Journal of The Bromeliad Society

VOLUME 47 • JULY–AUGUST 1997 • NUMBER 4

Journal of the Bromeliad Society

Vol. 47, No. 4 July–August, 1997

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Cover photographs. Front: *Neoregelia burlemarxii* R.W. Read, from Parati, Brazil. One of five similar *Neoregelia* species discussed in text beginning on page 147. Photograph by Vern Sawyer. Back: *Vriesea diamantinensis Leme,* a new species described in text beginning on page 168. Photograph by Elton M.C. Leme.

CONTENTS

The *Journal,* ISSN 0090-8738, is published bimonthly at Orlando, Florida by the Bromeliad Society. Inc. Articles and photographs are earnestly solicited. Closing date is 60 days before month of issue. Advertising rates are listed in the advertising section. Permission is granted to reprint articles in the *Journal,* in whole or in part, when credit is given to the author and to the Bromeliad Society, Inc. **Please address all correspondence about articles and advertising to the editor.**

Subscription price (in U.S. $) is included in the 12-month membership dues: single–$25.00, dual (two members at one address receiving one *Journal*)–$30.00, fellowship–$40.00, life–$750.00 Please add $7.50 for international surface mail, except for life members. For first class or airmail add $10.00.

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Back Issues: All single copies $4.50 1st class postpaid to ZIP addresses, other countries $5.50 airmail postpaid; per volume $20.00 to ZIP addresses, $25.00 to other addresses, 3rd class or surface postpaid. Order back issues from BSI Publications, c/o Sally Thompson, 29275 N.E. Putnam Rd., Newberg, OR 97132, USA; make checks drawn on U S. banks, bank drafts, or money orders payable to B.S.I. Prices are subject to change.

Printed by Fidelity Press, Orlando, Florida.

Neoregelia Notes: Part 1

Harry E. Luther **Photographs by Vern Sawyer**

More than a decade has passed since I published my last piece on *Neoregelia* subgenus *Neoregelia* (Luther, 1983).

Subgenus *Neoregelia* is by far the larger portion of the genus with ca. 83 species and is nearly restricted to southeastern Brazil. Subgenus *Hylaeaicum,* with an Amazonian distribution, has been studied by Ramirez (1991, 1994). It contains at least 13 species and is doubtfully congeneric. No more will be said about the latter taxon for the present; the typical subgenus contains more than enough attractive, interesting and difficult plants to hold our attention.

Neoregelia carolinae (Beer) L.B. Smith (figure 1) is one of the most important bromeliads in an international, multimillion dollar floriculture industry. Wild plants are still to be found in wet, mountain-side forests near Rio de Janeiro. All that I have examined are similar to the pictured plant with relatively narrow leaves and a rose-to light-pink center. The commonly cultivated plants show the effects of many generations of selection.

Neoregelia coimbrae E. Pereira & Leme (figure 2) is apparently endemic to a small preserve surrounding the Primate Center of Rio de Janeiro where it grows as a canopy epiphyte. It appears to have affinity to *N. tristis* (Beer) L.B. Smith.

Figures 3 and 4 represent two facets of the rather confusing and troublesome *N. olens-indecora-eltoniana-camorimiana* complex. All are small to medium-size, beautifully colored plants. If forced to attach a name to each pictured specimen, I would probably call the smaller plant (figure 3) *N. indecora* (Mez) L.B. Smith and the larger plant *N. eltoniana* W. Weber (figure 4).

The cover photograph shows a neoregelia that is fairly widespread in cultivation and the parent of several hybrids. It has recently been described as *N. burlemarxii* R.W. Read. This taxon seems rather variable in size and conformation but all specimens that I have so far examined share the mottled rose to purple center color. The plant is native to wet coastal forests near the Rio de Janeiro/São Paulo state line.

A future installment of this series will treat some of the problem plants of horticulture such as *N. johannis* (Carrière) L.B. Smith, and its imposters and aliases.

LITERATURE CITED

Luther H. 1983. Notes on neoregelias. J. Bromeliad Soc. 33:191-194, 223-224.

[Continued on page 182]

Figure 1.
Neoregelia carolinae from near Teresopolis, Brazil.

Figure 2.
Neoregelia coimbrae from the type locality near Mage, Brazil.

Figure 3.
Neoregelia indecora from near Mage, Brazil.

Figure 4.
Neoregelia cf *eltoniana* from an unknown locality in S.E. Brazil.

Book Review: Bromélias da Reserva Ecológica Rio Das Pedras

Thomas U. Lineham, Jr.

BROMÉLIAS DA RESERVA ECOLÓGICA RIO DAS PEDRAS, published under the direction of Ula Vidal, graphic arts by Carolina Burle de Niemeyer, text by Rosa Lima, scientific review by Andrea Costa, English translation by Dorothy Sue Dunn de Araujo; sponsored by Unibanco Ecologica (the Unibank program for ecological projects) and by Club Méditerranée (Club Med), Rio de Janeiro, Brazil 1996; 22 x 15 cm, illustrated soft cover, 68 pages, 28 color photographs, outline maps showing habitat locations, bibliography, text in Portuguese and English. List US$25.00, quantity prices not given. Order by fax to: Reserva Rio das Pedras Rio de Janeiro, Brazil, 5521 274 1992, attention: Andreia. Supplier states, "we will fax back with shipping charges and will accept U.S. cheques." Fax communication is recommended because mail handling is sometimes slow.

We are always reassured by the publication of books about bromeliads and the preservation of remaining natural areas that those subjects are of continuing interest. Several such books appeared from 1994 through early 1996, but this is the first new bromeliad book in recent months. It was found by Harry Luther, director of the Bromeliad Identification Center at Selby Gardens in Sarasota, Florida, in a Rio de Janeiro book store. We are grateful to him for his abilities to find both plants and books.

"The Rio das Pedras Ecological Reserve," to quote from the preliminary pages of the book, "is a private, natural heritage reserve protected by law and administered by the Brazilian Institute of the Environment." It is located in the State of Rio de Janeiro on the Atlantic Coast not far distant from the city of Rio de Janeiro. The reserve includes an area of 1,361 million hectares (more than 3.3 million acres) purchased by the Club Med to preserve a portion of the endangered Atlantic Forest and the adjoining territory. All of the money obtained from the sale of this book is being contributed to protect the reserve, according to a notice on the back cover.

The book is a guide to 25 of the 30-odd bromeliad species found in the reserve. The preliminary pages state the purpose of the book, describe the Atlantic Forest and its importance, locate and explain the significance of the reserve. In the major portion of the book, there is a brief discussion of the three subfamilies of the bromeliad family, an explanation of the several symbols used to identify basic characteristics of the various species (epiphytic, saxicolous, terrestrial, heliophytic, sciophytic). Each of the 25 species is given a general, one-page description with a color photograph printed on the opposite page. The recent change in nomenclature to *Alcantarea* is observed. Two recently described

species, *Nidularium angraensis* (1986) and *N. meeanum* (1992), which may be new to JOURNAL readers, are included.

Amateur and professional botanists will find the book useful, even if limited in scope, because of the succinct descriptions and the superb photographs. Librarians should consider adding copies of the book to their collections.

Orlando, Florida

At the Crossroads

Chet Blackburn

The BSI is approaching an important crossroad in its existence. One path leads to growth and continuation of present services and programs, the other may lead to cutbacks, or worse yet, to a dead end.

Membership in the BSI has been undergoing a slow but relentless decline for years. According to the BSI roster published in 1981, there were 62 affiliated societies and 2,717 memberships, whereas the most recent roster, the 1996 roster, lists 51 affiliated societies and only 1,463 memberships. That is a loss of almost 50% in fifteen years.

The services and programs provided by the BSI have been predicated on a higher membership than now exists. The BSI has been drawing from its reserves for the past three years to maintain that level of service, but this is a situation that cannot go on for very long.

In fairness, the BSI is not the only horticultural organization to suffer a decline since 1981. 1981 was an anomaly because it was near the peak of one of those passing fads that occasionally sweep through the country. In the late seventies and early eighties, one such fad revolved around house plants. Plant shops, wholesale and retail nurseries, and new plant magazines proliferated, hawking everything from exotic plants to macramé. All plant societies experienced growth during this period until the faddists moved on to other things. At least one BSI affiliate even had a membership cap and had to institute a waiting list to join.

Even so, the BSI (and most other plant societies as well) continue to experience a loss of members long after effects of the fad have passed. BSI membership continues to dwindle, yet paradoxically, there are probably more bromeliads being sold today than ever before. With the increase in popularity of bromeliads, why hasn't the BSI experienced growth instead of a decline in membership? Are the affiliates experiencing a similar decline? Are there many people who belong to affiliates who do not belong to the BSI?

In search of answers to these and other questions, surveys were sent to all

affiliates listed in the 1996 BSI Roster except for the Cryptanthus Society, The Florida Council of Bromeliad Societies, and the Southwest Bromeliad Guild. While these three groups are important affiliates of the BSI, they are all a layer above "local affiliate".

BACKGROUND INFORMATION

The Bromeliad Society, Inc. came into being on Sunday, September 17, 1950, at the home of Mr. & Mrs. Frank Overton in Glendale California. Two months later the first BSI affiliate, the Southern California Bromeliad Society, came into existence. It consisted of most of the same Southern Californians who had been involved in the formation of the BSI. The society's founders were well aware that interests of bromeliad enthusiasts were best served at two levels, a local level and an international level.

The local level would bring growers living near each other together to share fellowship, and exchange ideas and plants on a social basis. The international organization would become an effective organization for the expansion of knowledge about bromeliads, the promotion of growing them, their conservation, and the application of correct nomenclature. In theory, the BSI and its affiliates were to complement each other and were expected to consist of essentially the same membership.

MEMBERSHIP FIGURES: 1976 TO 1996

Tables 1 and 2 depict the decline in membership from information derived from the 1976, 1981, 1987, 1990, 1994, and 1996 rosters. Membership varies from month to month but the figures used in the tables are from an item by item count of entries shown in each of the respective directories.

Table 1 charts membership by state and territory within the United States. Table 2 charts the same information for all countries other than the United States.

Table 1: BSI Memberships by U.S. State/Territory.

STATE	1976	1981	1987	1990	1994	1996
Alabama	15	43	15	12	11	5
Alaska	-	1	2	5	2	2
Arizona	17	13	9	10	6	10
Arkansas	10	11	5	5	4	3
California	541	508	418	341	275	241
Colorado	12	23	11	9	13	8
Connecticut	21	17	11	11	7	6
Delaware	2	2	-	1	-	-
D.C.	5	12	10	9	6	6
Florida	284	457	391	354	325	314
Georgia	39	49	26	27	20	18
Guam	-	2	-	-	-	1

Hawaii	17	96	63	69	50	43
Idaho	3	1	1	1	3	1
Illinois	61	37	39	36	28	23
Indiana	11	17	20	20	13	10
Iowa	6	7	4	6	4	5
Kansas	9	5	5	6	3	5
Kentucky	7	4	5	8	2	3
Louisiana	253	282	138	118	86	73
Maine	1	-	4	3	2	3
Maryland	21	14	24	22	14	9
Massachusetts	28	20	25	29	17	16
Michigan	27	30	23	18	20	12
Minnesota	13	19	9	10	8	6
Mississippi	8	24	7	9	9	9
Missouri	21	17	12	12	7	13
Montana	-	-	1	-	2	2
Nebraska	1	3	1	2	-	2
Nevada	2	3	7	2	4	3
New Hampshire	1	4	3	2	2	2
New Jersey	39	49	21	20	17	20
New Mexico	6	2	4	4	3	4
New York	117	91	53	52	50	42
North Carolina	27	22	17	25	22	17
North Dakota	-	-	2	3	1	-
Ohio	35	42	28	28	22	18
Oklahoma	11	12	12	16	5	3
Oregon	15	23	15	17	15	13
Pennsylvania	61	43	26	26	22	17
Puerto Rico	7	9	15	11	8	4
Rhode Island	6	-	1	1	-	1
South Carolina	11	13	8	8	2	1
South Dakota	2	0	-	-	1	1
Tennessee	16	15	10	13	9	8
Texas	242	278	208	177	137	117
Utah	5	2	1	-	-	1
Vermont	1	-	2	2	2	2
Virginia	26	19	14	15	11	10
Virgin Islands	3	3	4	3	3	2
Washington	15	25	17	25	15	9
West Virginia	2	4	-	1	-	1
Wisconsin	12	6	3	7	10	11
Wyoming	-	1	1	1	4	1
	2,096	2,380	1,751	1,612	1,302	1,153

64% of the U.S. membership is found in only four states; California, Florida, Louisiana and Texas. The same four states accounted for 64% of the membership in 1981 as well.

In reviewing tables 1 and 2, one surprising factor became apparent. The decline in membership is more pronounced inside the U.S. than it is outside its borders. In fact, it can be argued statistically whether there is a comparable decline outside the United States. As table 2 illustrates, membership in all the countries outside the United States in 1997 is down only slightly, and membership actually increased during the 1987 through 1994 period while the U.S. was losing members through each of those years. This in spite of the fact that the cost to belong to the BSI is greater outside the U.S. because of higher JOURNAL delivery rates.

Table 2: Membership outside the U.S.

COUNTRY	1976	1981	1987	1990	1994	1996
Argentina	1	1	-	-	-	-
Austria	5	6	4	4	3	3
Australia	52	140	117	123	104	92
Bahamas	1	2	4	4	4	3
Barbados	-	1	1	-	-	-
Belgium	9	9	10	9	8	7
Bermuda	1	1	2	1	-	1
Brazil	9	9	17	18	24	19
Br.Virgin Isle	-	-	-	-	-	1
Canada	21	22	22	19	18	12
Cayman Islands	-	-	-	-	1	1
Chile	-	-	1	-	-	-
Colombia	-	-	-	-	1	2
Costa Rica	4	3	4	4	3	4
Czech Republic	-	0	2	2	2	2
Denmark	-	1	-	-	-	-
Dominica	-	1	2	2	2	2
Dominican Rpbc	-	4	2	2	1	2
Ecuador	-	-	-	-	2	2
Fiji	-	2	1	1	1	-
France	11	9	10	12	12	8
Germany	20	20	28	33	40	39
Greece	-	-	1	1	-	-
Guatamala	2	3	2	3	2	2
Hungary	-	1	1	1	1	1
Iceland	-	1	-	-	-	-
Ireland	1	3	2	1	2	1
India	-	2	1	1	1	1
Indonesia	-	1	2	1	1	1
Israel	-	-	-	1	-	-
Italy	4	5	5	3	3	3
Japan	2	5	8	8	7	7
Kenya	-	-	-	-	1	1
Malaysia	-	1	1	-	1	-
Mauritius	-	-	-	-	-	1
Mexico	5	5	2	4	7	4
Monaco	-	-	1	1	-	-
Netherlands	8	7	10	11	14	13
New Zealand	11	10	9	13	17	19
Norway	-	-	-	-	-	1
Oman	-	-	-	-	1	-
Peru	1	1	1	2	-	-
Philippines	1	9	6	4	5	9
El Salvador	-	1	-	-	-	-
Saudi Arabia	-	-	-	1	1	-
Singapore	-	1	1	2	-	-
South Africa	9	11	7	6	3	4
Spain	4	1	4	4	6	4
Switzerland	6	13	8	5	5	4
Tahiti	1	1	-	-	-	-
Thailand	1	1	4	6	10	5
Turkey	-	-	-	-	1	-
United Kingdom	17	21	11	17	17	16
Uruguay	-	-	-	-	-	1
Venezuela	4	6	8	6	9	10
West Malaysia	-	-	-	-	1	2
Zimbabwe	4	4	1	2	-	-
	214	344	321	338	342	310

The totals of BSI memberships inside and outside the U.S. at the time the six rosters were published were as follows:

	1976	1981	1987	1990	1994	1996
U.S.A.	2,096	2,380	1,751	1,612	1,302	1,153
All Others	214	344	321	338	342	310
	2,310	2,724	2,072	1,950	1,644	1,463

AFFILIATE MEMBERSHIPS

How many members of local bromeliad societies do not belong to the BSI? Is there a comparable decline in affiliate membership? If there is a decline, are all affiliates experiencing it? To determine that, the question, "Over the last three years has your membership increased, decreased or remained about the same?" was asked and the results are reported for each region. However, it should be

remembered that the question could only be answered subjectively since no hard data were required.

The surveys were mailed to the newsletter editors of the local bromeliad societies if they could be identified. The editors not only have ready access to most of the information needed, but as a group they tend to be among the most involved, most knowledgeable and most reliable members of a local society. If the newsletter editor could not be identified, the survey was sent to the affiliate address indicated in the roster. More than 2/3 of the local societies responded to the initial survey. For those that did not, the survey was mailed a second time, and if no response was received the second time, a follow-up phone call was made if a contact could be identified. In some cases, the address of record proved to be obsolete, so the second survey was sent to another address if one was available.

Because of the limitations of time, distance and expense, a second survey was not mailed to affiliates outside the U.S.A, and no telephone calls were made. I was also unable to come up with a telephone contact in three of the U.S. affiliates. I apologize to any group who might have wished to participate had I been able to contact them after the initial mailing.

Some of the affiliates were not listed in the 1996 roster. When addresses for them were eventually obtained, surveys were mailed to them. Non-affiliates known to exist were also contacted to make the information as complete as possible.

Surveys were mailed to 58 bromeliad societies. Responses were received from 49 of them, or 84% of the total. Surveys were sent to all groups listed in the following ten tables.

The information in the following tables is derived from responses to the survey, but several caveats should be mentioned concerning the data used.

1. Many growers belong to more than one affiliate and some belong to several affiliates. These multiple memberships inflate the actual numbers of both the affiliate membership and the BSI membership reported on the survey, but they probably have little effect on the *percentages* of affiliate members versus BSI members for each group. It can be reasonably assumed that most people who have memberships in more than one affiliate also belong to the BSI because they tend to be the most enthusiastic bromophiles.

2. To determine how many members of local societies were also BSI members, the person filling out the survey was asked to compare the names from their local membership roles against the names in the BSI directory. Still, BSI memberships shown on the following tables for a region will be higher than those shown for BSI membership for the same region in tables 1 and 2 because of the multiple membership factor. For example, table 3 shows a total of 117 BSI members in Australia, while table 2 indicates that there are only 92. The additional twenty-five members shown in table 3 are most likely the result of people who belong to more than one affiliate, although there could also be a timing factor involved since the totals were obtained at different times. However, because of the multiple membership factor, the two numbers should not be expected to be in agreement.

3. Most surveys were mailed and returned at the end of 1996. Some changes have taken place in both affiliate memberships and BSI membership in the interim.

Currently the BSI is organized into ten geographical regions for the purpose of proportional representation. The regions are the Australian Region, California, Central States Region, Florida, International Region, Louisiana, Northeastern Region, Southern Region, Texas, and the Western Region.

A region by region analysis follows with the local societies for each region listed in descending order by size:

AUSTRALIAN REGION

Surveys were mailed to eleven Australian societies and responses were received from eight. Of the eight that responded, four reported their membership has increased in the last three years, three reported a decrease and one remained about the same.

Table 3: Affiliate/BSI membership in Australian Region.

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Bromeliad Society of Australia	250	45	18%
Bromeliad Society of Queensland	171	20	12%
New South Wales Bromeliad Society	141	15	11%
Gold Coast Succulent & Bromeliad Soc.	105	10	10%
Victoria Bromeliad Society	65	8	12%
Bromeliad Society of South Australia	50	7	14%
Illiwara Bromeliad Society	46	6	13%
Cairns & District Bromeliad Society	20	2	10%
Western Australia Bromeliad Society			
Hunter District Bromeliad Society			
Cent. Coast of New South Wales B.S.			
Australian Region	848	113	13%

CALIFORNIA REGION

Seven of the eight affiliates receiving the survey responded. Three reported an increase in membership over the last three years, one reported a decrease and three stated that they remained about the same. However, the picture is probably not as rosy as that might seem. One affiliate commented that it was only a slight

increase and another was an affiliate that was formed during that period and would be expected to experience growth as a new affiliate.

Table 4: Affiliate/BSI membership in California Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Bromeliad Society of La Ballona	99	15	15%
South Bay Bromeliad Associates	88	26	30%
San Diego Bromeliad Society	75	31	41%
North County Bromeliad Society	64	29	45%
Saddleback Valley Bromeliad Society	49	21	43%
San Francisco Francisco Bromeliad Soc.	49	15	31%
Sacramento Bromeliad Society	44	13	30%
Orange County Bromeliad Society			
California Region	468	150	32%

CENTRAL REGION

The Central Region includes the States of Arkansas, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Oklahoma, Ohio, South Dakota, and Wisconsin. Most of the BSI members in this region probably do not belong to affiliates since there are only two in the region and many members live far enough away from them to make membership infeasible.

Both affiliates responded to the survey and both reported that their membership has remained static over the last three years.

Table 5: Affiliate/BSI membership in Central Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Greater Chicago Bromeliad Society	57	14	25%
South Eastern Michigan Bromeliad Soc.	35	18	51%
Central Region	92	32	35%

FLORIDA REGION

All 13 of the affiliated and non-affiliated societies in Florida that were contacted responded to the survey. Since then, one of the affiliates, the West Pasco Society, has disbanded. Of the eleven societies responding to the question concerning growth, four reported an increase, five reported a decrease and two remained about the same.

Table 6: Affiliate/BSI membership in Florida Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Caloosahatchee Bromeliad Society	158	40	25%
South Florida Bromeliad Society	105	30	29%
Bromeliad Guild of Tampa Bay	91	18	20%
Bromeliad Soc. of Central Fla.	86	35	41%
Sarasota Bromeliad Society	75	22	29%
Broward County Bromeliad Society	66	20	30%
Florida West Coast Bromeliad Society	60	26	43%
Florida East Coast Bromeliad Society	33	13	39%
Seminole Bromeliad Society	30	15	50%
Jacksonville/Gainesville B.S.	24	7	29%
Imperial Polk Bromeliad Society	22	5	23%
Treasure Coast Bromeliad Society	22	3	14%
West Pasco Bromeliad Society	14	1	08%
Florida Region	786	235	30%

INTERNATIONAL REGION

The International Region includes all areas outside of Australia and the United States. The 230 current members of this region are spread through forty-two countries. Most do not belong to an affiliate because no affiliate is located near them.

Twenty additional countries have had BSI members in the past but none currently live within their borders.

Table 7: Affiliate/BSI membership in the International Region.

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Sociedade Brasileira De Bromélias*	700	19	3%
New Zealand Bromeliad Society	191	10	5%
European Bromeliad Society	70	13	19%
Soc. Venezolana De Sciences Naturales			
Assoc. de Orchidophiles/Epiphytophyla			
Deutsche Bromelien Gesellschaft			
International Region	961	42	4%

*The 700 number includes only those members residing in Brazil. There are an additional 150 members who live in other countries.

LOUISIANA REGION

Four of the six affiliated societies in the Louisiana Region responded to the survey. One reported an increase in membership in the last three years, one reported a decrease and two remained about the same.

Table 8: Affiliate/BSI membership in the Louisiana Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
River Ridge Bromeliad Society	48	21	44%
Greater New Orleans Bromeliad Soc.	35	15	43%
River Bend Bromeliad Society	31	10	32%
Shreveport Bromeliad Society	20	11	55%
Baton Rouge Bromeliad Soc.			
Acadiana Bromeliad Society			
Louisiana Region	134	57	43%

NORTHEAST REGION

The Northeast Region includes the States of Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the District of Columbia, Puerto Rico, and all other U.S. territories other than states in the Atlantic and Caribbean areas.

Both of the affiliates within the region responded to the survey. As with the Central, Southern, and Western Regions, most of the BSI members living within this area do not live close enough to an affiliate to be an active member.

Table 9: Northeast Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
New York Bromeliad Society	75	23	31%
New England Bromeliad Society	45	4	09%
Northeast Region	120	27	23%

SOUTHERN REGION

The States of Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia make up this region. There are two bromeliad societies, the Atlanta Bromeliad Society and the Bromeliad Society of Mobile, in the region. Membership figures are available for both. It is likely that most of the seventy-eight members spread across the ten states making up the region are not affiliated.

One of the local societies reported a decrease in membership over the last three years and the other remained about the same in size.

Table 10: Southern Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Atlanta Bromeliad Society	27	11	41%
Bromeliad Society of Mobile	11	7	64%
Southern Region	38	18	47%

TEXAS REGION

Surveys were mailed to seven affiliated and non-affiliated bromeliad societies in Texas and responses were received from all of them. Three reported an increase in membership in the last three years, one reported a decrease and three remained about the same.

Table 11: Texas Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Houston Bromeliad Society	140	70	50%
Greater Dallas/Fort Worth B.S.	48	20	42%
Golden Triangle Bromeliad Society	30	25	83%
Tarrant County Bromeliad Society	27	10	37%
Corpus Christi Bromeliad Society	24	5	21%
Alamo Bromeliad Society	20	2	10%
Austin Bromeliad Society	19	6	32%
Texas Region	308	138	45%

WESTERN REGION

The Hawaii Bromeliad Society is the only affiliate remaining in this region which consists of the States of Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, and all U.S. territories other than states in the Pacific area.

Table 12: Western Region

AFFILIATES	AFFILIATE MEMBERS	BSI MEMBERS	PCT.
Hawaii Bromeliad Society	70	10	14%

OTHER MEMBERSHIP FACTORS

Other interesting factors to note concerning membership include:

1. Almost one-third of the current BSI membership lives inlocations not currently served by an affiliate (Alaska, Ohio, Peru, Kenya, etc.).

2. A few people living in locations where there are not enough growers to form a local society have joined distant affiliates.

3. There are some BSI members who live in cities served by an affiliate who have not joined that affiliate.

4. About 9% of the BSI membership (122 currently by my count) are not individuals but organizations such as the affiliates themselves, botanical gardens such as Kew Gardens and the Smithsonian, and various libraries.

This latter group represents another area of potential growth. Does the botanical garden in your area receive the JOURNAL? Providing a subscription could be a project for a local affiliate that could pay dividends in arousing interest in bromeliads, the BSI, and in your own group.

CONCLUSIONS

The BSI has been suffering a continuous decline in membership over the last twenty years. Many, but not all local societies are also experiencing a decline in membership. The decline is more prevalent within the United States than it is outside its borders. Without an infusion of "new blood" the BSI will have to cut back on some programs and services it now offers. Every bromeliad grower benefits from these activities whether they are a BSI member or not.

On the positive side, there exists a large untapped pool of potential BSI members within local bromeliad societies. For example, of the 49 societies that responded to the survey, the numbers by region are:

REGION	AFFILIATE MEMBERS	BSI MEMBERS	NON-BSI MEMBERS
Australia	848	113	731
California	468	150	318
Central	92	32	60
Florida	786	233	553
International	961	42	919
Louisiana	134	57	77
Northeast	120	27	93
Southern	38	18	20
Texas	308	138	170
Western	70	10	60
	3,825	820	3,005

These are 3,005 people who are interested enough in bromeliads to belong to a local affiliate. On the assumption that people who belong to more than one affiliate would also probably belong to the BSI, the figure of 3,005 non-BSI members is probably not far off the mark. If only 10% of them could be induced

to join the BSI, it would bring in 300 badly-needed new members. If half of them joined, the BSI membership would be larger than it was during the peak period of 1981.

We need them and they need us.

Auburn, California

Roundup Report

Odean Head

Preparations are running in high gear for the 13th World Bromeliad Conference to be held from July 1 through July 5, at the Wyndham Greenspoint Hotel in Houston, Texas. We hope to have another large registration to build even more support for future world conferences.

A registration application is enclosed in this issue of the JOURNAL and we encourage you to take advantage of the early rates. The fee schedule is as follows:

	BSI MEMBERS	NON-BSI MEMBERS
Early Registration (to December 1, 1997)	$95.00	$105.00
Regular Registration (to April 1, 1998)	$115.00	$125.00
Late Registration	$135.00	$145.00

You will notice that a $10 discount is being instituted this year for BSI members who are current in their dues. We hope this will encourage new members to join the BSI.

Information is being developed on the numerous tourist attractions and points of interest in the Houston and Galveston areas. Of course, bromophiles will find their time fully occupied with conference activities during the run of the conference. Those planning family vacations around the conference and those who plan on spending extra time in the Houston area will have no trouble finding other interests of their choice. We will be posting many of these areas of interest on BSI's web page as well as providing more details in a future JOURNAL article.

In keeping with our western theme, "Bromeliad Roundup", casual attire is recommended for all events. Western attire may be worn to the banquet by those who choose to do so. Mark your calendar and begin making your plans to come see us.

Houston, Texas

Why Grow Nidulariums?

Art Hyland

In 1950, I was given a bromeliad. It was love at first sight and I'm still hooked. The blamed things are habit-forming. In the years since, I have collected many varieties from a number of genera in all three subfamilies. As I have grown older, and perhaps wiser, I have decided to limit myself to specializing in one genus, along with a few favorites from other genera which I've amassed over the years.

The genus I selected was *Nidularium.* Why choose such an under-utilized group of plants? The reasons follow:

1. It's a small genus so I can hope to obtain representatives of all the species.
2. All species enjoy living where I do in Central Florida.
3. They are relatively colorful plants and are dependable bloomers.
4. They are easy to grow and therefore allow me to go off fishing.

In fact, the plants are so great I can't help wondering why everyone isn't growing them? After speaking to many people, I have come to the conclusion that most believe they should be grown much like neoregelias since they are close to them genetically, according to Smith & Downs. They are also closely related to *Cryptanthus,* also according to Smith and Downs, and as a matter of fact, they prefer cultural conditions more akin to those used for *Cryptanthus* than *Neoregelia.* They do not appreciate being treated like a *Neoregelia.*

Nids need high humidity and fairly moist conditions. Neos grow best on the dry side. Neos generally need very high levels of light while nids tolerate and thrive on the lowest light levels of any bromeliad genus. Nids respond to steady fertilization but neos will often lose color if fed at the same rate. Neos like to be slightly under-potted, while nids prefer ample space for their roots because they are mostly terrestrial. As with all general rules, however, I am sure there are some exceptions.

I have taken these factors into consideration in growing my plants. My potting medium is primarily peat to which I add perlite and partially composted pine bark chips. I also add potash and triple super phosphate at the time of mixing and at potting time I add an additional 1/2 teaspoon of time release 14-14-14 per gallon of medium. During the growing season I feed with 15-30-15 at 1/4 label strength on a weekly basis. My yard is virtually covered with oak trees so I have low light conditions. The potted plants are grown on benches under 30% shade cloth to protect them from falling oak leaves and acorns. Those growing out in the landscape are treated to oak leaf removal via a portable blower. We usually have sufficient rainfall here in Central Florida to keep my nids happy but if it has not rained for a week or so, I water thoroughly and make certain that all the cups of the plants overflow. Since my plants are grown outdoors, I have good air circulation thereby limiting the potential for scale infestations.

During the winter, I move all my potted collection into a 16 by 24 foot greenhouse which I cover with plastic. Here the plants are on benches and shelves. Most of the time I keep the east end of the greenhouse open for air circulation, but if freezing temperatures are expected, I seal it and use artificial heating. I have to do this on average of about five nights a year.

I have asked myself the title question because someone once asked me why I took such an interest in nidulariums. The only response I could come up then was, "because I like them". As I gave more thought to the question, and realized what some of the practical reasons were, I thought I would share them along with my cultural methods so that perhaps a few more growers and hobbyists would become more interested in these fascinating plants.

Presently I am compiling a list of species, forms, varieties and hybrids. This is an annual chore to assist me in my search for new plants. I truly feel that if you start growing these plants, you too will become a fan.

Orange City, Florida

New Members

A hearty welcome to the following new members and a few former members who have returned to the fold.

Virgil R. Adams	Jo Anne C. Holman	Sarah J. Oates
Eva L. Bibbs	Clara J. Hornsby	Indhira R. Pantaleon
Lionel & Kay Carter	Frank Howard	Richard A. Peterson
Vicky Chirnside	Hiroyuki Ishizaka	Kathy Pietrongelo
Giorgio Croce	Maria R.B. Jison	Barbara J. Previtire
Craig Patrick Curtis	Michael A. Kent	William P. Suiter
Jim Dudley	Charles M. Kunzelman	Marcio de Silva Lima
Dukes Nursery	Joan Kuszes	Gregory J. Szal
Swayne R. Fleita	Hans-Erik Lindholm	Gregory R. Sytch
Judith A. George	Edward McCrum	Paul Randall Valentine
Llien Grossman	Nancy McTeer	Frans van de Weijer
Don A. Hendrickson	Antonio L.C. Miranda	Tim Warner
David Higgs	Patricia Nix	Monela Wong Youdan

CORRECTION: Vol 47(3), p. 118.

The description of the new species, *Fosterella spectabilis,* contains an error in the size of the leaf sheaths. They were described as "…15–20 cm × 35–50 mm."

The description should read "…15–20 × 35–50 mm."

An Experiment in Mother Nature's Laboratory

Nina Rehak **Photograph by the author**

During our winter a kookabura would spend long hours perched on a tree branch outside our kitchen window waiting for someone to appear in the kitchen. Then, obviously agitated, it would move from side to side stretching its neck following our movements, sometimes even flying into the glass to make sure its presence was noticed. Out would come the meat, the window would be opened and the bird would settle on the windowsill to be served. When it had eaten its fill, it would retreat to the same branch to rest.

Since that procedure was repeated several times daily, the plants underneath were getting rather heavily discolored. Could it be possible that one bird was responsible for that much natural fertilization, or was some sort of coordinated cheating taking place?

The following incident deepened the mystery. While being fed, "our bird" was dive-bombed by another of its kind. Their beaks locked as they began tearing at each other, and they fell inside onto the kitchen floor, furiously rolling around under my feet. Frightened to move in case I should step on them, I remained standing still not knowing how to referee the fight. Then in an unexpected fit of bravery I picked up the feathery ball and quickly returned it to the windowsill. That ended the fight and both of them departed in a hurry. Next day one bird returned, nervous and very hungry, and all was back to normal.

With the early arrival of spring the kooka started to miss a day or two and then was gone altogether, probably rejoining its tribe to help the family bring up the next generation.

Result: the rains have washed clean all traces of the bird's (whether singular or plural) presence and the patch of nidulariums under the bird's branch has turned dark green and glossy in sharp contrast to the rest of the plants around them. A closer look revealed something quite unexpected. Where the birds had "scored a hit" on only the outer leaves, they had not shared their good fortune with the rest of the plant. Those sections of the leaf were greener and glossier.

Conclusion: Here we have foliar feeding of bromeliads very convincingly demonstrated by the original inventor of fertilizer. My previous belief that bromeliads growing outside as garden plants do not need additional food has been proven wrong. The plants, if left to fend for themselves will grow, flower, and reproduce but "Mother Nature" cannot distribute available resources evenly and a little human help will not go astray. I suppose the kooka in its own way was thanking us for the tasty meals provided on demand.

Figure 5.
Kookabura receiving payment for his plant-feeding chores.

However, in practical terms this is not a very efficient way to fertilize plants. The bird (or birds) was consuming about 100 grams of meat a day. Its preference was beef or lamb. Multiply this by a time factor of 3–4 months...well, education, in my opinion, is worth something!

By the way, my often-asked question: "Are you the only kooka we are feeding?" was answered with a long, intensely concentrated look into my eyes, probably meaning, "work it out for yourself, I've done my bit".

New South Wales, Australia

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Lyman Smith and Walter Richter

With the recent deaths of Lyman B. Smith and Walter Richter, the bromeliad world has lost two of its best-known and most influential figures. Both men were Honorary Trustees of the BSI. News of their deaths arrived too late to include a tribute to them in this issue of the JOURNAL. However, biographical sketches of their productive lives will be included in the next issue.

Revision of the Lithophytic *Vriesea* Species from Minas Gerais State, Brazil - Part II

Elton M. C. Leme **Illustrations by the Author**

One of the most striking phenomenon observed involving bromeliad species which grow in the Brazilian grasslands on rocky soils ("campos rupestres") is the convergence of shapes and structures. Regarding *Vriesea,* local habitat conditions determine some of the plant's characteristics. The form of the leaf-rosettes (often tubular or nearly so), the nocturnal anthesis, and the chiropterophilous syndrome presented by most species of section *Xiphion* contributes to the development of a very similar floral structure (such as in *Werauhia*). At first glance, sympatric lithophytic *Vriesea* species appear to be conspecific. However, comparing the conformation of such usually endemic plants and their inflorescence structures, it is possible to recognize different species growing side by side, such as the new ones presented below:

Section *Xiphion* (E. Morren) E. Morren ex Mez

***Vriesea diamantinensis* Leme, sp. nov.** (figures 6-7, back cover).

A *V. saxicola* L.B. Smith, cui affinis, planta florida subduplo altior, laminis foliorum latioribus, bracteis scapalibus internodia distincte minoribus, base sterili ramulorum longiore, petalis flavidis sed prope apicem leviter vinaceo-venosis differt.

Type. Brazil. Minas Gerais: Diamantina, Br 259, ca 1,350 meters alt., 21 Nov. 1992, *E. Leme 1817, P. Nahoum & L.C. Marigo.* (holotype, HB).

Plant rupicolous, flowering ca. 210 cm high. **Leaves** 20 in number, rosulate, nearly erect, forming a broad and dense funnelform rosette. **Sheaths** broadly elliptic, 16–18 × 12 cm, densely and minutely brown-lepidote, dark brown-colored mainly toward base on both sides, coriaceous. **Blades** suboblong, 16–17 × 7–8 cm, not narrowed at base, apex rounded and very minutely apiculate, margins strongly revolute near the apex, purplish-green to purplish-red, chartaceous, very inconspicuously lepidote, covered by a thin layer of white wax. **Scape** stout, ca. 150 cm long, 0.7–1 cm in diameter, erect, glabrous, slightly sulcate when dry. **Scape bracts** the basal ones slightly shorter than the internodes, the upper ones ovate-triangulate, acute and apiculate, 3–5 × 3.5 cm, erect and enfolding the scape, distinctly shorter than the internodes. **Inflorescence** paniculate, very laxly bipinnate, ca. 55 cm long, erect. **Primary bracts** resembling the upper scape bracts but smaller, 25 × 20 mm, purplish-green, many times shorter than the sterile bases of the branches. **Branches** 4 in number (including the terminal one), the lateral ones ca. 26 cm long, suberect-ascending, laxly flowered at anthesis, with ca. 8 flowers, peduncle ca. 11 cm long, ca. 5 mm in diameter, slightly complanate, bearing 2 sterile bracts distinctly

shorter than the internodes, dark purple, rachis slightly flexuous, ca. 3–4 mm in diameter, purplish-green, glabrous, slightly angulose, the terminal ones ca. 40 cm long with ca. 11 flowers, peduncle ca. 19 cm long, bearing 4 sterile bracts. **Floral bracts** broadly ovate, 23 × 18 mm, narrowly obtuse, green to purplish near the apex, inconspicuously lepidote inside, lustrous outside, not completely enfolding the sepals and about equaling 1/2 of their length, distinctly secund with the flowers, the basal ones obtusely if at all carinate toward apex, the upper ones ecarinate. **Flowers** distichous, nocturnal, with a garlic odor, strongly downwardly secund at anthesis (including the upper ones), laxly arranged, ca 55 mm long, pedicels stout, ca. 7 mm long, green, glabrous. **Sepals** elliptic, apex obtuse, 26 × 13 mm, glabrescent, free, ecarinate, green, coriaceous near the base, subdense and minutely purple-punctulate. **Petals** narrowly obovate, apex narrowly emarginate, 45 × 18 mm, connate at base for ca. 5 mm, pale yellow, veined reddish purple near the apex, bearing two sublinear obtuse, 11 × 2.5 mm basal appendages. **Stamens** distinctly included. **Filaments** adnate to the petals at base for ca. 5 mm. **Anthers** linear, ca. 11 mm long, base and apex obtuse, fixed near the base. **Style** distinctly shorter than the petals. **Stigma** convolute-bladed, densely papillose, yellow, ca. 1.5 mm in diameter. **Ovules** long caudate.

When compared with already known *Vriesea* species, *V. diamantinensis* is somewhat related to *V. saxicola,* the holotype *(Schwacke 12086)* of which we studied in the Herbarium of Rio de Janeiro Botanical Garden (RB). However, this apparently endemic new species from the vicinity of Diamantina City, differs from *V. saxicola* by its double height when in bloom, the wider leaf-blades, the scape bracts distinctly shorter than the internodes, the sterile base of the branches much longer, and by the yellow petals which have wine-colored veins near the apex.

***Vriesea simulans* Leme, sp. nov.** (figures 8-9).

A *V. diamantinensis* Leme, cui affinis, planta florida breviore, ramis lateralibus base sterili bractea singula ornatis, floribus densis, imbricatis et divergentibus sed gradatim per anthesim subdensis et unilateralibus, sepalis latioribus, petalis flavis, pistillo quam petala vix longiore differt.

Type. Brazil. Minas Gerais: Br 259, km 520, Presidente Juscelino to Gouvea, about 1,250 m alt., 20 Nov. 1991, *E. Leme 1802, P. Nahoum & L.C. Marigo.* (holotype, HB; isotype, SEL).

Plant rupicolous, flowering ca. 130 cm high. **Leaves** 12 in number, rosulate, erect, forming a narrow but dense subtubular rosette. **Sheaths** elliptic, 15 × 11 cm, densely and minutely brown-lepidote, dark brown-colored mainly toward base on both sides, coriaceous, nerved when dry. **Blades** sublinear, 20–25 × 7–8 cm, not narrowed at base, apex acute to subacute and distinctly apiculate, margins strongly revolute near the apex, green to glaucous, sometimes very dark purple near the apex, chartaceous, very inconspicuously lepidote. **Scape** stout, ca. 80 cm long, 0.7–1 cm in diameter, erect, green, glabrous, slightly sulcate when drying.

Figure 6.
The holotype of *Vriesea diamantinensis* which flowered in cultivation.

Figure 7.
Close up of inflorescence of *Vriesea diamantinensis.*

Figure 8.
The holotype of Vriesea simulans which bloomed in cultivation.

Figure 9.
Close up of the inflorescence of *Vriesea simulans.*

Scape bracts the basal ones about equaling the internodes, the upper ones narrowly ovate, acuminate, 4–5 × 2.5 cm, erect and enfolding the scape distinctly shorter than the internodes. **Inflorescence** paniculate, very laxly bipinnate, ca. 40 cm long, erect. **Primary bracts** resembling the upper scape bracts but smaller, 35 × 20 mm, purplish-green, shorter than the sterile bases of the branches. **Branches** 3 in number (including the terminal one), the lateral ones 18–20 cm long, suberect, subdensely flowered at anthesis, with 5–7 flowers, peduncle 7–8 cm long, ca. 5 mm in diameter, slightly complanate, bearing 1 sterile bract, green, rachis geniculate, 4–5 mm in diameter, purplish-green, glabrous, slightly angulose, sulcate when drying, the terminal ones ca. 30 cm long, with 10–12 flowers, peduncle ca. 16 cm long, bearing 4–5 sterile bracts. **Floral bracts** broadly ovate, 27 × 24 mm, obtuse, purplish-green, inconspicuously lepidote inside, lustrous outside, not completely enfolding the sepals and about equaling 1/2 of their length, strongly convex, secund with the flowers, the basal ones obtusely if at all carinate toward apex, the upper ones ecarinate. **Flowers** distichous, subdensely arranged, nocturnal, with a garlic odor, downwardly secund at anthesis but the upper preanthetic ones slightly imbricate and divergent, ca. 55 mm long. **Pedicels** stout, ca. 7 mm long, green, glabrous. **Sepals** broadly elliptic, apex obtuse, 26 × 18 mm, glabrescent, free, ecarinate, green, coriaceous near the base. **Petals** narrowly obovate, apex emarginate, 43 × 21 mm, connate at base for ca. 4 mm, yellow, subspreading at anthesis, bearing two sublinear, obtuse to acute, 11 × 2.5 mm basal appendages. **Stamens** about equaling the petals. **Filaments** adnate to the base of the petals for ca. 4 mm. **Anthers** linear, ca. 10 mm long, base and apex obtuse, fixed near the base. **Style** slightly exceeding the petals, mainly after anthesis. **Stigma** convolute-bladed, densely papillose, yellow, ca. 1.5 mm in diameter. **Ovules** long caudate.

Vriesea simulans is very closely related to *V. diamantinensis* Leme, but it is possible to distinguish it from the latter by its shorter height when in bloom, the prevailing green to glaucous color of the leaves (not purplish-green to purplish-red), peduncle of the lateral branches bearing a single sterile bract, flowers densely arranged and imbricate before anthesis, becoming gradually subdensely disposed and secund from the base to apex, sepals broader, petals light yellow, and by the style slightly exceeding the petals.

When sterile, *V. simulans* closely resembles *V. diamantinensis,* the single difference being the number and coloration of the leaves. On the other hand, it is almost identical to *V. stricta* (see below). The epithet of the new species is a reference to its simulating appearance when compared to these species.

***Vriesea nanuzae* Leme, sp. nov.** (figures 10-11).

A *V. diamantinensis* Leme et *V. simulans* Leme, cui affinis, vaginis foliorum prope basem nigris, laminis foliorum latioribus, ramis duplo numerosis, base sterili ramulorum distincte breviore et nuda, ramo terminali haud distincto, bracteis floriferis orbiculatis brevioribusque differt.

Type. Brazil. Minas Gerais: Diamantina, Br 259, ca. 1,350 meters alt., 21 Nov. 1992, *E. Leme 1820, P. Nahoum & L.C. Marigo.* (holotype, HB).

Plant rupicolous, flowering 120-150 cm high. **Leaves** 20 in number, rosulate, suberect, forming a broad and dense crateriform rosette. **Sheaths** broadly elliptic, 15–20 × 14 cm, densely and minutely brown-lepidote, from dark brown to black-colored toward the base on both sides, very coriaceous. **Blades** sublinear, 25 × 10 cm, not narrowed at base, apex subacute to rounded and distinctly apiculate, bright red toward apex, greenish when in cultivation, subcoriaceous, very inconspicuously lepidote, margins slightly when revolute near the apex. **Scape** stout, ca. 70 cm long, ca. 1 cm in diameter, erect, glabrous. **Scape bracts** the basal ones slightly shorter than the internodes, the upper ones ovate-triangulate, acute and distinctly apiculate, 2.5–3 × 2.5 cm, erect and enfolding the scape distinctly shorter than the internodes. **Inflorescence** paniculate, laxly bipinnate, 45–60 cm long, erect. **Primary bracts** resembling the upper scape bracts but shorter, purplish-green, distinctly shorter than the sterile bases of the branches. **Branches** ca. 8 in number (including the terminal one), the lateral ones 12–18 cm long, suberect, subdensely at anthesis, with 6–8 flowers. **Peduncle** 4–5 cm long, ca. 5 mm in diameter, slightly complanate, naked, greenish, rachis flexuous, ca. 3–4 mm in diameter, greenish, glabrous, angulose, the terminal similar to the lateral ones, with ca. 10 flowers, peduncle naked or bearing 1 sterile bract. **Floral bracts** orbicular, 17 × 18 mm, obtuse, yellowish-green with minute red spots, glabrescent, lustrous outside, not completely enfolding the sepals and about equaling 1/3 of their length, distinctly secund with the flowers, the basal ones carinate toward the apex, the upper ones ecarinate. **Flowers** distichous, nocturnal, with a garlic odor, strongly downwardly secund at anthesis (including the upper ones), subdensely arranged, ca. 55 mm long. **Pedicels** stout, ca. 10 mm long, green, glabrous. **Sepals** elliptic, apex obtuse-emarginate, 25 × 15 mm, inconspicuously white-lepidote inside, free, ecarinate, green, coriaceous near the base, margins membranaceous. **Petals** narrowly obovate, apex narrowly emarginate, 45 × 20 mm, connate at base for ca. 5 mm, pale yellow, bearing two sublinear, acute to bidentate, 13 × 3 mm appendages at base. **Stamens** included. **Filaments** adnate to the base of the petals for ca. 5 mm. **Anthers** linear, ca. 10 mm long, base obtuse and apex minutely apiculate, fixed near the base. **Style** equaling the petals. **Stigma** convolute-bladed, densely papillose, yellow, ca. 1.5 mm in diameter. **Ovules** long caudate.

This striking red-colored (when in habitat) new species honors the Brazilian botanist Dr. Nanuza Luiza de Menezes, from the University of São Paulo, whose expertise on the family Velloziaceae and on the "rupestral fields" is recognized worldwide.

Vriesea nanuzae is closely related to the sympatric *V. diamantinensis,* as well as to *V. simulans,* but can be distinguished from both by the larger leaf-rosette, leaf-sheaths being black near the base, the broader leaf-blades being bright red toward the apex, branches being more numerous and the lateral ones

Figure 10.
Vriesea namuzae in habitat. The bright red color of the leaves is responsible for over collection of the species.

Figure 11.
The type specimen of *Vriesea namuzae* which flowered in cultivation.

with a naked and shorter basal peduncle, the terminal branch not distinct when compared to the lateral ones, and by the floral bracts being orbiculate and shorter.

Section *Vriesea*

Vriesea stricta L.B. Smith Arq. Bot. S. Paulo 1(5):122, pl. 133. 1943. (figure 12).

Type. Brazil. Minas Gerais: Serra do Cipó, Jaboticatubas, 12-13 Dec. 1940, *M.B. Foster 622* (holotype, GH, n.v [photo HB]; isotype, US, n.v.).

Material examined: Brazil. Minas Gerais: Serra do Cipó, Alto Palácio, km 133-135, ca. 1,200 meters alt., 23 Nov 1991, *E. Leme 1835, P. Nahoum & L.C. Marigo,* fl. cult. Feb. 1996 (HB); Joboticatubus-Santana do Riacho, *P. Nahoum s.n. legit,* fl. cult. Nov 1996 *E. Leme 3502* (HB).

Plant rupicolous, flowering (55–) 70–90 cm high. **Leaves** 15–20 in number, rosulate, suberect to erect, forming a subtubular crateriform rosette. **Sheaths** elliptic, 10–11 × 9–9.5 cm, densely and minutely brown-lepidote, abaxially dark brown-colored mainly toward the base, coriaceous. **Blades** sublinear, 16–20 × 7–8 cm, not narrowed at the base, apex acute and distinctly apiculate, margins revolute near the apex, glaucous, chartaceous, very inconspicuously lepidote. **Scape** stout, 30-40 cm long, 7–8 mm in diameter, erect, purplish-green, glabrous, sulcate when dry. **Scape bracts** the basal ones subfoliaceous, the upper ones ovate-triangulate, acuminate, 3–4 × 2.5 cm, erect and enfolding the scape at the base with exception of the suberect-recurved apex, greenish, shorter than the internodes. **Inflorescence** paniculate, subdensely bipinnate, (20–) 30 cm long, 14 cm in diameter, erect. **Primary bracts** resembling the upper scape bracts but smaller, 25–30 × 25 mm, greenish, distinctly shorter than the sterile bases of the branches. **Branches** (3–) 6 in number (including the terminal one), 10–16 cm long, suberect, subdensely flowered at anthesis, with 5–9 flowers. **Peduncle** ca. 4 cm long, ca. 6 mm in diameter, slightly complanate,

Figure 12.
Vriesea stricta in cultivation.

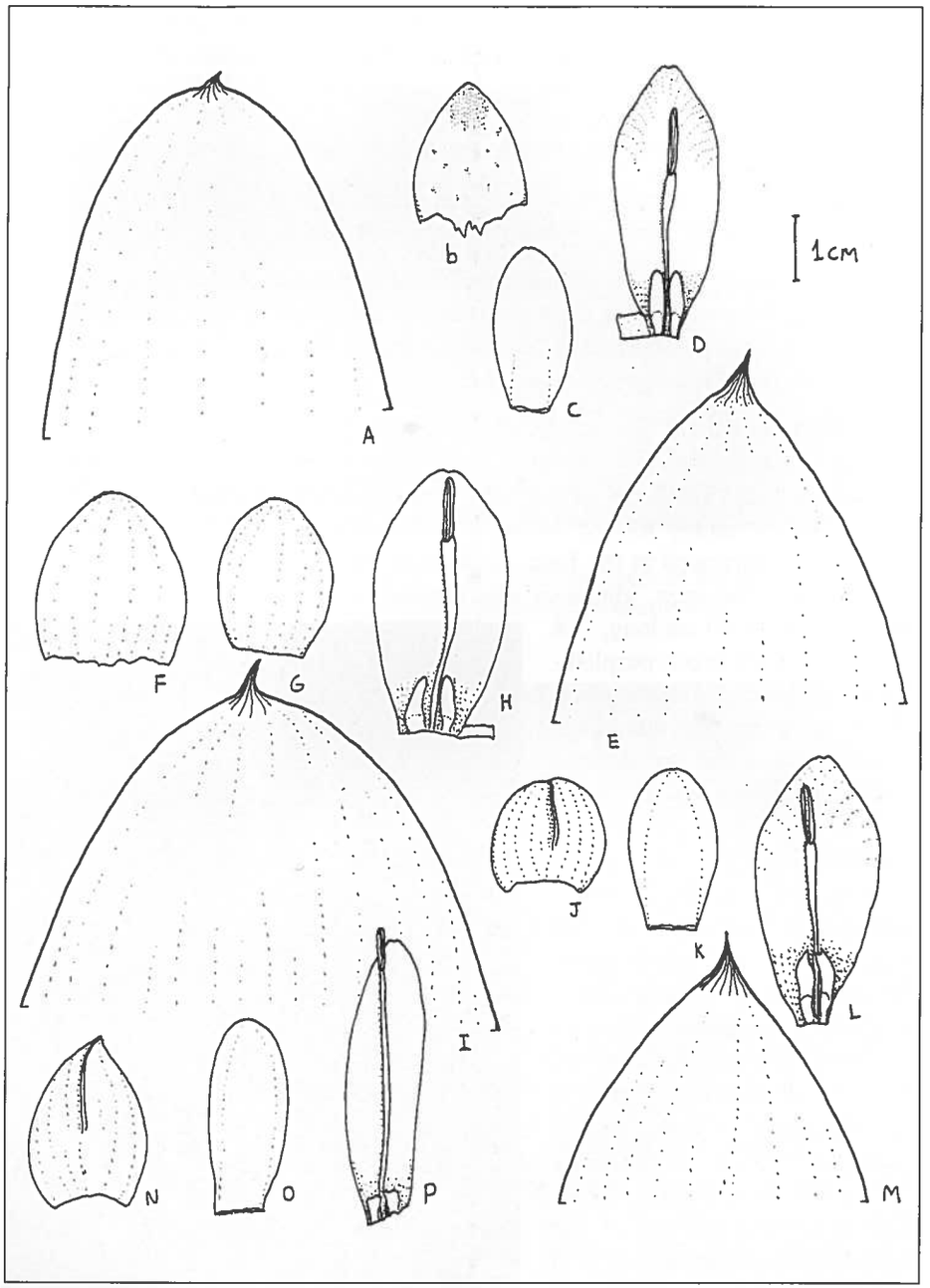

Figure 13.
Vriesea diamantinensis (Leme 1817 et al.); A, Leaf's apex; B, Floral bract; C, Sepal; D, Petals; *Vriesea simulans (Leme 1802 et al.);* E, Leaf's apex; F, Floral bract; G, Sepal; H, Petal; *Vriesea nanuzae (Leme et al);* I, Leaf's apex; J, Floral bract; K, Sepals; L, Petal; *Vriesea stricta (Leme 1835 et al.);* M, Leaf's apex; N, Floral bract; O, Sepal; P, Petal.

purplish-green, bearing 1 sterile carinate or bicarinate bract at apex, rachis slightly flexuous, 3–4 mm in diameter, green to purplish, glabrous, angulose. **Floral bracts** broadly ovate, 20–25 × 16–20 mm, acute, yellow, inconspicuously white-lepidote inside, not completely enfolding the sepals and about equaling 1/3 of its length, secund with the flowers, carinate toward apex, strongly concave, incurved at apex. **Flowers** distichous, diurnal, suberect-secund at anthesis, 50–55 mm long. **Pedicels** stout, ca. 7 mm long, green, glabrous. **Sepals** narrowly oblong-elliptic, apex obtuse, (23–) 32 × 10–13 mm, inconspicuously white-lepidote adaxially, free, subrigid, ecarinate, yellow. **Petals** sublinear, apex narrowly emarginate, 38–45 × 10–12 mm, free to connate for 3 mm, yellow, suberect at anthesis, bearing two suboblong, obtuse, 4–6 × 2 mm basal appendages. **Stamens** slightly to distinctly exserted. **Filaments** free. **Anthers** linear, 5–6 mm long, base and apex obtuse, fixed near the base. **Stigma** convolute-bladed, densely papillose, yellow, 1.5–2 mm in diameter. **Ovules** long caudate.

According to the protologue, *Vriesea stricta* was described on the basis of a specimen which presented a preanthesis, not fully developed inflorescence. This fact is clearly visible in the original drawing (plate 133, by L.C. Corrêa) as well as in the drawing made by L.B. Smith, based on a photograph by M.B. Foster (Smith & Downs, 1977; fig. 155). Its branches were thus described as showing densely arranged and divergent flowers, with the imbricated floral bracts exceeding the sepals.

Recently, a specimen collected at the type locality (*Leme 1835 et al.*) flowered in cultivation, revealing the same preanthesis features indicated above. At anthesis, however, the branches present subdensely arranged and distinctly secund flowers with floral bracts much shorter than the sepals, then allowing the elaboration of a more complete description. The plant belongs to the Section *Vriesea* due to its diurnal flowers of ornithophilous syndrome (sublinear petals forming a narrow tubular corolla, and stamens exserted). When sterile *V. stricta* is very similar to the chiropterophilous *V. simulans,* and also resembles somewhat *V. diamantinensis.* These similarities explain why a comparatively higher number of new but neglected taxa could be encountered in places of easy access considered to be botanically well-known.

ACKNOWLEDGMENT

I wish to thank Harry E. Luther, who kindly revised the manuscript, for his valuable suggestions.

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Rio de Janeiro, Brazil

Plans to Save *Puya raimondii* in Bolivia

Raphael Müsch

The largest of all bromeliads, *Puya raimondii,* is endemic to the Andes of Bolivia and Peru. The rigid, spiny leaves, about 1 meter in length, are arranged around a cylindrical trunk 50–60 cm in diameter, forming a rosette up to 3 m in height. The giant inflorescence, which averages some 10 m in height and 3.5 m in diameter, contains 8,000–10,000 flowers. Flowering, which takes place from October to January, results in hundreds of thousands of seeds. Only a limited number germinate during the following wet months. A species of hummingbird appears to be essential to pollinate the flowers. From germination to flowering takes 80–100 years, soon after which the plant dies.

The first scientific description of *Puya raimondii* was made by Alcides d'Orbigny in October, 1830. Visiting Cochabamba and Mizque, he had an attack of altitude sickness at 4,000 m, which affected his eyesight. He did not describe the plant, which he confused with an agave, because he did not see the flowers. In 1894, Antonio Raimondii gave the plant the name *Pourretia gigantea;* in 1928 H. Harms provided the definitive name, *Puya raimondii.*

At the beginning of the century the known distribution extended from Ancash in Peru down to the Lagunas de Vacas ("Lake of the Cows") in the region of Paredones near Pocona. Today they remain only in small solitary groups on Mt. Comanche near La Paz, and in the Vacas area where there is planning underway to protect them. A concentration of *P. raimondii* survives over some 400 acres on the northern slopes of Mt. Totora K'asa. The altitude varies from 3,800 m to 4,200 m, which is the highest point in this branch of the Cordillera de Vacas, 86 km east of the city of Cochabamba.

Climatic conditions at this altitude are those of the *puna* (Andean steppe grasslands), with winter temperatures of nearly minus 10°C. Annual precipitation does not exceed 500 mm and falls during spring and summer, with autumn and winter almost totally dry except for a few snow storms. The acid soil ranges from clay to sand, with a pH of not more than 6.5. Associated plants include *P. tunariensis,* and various ferns, grasses and herbs, including *Solanum* spp.

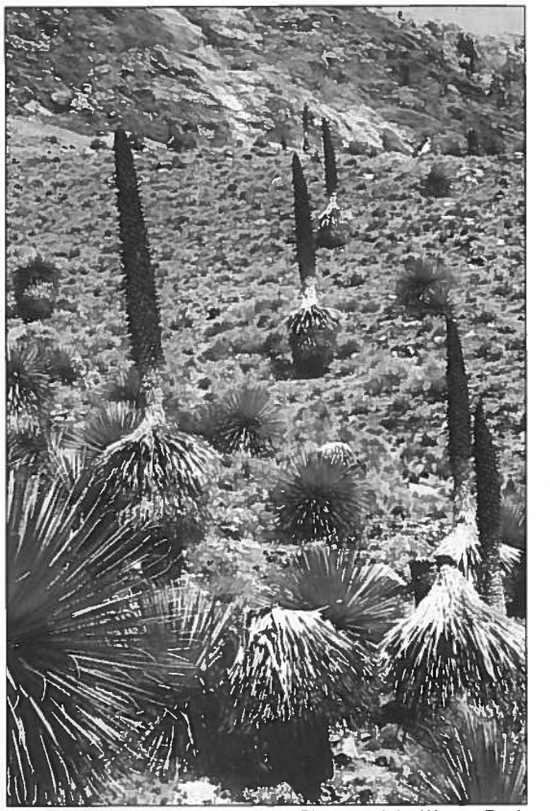
Under present conditions it is impossible for the plant to survive long-term in the area, principally because there has been no regeneration in recent times - there are no young plants in the area. Threats to *P. raimondii* include:

- Its slow growth makes it vulnerable to human action.
- Fire, especially the burning of pasture to induce regrowth.
- Intensive grazing by stock and other animals finishes off soft, young growth. Adult plants are cut down to prevent sheep from becoming entangled in them.

- The young shoots are cut as a "palmetto" vegetable.
- Expanding cultivation and forestry is reducing the habitat.

Reproduction must be by artificial means in nurseries, followed by planting out in the natural habitat in order to create a new population to augment the number of plants in the wild. There are no germination problems - the seeds germinate 4–6 weeks after sowing, and in the right conditions, a high percentage germinate. After two years the plants will be ready to be planted into their natural habitat.

The project area, 120 hectares on the side of the NW to SE running mountain, is delimited in the east by 500 m of the crossing of the main Cochabamba-Mizque road extended west as a 3.5 km access road to the relay towers of the ENTEL telephone company. The site has a maximum width of 300 m at 3,800–4,100 m altitude, taking in most of a 15 hectare dense concentration of P. raimondii, which descends from the road towards 3,600 m.



Photograph by Werner Rauh

Figure 14.
Puya raimondii

If the area can be declared a sanctuary or protected area, or if the land can be bought from the 12 farming families who use it for grazing animals, management infrastructure (such as fencing, a nursery and huts for workers) will need to be considered. After ten years, enough time to replant P. raimondii and save it from extinction, the site will be handed over to the state.

La Fundación para las Ciencias
Casilla 834, Cochabamba, Bolivia

Reprinted from PLANT TALK, October, 1996. Raphael Müsch is a nurseryman who runs La Fundación para las Ciencias, a non-profit conservation organization in Cochabamba, Bolivia. His original manuscript in Spanish was translated by Dick Endt from Auckland, New Zealand.

Affiliate Survey Results

Chet Blackburn

In late 1996 and early 1997, A survey was mailed to BSI affiliates and non-affiliated bromeliad societies asking a number of questions relating to membership figures and activities of local bromeliad societies. Some of the membership information derived from the survey is utilized in an article on BSI membership trends appearing elsewhere in this issue of the JOURNAL. Most of the remaining information is detailed below.

Membership totals reported by the 47 societies completing the full questionnaire ranged from a maximum of 250 members in the largest local society to 11 members in the smallest. The "average" size of an affiliate, based on the 47 societies responding, is 53 members. The ranges are:

Members	Number of Societies
Under 20	3
20-29	8
30-39	7
40-49	7
50-59	2
60-69	4
70-79	4
80-89	2
90-99	2
More than 100	8

A question was asked concerning average attendance, even though the answers would have to be speculative. The following "educated guesses" were obtained.

Average Attendance at meetings	Number of Societies
Below 40%of full membership	13
40% to 60% average attendance	23
More than 60% average attendance	11

Considerable variety exists in the types of facilities used as meeting places. 43 of the 47 groups responding to the survey hold all their meetings at the same location, while four others meet at more than one location during the year. The following are the types of facilities utilized.

Type of facility	Affiliates using:
Botanical gardens	14
Garden clubs/Horticultural societies	12
Government (City, County, State) rooms	5
Commercial/Private organizations	4
Churches	4
Schools, including Universities	3
Private homes	3
Banks/Savings & Loan faculties	1
Library	1

Commercial and private organizations mentioned refer to such places as VFW halls, restaurant banquet rooms, and various social organizations (Elks, Moose, etc.) lodges.

During the meetings themselves, the following activities take place at least some of the time:

Meeting activity	Number of affiliates engaging in:
Acknowledge guests	47
Plant raffle/plant auction	46
Show and tell	45
Refreshments served	42
Member/Commercial plant sales	36
Door prize	29

"Show and tell" for most societies means showing and discussing attractive or unusual plants brought in by members, especially when in flower. One society has "show and tell" for problem plants only.

23 of the 47 societies have either developed a specially prepared information packet for new members or provide them with gifts, usually plants.

Most local societies participate in an annual show of one kind or another. Only ten respondents replied that they did not stage a show of any kind, while two others responded that they held a show only every other year. Of the 37 that participate in shows, three participate in shows not restricted to bromeliads, such as standard garden club shows. The types of shows staged by the 34 others were:

Type of show	Affiliates
Standard BSI shows	20
Competitive, but not BSI standard	8
Non-competitive	7
Alternate between competitive/non competitive	5

The figures add up to more than 34 because affiliates that alternate between competitive and non-competitive are counted in both.

Another common ground between affiliates is that most of them publish a newsletter (with "newsletter" being defined as having news and articles rather than just a notice announcing the next meeting). Almost all of the newsletters I have seen are very well-done and some are of truly exceptional quality. Because of improved computer software there is an increasing tendency toward the use of color photos as well. 41 of the 47 Societies produce a newsletter.

There is also an increasing tendency for affiliates to exchange newsletters between themselves. Of the 41 affiliates who do produce newsletters:

4 Do not exchange newsletters with other affiliates
1 Exchanges with one other affiliate
4 Exchange with 2 to 5 other affiliates
15 Exchange with 5 to 10 other affiliates
17 Exchange with more than 10 other affiliates

The final question on the survey regarded usage of the BSI slide library. 29 affiliates reported having used the slide library at least once, and 17 reported that they have never used it. (One did not respond to the question.)

ACKNOWLEDGEMENTS

Our thanks to Carol Johnson for providing an updated list of affiliates, Tom Lineham for suggested changes to the article, and especially to all those persons at the local societies who took the time to fill out the survey.

Auburn, California

Neoregelia Notes: Part 1

[Continued from page 147]

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Marie Selby Botanical Gardens
Sarasota, Florida

Recent Gifts to The Society

We are happy to acknowledge gifts from the following members and friends of the BSI who have contributed to the Color Fund, to the BSI general fund, or to the Bromeliad Identification Center. Some have donated to all three. There are extra color photographs in this issue of the JOURNAL thanks to the generosity of those who donated to the color fund.

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The Sociedade Brasileira de Bromélias and Banco Boavista are sponsoring their second International Botanical Illustration Contest. Illustrations are divided into two categories: Botanic and Artistic. Cash awards will be made for first and second places in each of the two categories.

Twenty selected works in each category will be on public exhibit for approximately 30 days. Judging will take place during this period. Authors of all paintings selected for the exhibit will receive a certificate of participation. The works should be sent to address below by September 30, 1997. Please indicate the category in which you wish to participate.

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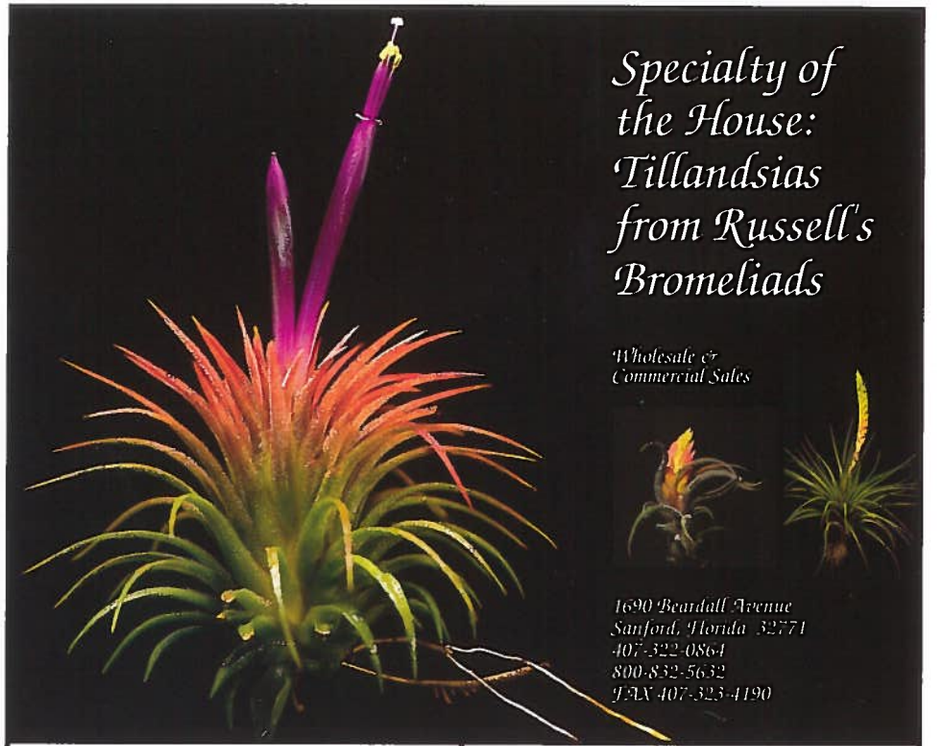

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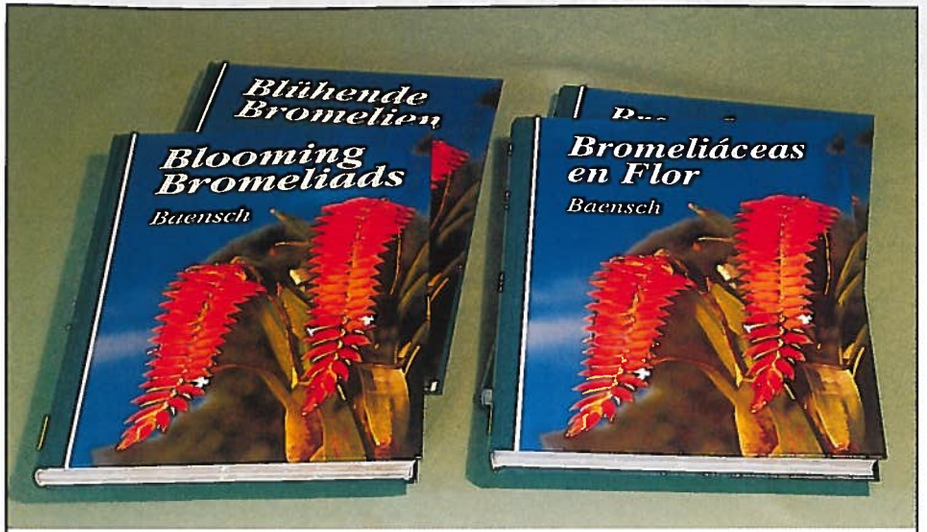

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The purpose of this nonprofit corporation is to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world. You are invited to join.

Vriesea diamantinensis Leme in habitat, in Diamantina region, Minas Gerais State, Brazil.

Photograph by Elton M.C. Leme.

Calendar

26-27 Jul	North County Bromeliad Show and Sale; Paul Ecke Hall at the Quail Botanical Gardens, Encinitas, California. Hours are 10 am to 4 pm on both days. Contact: Les Vanderbush 760-941-9389
2-3 Aug	The South Bay Bromeliad Associates annual show and sale; South Coast Botanical Gardens, 26300 South Crenshaw Boulevard, Palos Verdes Peninsula, California. Hours are from noon to 4:30 pm on Saturday and 10 am to 4:30 pm on Sunday. There is an admission fee to the Botanical Gardens. Contact: Bryan Chan 818-787-4265
23-24 Aug	The Bromeliad Society of Greater Chicago's 13th annual show and sale; Chicago Botanical Garden, Lake Cook Road, Glencoe, Illinois. Hours are noon to 5 pm on both days. Contact: Ardie and Jack Reilly 217-486-5874.
5-7 Sep	Southwest Bromeliad Guild Show and 6th International Cryptanthus Conference; Holiday Inn, Beaumont Plaza, 3950 IH 10 S, Beaumont, Texas. For information on conference, registration fees and schedule of events contact Cynthia Johnson 13330 Alaskan Dr., Beaumont, TX 77713. Phone 409-753-3652.
20-21 Sep	River Ridge Bromeliad Society 16th annual show and sale; City Park Botanical Gardens, 1 Palm Drive, New Orleans, LA. Show hours 1 to 5 pm on Saturday, 10 am to 5 pm on Sunday. Sale hours 10 am to 5 pm on both days. $3.00 admission to benefit City Park Botanical Gardens. Contact: Shirley Alcock 601-799-4813.
26-29 Sep	Western Bromanza; Ninth Australian Bromeliad Conference in Perth, South Australia.