiscitii</i>	99-102,100,101,102
<i>mollis</i>	240
<i>nana</i>	210
<i>nulans</i>	99,101
<i>pizarroana</i>	101
<i>raimondii</i>	1,3-8,4-6,8,101
<i>secunda</i>	101
<i>tristis</i>	101
<i>venezuelana</i>	99,101
<i>Puya ibiscitii</i> (Bromeliaceae), a New Species from Cochabamba, Bolivia	99-102

-Q-R-S-

<i>Quesnelia edmundoi</i> var. <i>rubrobracteata</i>	149
<i>edmundoi</i> var. <i>edmundoi</i>	149
<i>imbricata</i>	193
<i>marmorata</i>	149
<i>quesneliana</i>	149
<i>strobilispica</i>	149
Ramírez-Morillo, Ivon M. Portraits of Bromeliaceae from the Mexican Yucatan Peninsula-IV: <i>dasytiritifolia</i> Baker: Taxonomy and Reproductive Biology	112-121
Rapid Vegetative Propagation of Alcantareas	158-159
Real Identity of <i>Aechmea turbinocalyx</i> , he	279-284
Reilly, Bob	
Growing Small Grey-Leaved Tillandsias	59-64
Grace M. Goode, Order of Australia Medal Recipient	34-36
Rapid Vegetative Propagation of Alcantareas	158-159
Book Review: Bromeliads for the Contemporary Garden	135
Report on Bromeliads at Monocots III Symposium, Ontario, California, 2003	234-235
Ribas de Vega, Maria Teresa Dear Editor	233
Robinson, Marie	137
Roguenant, Albert. A New Variety of <i>Tillandsia incarnata</i> from Ecuador	180-181
<i>Roubergia morrentana</i>	192
Santos, Roberto Lima Biogeography and Conservation of the Bromeliad <i>Tarantula</i> <i>Pachistopelma rufonigrum</i> (Araneae, Theraphosidae) in Rio Grande do Norte, Brazil	153-157

Epiphytism of <i>Aechmea lingulata</i> (Bromeliaceae) on <i>Philosocereus</i> sp. (Cactaceae) in Tabuleiro Woodland, Northeastern Brazil	235-236
Schmidt, Gene	267
Schmidt, Gene Affiliates in Action	17-20,264-267
Schwesinger, Lucia Hechavarria. <i>Guzmania monostachya</i> and its Varieties at the Alturas de Banao Ecological Reserve, Central Cuba	160-162
Shiigi, David	199
Steens, Andrew. <i>Orgiesia</i> - The Adaptable <i>Aechmea</i>	51-55
<i>Streptocalyx curranii</i>	279
<i>floribundus</i>	149
<i>poeppligii</i>	31,149
Studies on <i>Ortobophytum</i> , an Endemic Genus of Brazil - Part I	36-43

-T-

Tania Wendt, see Faria, Ana Paula Gelli de	147-151,279-284
<i>Tillandsia aerantbos</i>	61
<i>albertiana</i>	61
<i>albida</i>	113
<i>asplundii</i>	246
<i>bergeri</i>	61
<i>brachycalyx</i>	61
<i>bulbosa</i>	61,62,165
<i>butzii</i>	61,62
<i>cacticola</i>	62
<i>calcicola</i>	113
<i>caloclamys</i>	211
<i>capul-medusae</i>	61,62
<i>churinusensis</i>	57,58
<i>comarapaensis</i>	211
<i>crocata</i>	61,62
<i>cucacensis</i>	113
<i>cyanea</i>	186-187,188
<i>cyanea</i> var. <i>tricolor</i>	186-187
<i>dasytiritifolia</i>	97,114,115
<i>disticha</i>	61
<i>fasciculata</i>	23-26
<i>flexuosa</i>	113
<i>fresnilloensis</i>	113
<i>gardneri</i>	60,62,165
<i>geminiiflora</i>	60
<i>geniculata</i>	114
<i>globosa</i>	165
<i>incarnata</i> var. <i>margaritacea</i>	181
<i>insignis</i>	11
<i>intermedia</i>	60,62
<i>ionantha</i>	61,63
<i>ionocroma</i>	211
<i>ixioides</i>	63
<i>kawinskyana</i>	113
<i>latifolia</i>	55
<i>leiboldiana</i>	169
<i>limbata</i>	112,118
<i>macbrideana</i>	57,58
<i>makoyana</i>	112,114,118
'Marie Robinson'	137
<i>mooreana</i>	197
<i>nana</i>	55
<i>nana</i>	57
<i>platyrbachis</i>	219
<i>pringelii</i>	112
<i>pseudomicans</i>	57

<i>pulvinata</i>	113
<i>rubra</i>	57
<i>samaipatenensis</i>	210
<i>simplexa</i>	112
<i>singularis</i>	11
<i>streptocarpa</i>	61,63,210
<i>stricta</i>	63,165
<i>swartzii</i>	112
<i>tenifolia</i>	61,63
<i>usneoides</i> var. <i>alienus</i>	232
<i>utriculata</i>	112-121
<i>venusta</i>	11
<i>viridiflora</i>	11
<i>wurdackii</i>	219
Travels to the South of Bahia State, Brazil	164-167
Trevor, Len	267
Tuthill, Dorothy E. Bromeliad Endophytes and the Serendipity of Science	28-32
Water Quality of Some Bromeliad Tanks in Brazil	103-109

U-V-W-X-Y-Z

University of Adelaide Library Celebrates the Life of Marie Robinson, The	136-137
Uses of the Giant Bromeliad, <i>Puya raimondii</i>	3-8
Vásquez Ch., Roberto. <i>Puya ibiscitii</i> (Bromeliaceae), a New Species from Cochabamba, Bolivia	99-102
Victoria Sosa, see Hornung-Leoni, Claudia	3-8
Vidal, Maria Rosario Rodrigues	86
Vidal, Waldomiro Nunes	86
<i>Vidalia</i> , a New Scientific Journal on Bromeliads	86
<i>Vriesea</i> 'Kilauea'	197
'Spotlight'	197
<i>bluminosa</i>	104-107
Brentwood'	175
Brentwood' x <i>fenestralis</i>	175
'Brentwood Lemon'	175
<i>castaneobulbosa</i>	222
<i>fosteriana</i>	131
<i>gigantea</i>	131
<i>hieroglyphica</i>	131
<i>malzinei</i>	170
<i>monstrum</i>	11
<i>procera</i> var. <i>rubra</i>	165
<i>racinae</i>	10
<i>roberto-seidelii</i>	165
<i>splendens</i>	11
<i>tequendamae</i>	219
x <i>Guzmania</i>	126
x <i>Tillandsia</i>	126
<i>Vriesea</i> 'Brentwood'	175
Wagner, Steven. Michigan Bromeliad Grower, Penrith Goff	260,288
Walker Till, see Barfuss, Michael	9-17
Water Quality of Some Bromeliad Tanks in Brazil	103-109
<i>Weraubia gladioliflora</i>	219
<i>insignis</i>	13,48
<i>sanguinolenta</i>	219
Where Have All the Nurseries Gone?	75-77,80-81
Whittemore, Mary	199
x <i>Andrakaechea</i> 'O'Rourke'	79,96
Zanoni, Marcos	74
Zizka, Georg. <i>Ocagavia</i> . Very attractive Chilean Endemics	212-216

Events Calendar

April 23-24, 2005. *BROMELIAD SOCIETY OF SOUTH FLORIDA ANNUAL SHOW*. Fairchild Tropical Botanic Gardens, 10901 Old Cutler Road, Coral Gables, FL 33156. 9:30-4. Admission required by Fairchild Trop. Bot. Gard. For more information, contact Robert C. Meyer, Show Chairman, (305) 285-8838, fax (305) 285-8919, meyerrobertc@cs.com.

April 30-May 1, 2005. *GREATER NEW ORLEANS BROMELIAD SOCIETY SHOW*. Lakeside Mall, Metairie, Louisiana, USA. Noon-4. For more information, contact Carol Hertz (504) 486-8190 or Fred Ross (504) 891-9301.

April 30, 2005. *BSI JUDGING SCHOOL*. Balboa Park in San Diego, CA. A BSI Judging school in California is scheduled to hold its second session covering Class II. A nominal fee will be charged and registration must be made by April 15th, 2005. New students are welcome and may start this class and make up class I at a later date. For more information, contact Roger Lane (Ca. registrar) rdodger@pacbell.net, Robert Kopfsstein (Ca. Judges instructor) kkopfsstein@aol.com.

May 6-8, 2005. *30TH ANNUAL BROMELIAD SHOW AND SALE*. Accredited, judged bromeliad show and sale. Bromeliad Society of Central Florida. New location this year: Orlando Fashion Square, 3201 Colonial Dr., Orlando, FL, USA. Directions: From I-4, go east on S.R. 50; from S.R. 417, go west on S.R. 50. May 6 & 7, 10-9; May 8, 11-6. For more information, contact (321)453-0366, or www.orlandofashionsquare.com.

May 13-15, 2005. *ALICE IN BROMELIADLAND*. Sarasota Bromeliad Society & Sale & Cryptanthus 9th International Show. Marie Selby Botanical Gardens, Sarasota, Florida, USA. Sale - May 13-15, Show May 14-15. For more information, contact Inez & Len Dolatowski - ldolatow@tampabay.rr.com.

May 14-15, 2004. *SPRING ARBORETUM SALE*. Bromeliad Society of Houston. Houston Arboretum and Nature Center, 4501 Woodway, Houston, Texas, USA. May 14, 9-5; May 15 11-4. For more information, contact Allyn Perlman (713-772-7831 or deliboyshouston.rr.com), www.bromeliadsocietyhouston.org.

June 10-12, 2005. *36TH ANNUAL STANDARD BROMELIAD SHOW AND SALE*. Bromeliad Society of Houston. New location this year: Mercer Arboretum & Botanical Gardens, 22306 Aldine Westfield Road, Humble, Texas, USA. June 10, sales 12-5, June 11, sales 9-4, show 1-4, June 12, show and sales 11-4. For more information, contact Allyn Perlman (713-772-7831 or deliboyshouston.rr.com), www.bromeliadsocietyhouston.org.

June 11-12, 2005. *BSQ & CSSQ SHOW AND SALE*. The Bromeliad Society of Queensland, Inc. and the Cactus & Succulent Society of Queensland, Inc. Mt. Coot-tha Botanic Gardens Auditorium, Brisbane, Australia. June 11, 8-4:30; June 12, 9-3. Over 1000 different types of bromeliads, cacti, and other succulents will be available for sale. Entrance \$3, children free. For more information, contact www.bsqa.org.au.

Oct. 14-17, 2005. *BROMELIADS XIII - AUSTRALIAN CONFERENCE*. The Bromeliad Society of Queensland, Inc. Brisbane, Australia. The conference will include lectures, tours, sales, displays, and an auction and show. For more information, contact Bromeliads XIII Conference Committee, c/o Bromeliad Society of Queensland Inc., PO Box 565, Fortitude Valley, Queensland, 4006 Australia. E-mail: secretary@bsq.org.au. Web site: <http://www.bsqa.org.au/conference.html>.

October 14-16, 2005. *CALOOSAHATCHEE BROMELIAD SOCIETY 2005 STANDARD BSI SHOW & SALE*. Terry Park, 3410 Palm Beach Blvd., Ft. Myers, FL. Oct. 14, registration and exhibit entry; Oct. 15, open to public 9-5; Oct. 16, 10-4. For more information, contact Diane Molnar at (239) 549-3404 or capebrom@aol.com and Brian Weber at (941) 355-2847 or brianweber1b@aol.com respectively.

October 22, 2005. *FLORIDA EXTRAVAGANZA*. Florida Council of Bromeliad Societies. Sarasota Garden Club, 1131 Blvd. of the Arts, Sarasota, Florida. A banquet and rare plant auction to benefit the FCBS will follow at the Helmsley Sandcastle, 1540 Ben Franklin Dr., Lido Beach, Sarasota, Florida. Free Admission. A special room rate of \$79-\$99 is available. Call 941-388-2181. Proceeds to benefit the FCBS. For more information, contact Inez & Len Dolatowski - ldolatow@tampabay.rr.com.

November 18-20, 2005. *INDEPENDENT PLANT BREEDER'S CONFERENCE*. A conference to inform independent plant breeders how to successfully bring their hybrids to market. University of Florida, Institute of Food and Agricultural Sciences, Offices of Conferences & Institutes. Ft. Lauderdale Marriott North, Ft. Lauderdale, FL, USA. For more information, contact www.conference.ifas.uf.edu/ipbc.

June 6-11, 2006. *WORLD BROMELIAD CONFERENCE*. Large show and sale, judged competition, lectures, social events, and more. 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.

Errata

Our apologies to Joyce Brehm. We reported in JBS 54(5): 226. 2004, that she is a new "Director" for the BSI, but she is our new President!. Long live the President!

The plant identified in the same issue as *Alcantarea regina*, p. 233 has been identified by Harry Luther of the Bromeliad Identification Center as *Alcantarea glazioviana*.

The special hotel rates for World Bromeliad Conference 2006 in San Diego are good for three days before, during, and three days after the conference... not only for any three days during the conference as erroneously reported.

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The BSI also thanks Joe & Peggy Bailey for a generous donation of bromeliad books and journals.

The Real Identity of *Aechmea turbinocalyx*

Ana Paula Gelli de Faria^{1,2} and Tânia Wendt¹

While identifying some species collected during recent field work in Bahia State, Brazil we encountered a case of misnaming involving two species of *Aechmea*: *Aechmea curranii* (L.B. Sm.) L.B. Sm. & M.A. Spencer and *Aechmea turbinocalyx* Mez. The flowers from the problematic specimen lacked appendages, consequently the identification key (Smith & Downs 1979) took us to *Streptocalyx* Beer, more exactly to *Streptocalyx curranii* L.B. Sm. This species is currently treated as *A. curranii*, due to the reduction of *Streptocalyx* under *Aechmea* (Smith & Spencer 1992) based on the position that presence or absence of petal appendages only is not enough to separate these two genera. Comparison of our material with other herbarium specimens determined as *A. curranii* (see material examined) supported our identification. However, when our specimens were compared with the holotype photograph of *A. curranii* (FIGURE 25A), we noted several differences leading us to suspect that the herbarium specimens determined as *A. curranii* might be misidentified. Our suspicion was confirmed upon examination of the holotype photograph and original description of *A. turbinocalyx* (FIGURE 25B), a species known by the type collection only, for Bahia State, without exact locality.

A notable feature of *A. turbinocalyx*, which is also present in the herbarium specimens analyzed and individuals collected in the field are the convolute sepals, which have a turbinate aspect due to the rolling of the lateral wings to the left. Furthermore, the sepal apices are strongly turned to the left, placing the apiculus horizontally (FIGURE 26A, B).

When compared, the original descriptions of *A. curranii* and *A. turbinocalyx* show many similar morphological characters (TABLE 1). However, the strong left-hand torsion of the sepal apex is distinctive for *A. turbinocalyx*. Smith (1931) described the sepals of *A. curranii* as asymmetrical only, and the drawing presented does not show torsion of the lateral wings as observed in *A. turbinocalyx*. *A. curranii* also appears to have the leaf margin more densely serrate, with longer spines, besides an inflorescence more branched (from 5-7 branches, according to Smith & Downs, 1979).

A better delimitation between *A. curranii* and *A. turbinocalyx* will depend on more field collections. Among the herbarium material analyzed, we did not observe any collection that could fit in the morphological pattern of *A. curranii*, based on our comparisons with the type and original description. Besides the type, collected in forests of Rio Gongogi Basin, Smith & Downs (1979) cited one single additional specimen for *A. curranii* (Foster 51, Água Preta, Bahia, deposited in GH), however, this was not examined.

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Though the type specimen of *A. turbinocalyx* has a simple inflorescence, after examination of the multiple herbarium specimens we conclude that some individuals can also present bipinnate inflorescences, with 2-4 branches, as well as pseudosimple inflorescences, with few and very short branches that give an aspect of a simple inflorescence (FIGURE 27). As for the leaf margin, it can be entire, the common state, to laxly spinulose. A feature mentioned in the original description of *A. turbinocalyx*, which can be misleading, is related to the floral bract length. Mez (1892) described the floral bracts as about equaling the sepals. However, all specimens analyzed from herbarium material and collected in the field show shorter floral bracts, equal to or slightly exceeding the ovaries.

The misnaming of herbarium collections is only one problem involving *A. turbinocalyx*. We also find problems related to infrageneric placement. When first described in 1892 by C. Mez in *Flora Brasiliensis*, *A. turbinocalyx* was treated in subgenus *Pothuava* (Baker) Baker. In the subsequent revisions by Mez (1896, 1935), the species was maintained in subgenus *Pothuava*, being treated in the same way in other studies (e.g., Smith 1955). Smith & Downs (1979) later transferred *Aechmea turbinocalyx* from subgenus *Pothuava* to *Macrochordion* (de Vriese) Baker. This study shows that *A. turbinocalyx* must be segregated from subgenus *Macrochordion*, which includes species with strobilate inflorescences, carinate floral bracts, and appendage petals, among other characters that are not shared with *A. turbinocalyx*.

Aechmea turbinocalyx shows a closer affinity to *Aechmea curranii*, currently placed in subgenus *Aechmea* (Smith & Spencer 1992). White flowers and other characters related to the intracalyx morphology such as patent to slightly recurved petals and absence of petal appendages also distinguish *Aechmea turbinocalyx* from other species of subgenus *Aechmea* such as *A. amorinii* Leme, *A. floribunda* Martius ex Schultes f., *A. lanata* (L.B. Sm.) L.B. Sm. & Spencer and *A. lingulata* (L.) Baker. However, since most of the genera and subgenera in Bromelioideae do not correspond to natural groups (Faria et al. 2004) further studies are necessary to direct the placement of this species within the subfamily. [Editor's note: H. Luther, pers. com., suggests that the above-mentioned taxa can be placed in the taxon *Wittmackia* Mez].

As Mez (1892) was unable to observe the intracalyx morphology for *A. turbinocalyx* (see TABLE 1), and as the original description does not reflect fully the variation of inflorescence patterns, we present here a more complete description for this taxon.

Aechmea turbinocalyx Mez, Fl. Brasiliensis 3: 359. 1892. TYPE: Brazil, Bahia: without locality, 1857, Blanchet s.n. (Holotype: G; photo F negative 8483).

Plant epiphytic or rupicolous, flowering 30-40 cm high. **Rosette** infundibuliform. **Leaves** ca. 8-10 in number, abaxially sparsely to conspicuously lepidote, adaxially glabrous; **sheaths** elliptical, 7.2-10.6 x 3.0-6.0 cm, abaxially green, adaxially pale or purpureus, margins entire; **blades** linear, 22.5-63.5 x 1.5-3.0 cm, green, slightly canaliculate, margins entire throughout



Photograph provided by Herbarium G.

Figure 25. A: Holotype of *Aechmea curranii* (Curran 143k US). Copyright Smithsonian Institution. B: Holotype of *A. turbinocalyx* (Blanchet s.n., G).



Photographs by L.O.F. de Sousa.

Figure 26. A: Young inflorescence of *Aechmea turbinocalyx*. Note the sepal apex turned to the left (arrow), placing the apiculus horizontally. B: Detail of open flowers of *A. turbinocalyx*. Besides the apices turned to the left, the lateral wings are rolled to the same side (arrow).

to laxly and remotely spinulose, spines 0.5-1.0 mm, apex acute to attenuate, mucronate. **Scape** erect, slender, 18-26 cm long, 2-3 mm in diameter, green, white-floccose to sparsely lepidote; **scape bracts** lanceolate, membranaceous, 2.0-4.0 x 0.4-0.7 cm, pale-greenish, margins entire, glabrous to sparsely lepidote. **Inflorescence** simple, pseudosimple with 1-2 short branches (ca. 1.0 cm) to distinctly bipinnate, with 2-4 branches (2.0-3.5 cm), pyramidal or cylindrical, 5.0-10 x 3.0-6.5 cm, rachis green, white-floccose to sparsely lepidote; **primary bracts** lanceolate, membranaceous, 1.0-2.3 x 0.4-0.5 cm, pale-greenish, margins entire, glabrous to sparsely lepidote; **floral bracts** acuminate or lanceolate, membranaceous, pale-greenish, nerved, margins entire, sparsely lepidote, ecarinate, not enfolding the flowers, equalling to slightly passing the ovary, 0.6-1.0 x 0.4-0.5 cm. **Flowers** sessile, 1.8-2.0 cm long, polystichously arranged; **sepals** 8.0 x 5.0-7.0 mm, free, pale, glabrous, strongly asymmetrical with the lateral wings convolute to the left, apex apiculate, not pungent, turned to the left placing the apiculus horizontally; **petals** 13 x 3.0 mm, spatulate, apex acuminate, white, patent to slightly recurved, unappendaged, bearing two longitudinals callosities, 9.0 mm long; **stamens** partially included; **filaments** 8.0 mm long, the antesealous free, the antepetalous highly adnate to the petals by 6.0 mm; **anthers** white, 4.0 mm; **stigma** conduplicate-spiral, exserted, green; **ovary** 5.0-8.0 mm long, cylindrical, green, sparsely white-lepidote, epigynous tube ca. 1.0 mm long; placentation apical, ovules numerous, elliptical, non caudate, fruit not analyzed.

Material examined: BRAZIL, Bahia: **Without exact locality:** flowered in cultivation at Marie Selby Botanical Garden, 1 Jun 1999, *Berg s.n.* (SEL); **Aurelino Leal:** 11.2 Km W of BR-101 & Aurelino Leal on road to Lago do Banco, 14°20'S, 39°23'W, 3 May 1992, *W.W. Thomas et al.* 9111 (CEPEC); 10-11 Km W of BR-101 on road from Aurelino Leal to Lago do Banco, 14°20'S, 39°23'W, 16 Feb 1994, *J. Kallunki et al.* 555 (NY, SEL); **Jussari:** Rod Jussari-Palmira, entrada ca. 7.5 Km de Jussari, Fazenda Teimoso, 15°09'29"S, 39°31'43"W, 7-8 Nov 1998, *A.M. Amorim et al.* 2613 (CEPEC, NY); Rod Jussari - Palmira, Fazenda Teimoso, 1.5 Km E da entrada, 15°09'31"S, 39°31'44"W, 22 Apr 1999, *J.G. Jardim et al.* 2085 (NY); **Ilhéus:** Castelo Novo, Fazenda Ponta Grossa, margem da Lagoa Encantada, 15 Feb 1968, *S.G. da Vinha* 106 (CEPEC); Ca. 7 Km na estrada Olivença - Vila Brasil, 30 May 1991, *A.M. de Carvalho et al.* 3298 (CEPEC); **Santa Cruz da Vitória:** Headwaters of the Rio Limoeiro, BR 415, 14°57'39.4"S, 39°41'15.1"W, 01 Apr 2000, *W.W. Thomas et al.* 12123 (CEPEC, NY); **Una:** Estação Experimental Lemos Maia, OEPLAC, floresta ao lado W da estação, 13 Nov 1980, *A. Rylands* 117 (CEPEC); Rod. Una - Olivença, Km 11, 15 Dec 1982, *G. Martinelli et al.* 8937 (RB); Serra da Luzia, entrada no Km 5.7 da rodovia São José-Una, 1.8 Km lado N, Fazenda "Conjunto Santa Rosa", 7 Km por ar ENE São José, 15°03'S, 38°17.5'W, 27 Feb 1986, *T.S. dos Santos et al.* 4057 (CEPEC); Rodovia para Pedras de Una, 18 Apr 1996, *G. Hatschbach* 64544 (MBM); Reserva Biológica de Una, trilha do príncipe, 15°09'S, 39°05'W, 7 Feb 2000, *G.M. Sousa et al.* 303 (CEPEC); Reserva Biológica de Una, lado W da rodovia Una - São José, 15°10'46"S, 39°09'04"W, 1 May 2000, *J.G. Jardim et al.* 3023 (CEPEC, NY), Reserva

Biológica de Una, 8 Oct 2002, *Wendt et al.* 431 (RFA); Reserva Biológica de Una, 2 Apr 2003, *Wendt et al.* 461 (RFA); Uruçuca: Nova estrada que liga Uruçuca a Serra Grande, 28 - 30 Km de Uruçuca, 01 May 1979, *S. Mori* 11751, Estrada Uruçuca - Serra Grande, 28 - 30 Km NE de Uruçuca, 26 Jun 1979, *S.A. Mori* 12046 (CEPEC); Serra Grande district, 7.3 Km on road Serra Grande - Itacaré, Fazenda Lagoa do Conjunto Fazenda Santa Cruz, 1-12 Jul 1991, *A. M. de Carvalho et al.* 3359 (NY); Parque Estadual da Serra do Conduru, Km 10 da estrada Serra Grande - Uruçuca, 14°29'07"S, 39°06'07"W, 4 Jun 2000, *M. Alves et al.* 1959 (CEPEC).

Distribution and Habitat

Aechmea turbinocalyx is endemic to the South region of Bahia State, growing as epiphytic or rupicolous in remains of Atlantic Forest far from the coast, in Jussari and Santa Cruz da Vitória municipalities, as well as in wet forest and arboreal restinga near the coast, in Aurelino Leal, Ilhéus, Una and Uruçuca municipalities.

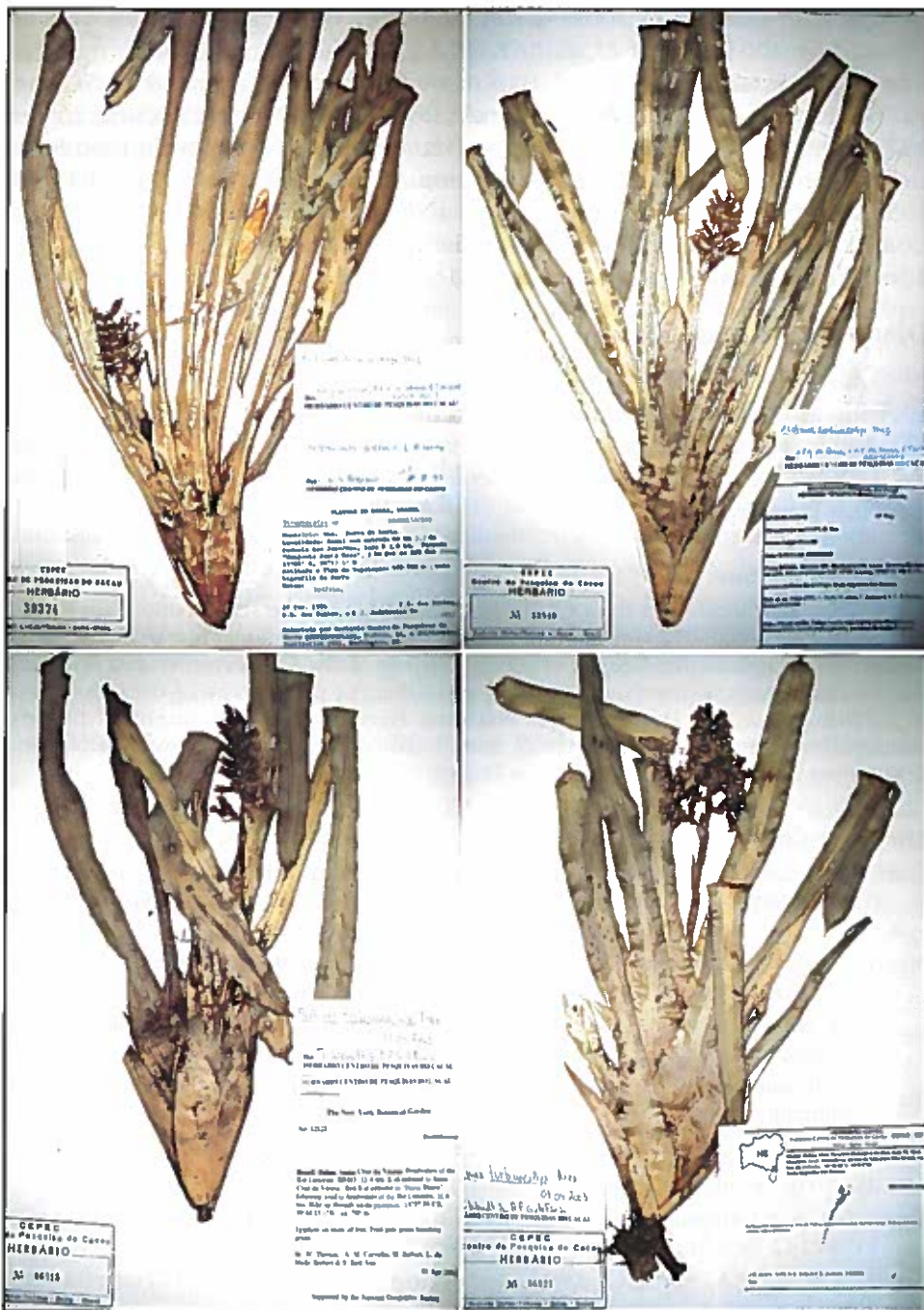
Acknowledgments

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* BSI Secretary



Photographs by L.O.F. de Sousa.

Figure 27. Variation of inflorescence patterns in *A. turbinocalyx*. Inflorescences simple (left) and pseudosimple (right) are shown in the top. In the bottom, bipinnate patterns with two (left) and four branches (right) are shown.

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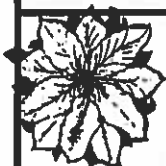
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Figure 28. *Aechmea orlandiana* 'Ensign'.

Drawing by Penrith Goff.

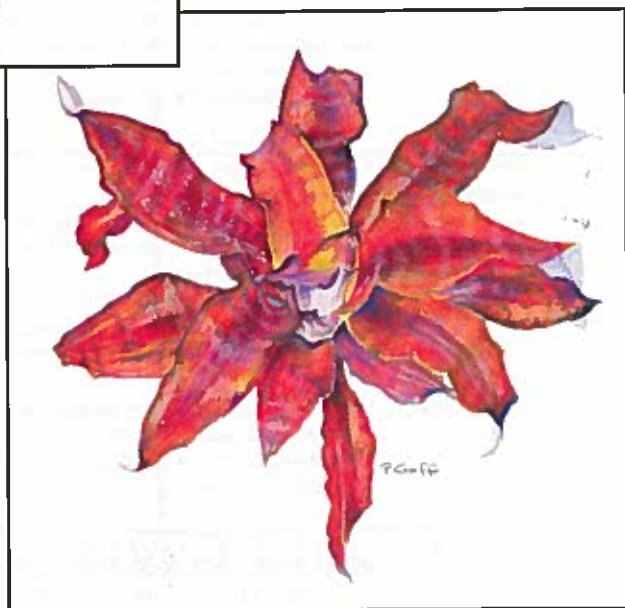


Figure 29.
Cryptanthus
'Anne Collins'.

Drawing by Penrith Goff.

Continued from page 260

Penrith's other hobbies include gardening, drawing, lecturing to garden clubs, volunteer work on the bromeliad collections at the Detroit conservatory and Matthaei Botanical Gardens.

On the cover of each month's S. E. Michigan Bromeliad Societies newsletter is original artwork by Penrith. He has been kind of enough to share his drawings of *Aechmea Orlandiana* "Ensign" (FIGURE 28, and *Cryptanthus* 'Anne Collins' (FIGURE 29) with us.