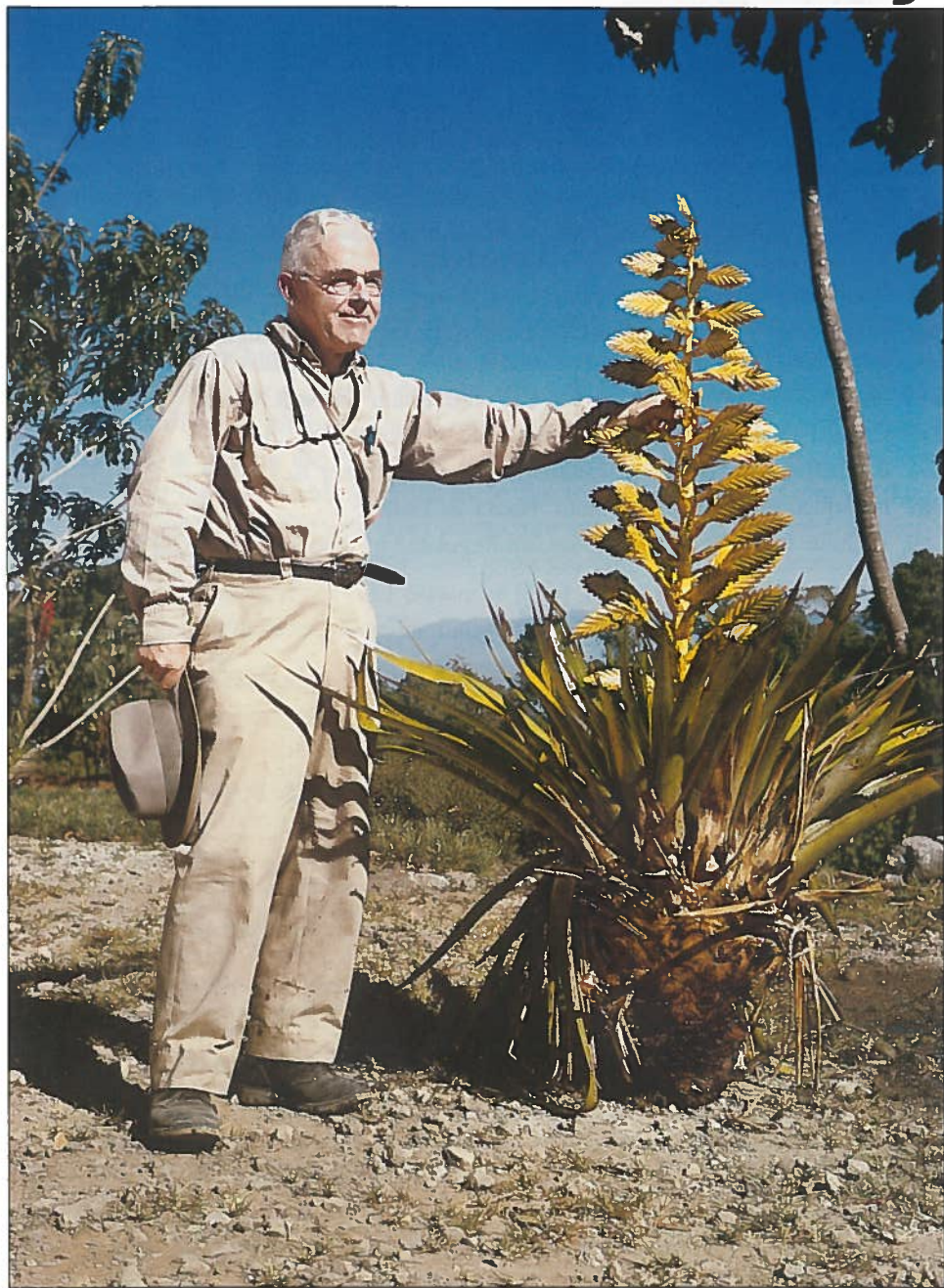


Journal of The Bromeliad Society



VOLUME 44

•

NOVEMBER–DECEMBER 1994

•

NUMBER 6

Journal of the Bromeliad Society

© 1994 by the Bromeliad Society, Inc.

Vol. 44, No. 6

November–December 1994

Editor: Thomas U. Lineham, Jr., 1508 Lake Shore Drive, Orlando, Florida 32803-1305.
Telephone: 407-896-3722.

Editorial Advisory Board: David H. Benzing, Gregory K. Brown, Pamela Koide, Harry E. Luther, Robert W. Read, Walter Till.

Cover photographs. Front: Here is the 62-year-old Dr. Lyman B. Smith on 10 March 1966 in Costa Rica standing next to *Tillandsia oerstediana*, which he described that year. Photograph by Hollings Andrews. Please see the text on pages 254–256. Back: A tray of flowering *Tillandsia straminea*, one of the fragrant tillandsias discussed by Greg Payne on pages 268–270. Photograph by Chet Blackburn.

CONTENTS

- 243 The Venezuelan *Brocchinia micrantha* **Francisco Oliva-Esteve**
247 Vegetative Propagation: Treatment with Cytokinin BAP Brings
Interesting Initial Results **Bernhard Bessler; Translated by Harvey L. Kendall**
254 The Plants Named in Honor of Dr. Lyman B. Smith **Jason R. Grant**
257 Call for 1995 Nominations for the Office of Director
258 Bromeliad Internship Applications Are Invited **Harry E. Luther**
259 Introducing: *Aechmea melinonii* **Harry E. Luther**
260 A Guide to the Species of *Tillandsia* Regulated by Appendix II of CITES
Harry E. Luther
265 The Way It Was **Elmer J. Lorenz**
267 We Are Considering a Name Change **Odean Head**
268 Fragrance in Bromeliads **Greg Payne**
271 More Than Stamp Collecting **Diana Lutz**
274 Letter to the Editor **Charles E. Dills**
275 Financial Statements 1993 and Budgets 1994, 1995 **Clyde P. Jackson**

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—\$20.00, dual (two members at one address receiving one *Journal*)—\$25.00, fellowship—\$35.00, life—\$750.00. Please add \$5.00 for international mail, except for life members. For first class or airmail add \$7.50.

Please address all membership and subscription correspondence to Membership Secretary Linda Harbert, 2488 E. 49th, Tulsa, OK 74105.

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 the editor; make checks drawn on U.S. banks, bank drafts, or money orders payable to B.S.I.

Printed by Fidelity Press, Orlando, Florida.

The Venezuelan *Brocchinia micrantha* Francisco Oliva-Esteve

In the so-called Guayana Highlands of the state of Bolívar in isolated, southern Venezuela, with Guyana toward the east, Colombia to the west, and Brazil to the south, deep in the jungle along the road to La Gran Sabana (The Grand Savanna) is found the mighty *Brocchinia micrantha* (Baker) Mez. It was originally collected in 1872 near the Essequibo River in Guyana and has since been collected by such botanists and naturalists as Appun, Steyermark & Aristeguieta, Jenman, Maguire & Wilson-Browne, Foldats, Varadarajan & Oliva-Esteve.

Many unusual, new genera and species of plants are known only from this vast “Lost World” where most of the sandstone or quartzite strata domes, table-like mountains or “tepui” are located. Tepui is a Pemón Indian word for mountain. These tepuis are scattered over an area of 180,000 square miles. They are the remains of giant plateaus that at one time stretched across the entire region. Angel Falls, at 960 m, the highest in the world, is located here on Aúyan-Tepui (figure 1). In the course of centuries these flat-topped mountains were gradually eroded and washed to the sea. This composite erosion along ancient fractures is the result of the changing climate and geologic conditions that determined the age. These deposits were laid down at least 1.8 billion years ago atop the Guayana Shield, the oldest rock formation in South America.¹

In 1838 the German explorer Robert Schomburgk visited the area and collected many rare plant samples. He explored the tepui region for the British Royal Society. His writings inspired others to come, among them the British botanist Everard im Thurn, who came to Venezuela in 1884. He succeeded in reaching the top of one of the most famous tepuis, Mount Roraima (figure 2). On his return to Europe he gave several lectures about his expeditions to his colleagues. One of those meetings in England was attended by the novelist Arthur Conan Doyle, creator of the legendary Sherlock Holmes. Doyle was so enchanted with im Thurn's descriptions that he was inspired to write THE LOST WORLD (published in 1912) describing the legend of a South American tepui located in southeastern Venezuela (Mount Roraima) where prehistoric plants and animals had lived in isolation for millions of years.

Later on, various expeditions from the United States were made over a period of years the participants including Smith, Tate, Hitchcock, Williams, Spruce, Maguire, Wurdack, Politi, Tillett, Bunting, Pittier, and Steyermark, as well as several Venezuelan explorers. These authors collected and named many new genera. As a consequence, most of the genera of Pitcairnioideae have been



Daniel Oliva-Hinckley

Figure 1.

Angel Falls, the highest in the world, with a free drop of 960 m, Aúyan-Tepui.



Author

Figure 2.

Mount Roraima (right) and Mount Kukenán, 2700 m high, Bolívar, Venezuela.



Author

Figure 3.

Brocchinia micrantha in its habitat, La Escalera (the Ladder), the entrance to La Gran Sabana. The road climbs from 200 m altitude up to 1100 m and twists and climbs like a ladder.



Author

Figure 4.

Brocchinia micrantha.
The scape alone is 2–3 m high.

found and described: *Navia*, *Lindmania*, *Connellia*, *Brewcaria*, *Steyerbromelia*, as well as endemic species of *Pitcairnia*, *Vriesea*, and *Tillandsia*. The genus *Brocchinia* Schultes filius occurs there too, especially on the talus (slopes) of the tepuis and lower lands.

Of the 21 or more species of *Brocchinia* already classified, *B. micrantha* stands as the largest of the genus and consequently becomes, to my knowledge, after the enormous Peruvian-Bolivian *Puya raimondii*, the next largest bromeliad ever found. It reaches a height of seven to eight meters. Then, in order, *B. paniculata* Schultes f. and *B. tatei* L.B. Smith, attaining about five to six meters. They are the dominant plants of the vegetation of the site in which they occur. The habitat of such giant specimens develops around rocky and humid regions often on the lower talus of many tepuis.

Brocchinia micrantha (figures 3 and 4) has a tank-like habit; its lofty columnar stem is encircled by enormous, wide, strap-shaped, ascending, yellow-green leaves flushed with purple in the lower half and dark black-brown at the base. The leaves are 1–2 m long and 15–25 cm wide. They start growing in opposite levels from the bottom of the rosette up to the summit of the stem becoming broadly acute and apiculate. The strikingly tall, diffuse inflorescence, in contrast, has small and insignificant flowers, usually creamy, with sepals and petals 5–7 mm long in many branched panicles.

The plants need much air and humidity around their root system, adequate drainage, plenty of humus-bearing soil, and lots of water. Several attempts have been made to grow them in Caracas, some succeeded, others succumbed. Since they grow at altitudes between 700–1100 m there is no reason why they could not grow indoors in botanical gardens or any other place with the same climate. In any case, the whole plant with its tiny flowers and large, long, leaves offers a magnificent spectacle.

Caracas, Venezuela

END NOTE:

¹ For more information see "VENEZUELA'S ISLANDS IN TIME," by Uwe George, National Geographic, May 1989, and "Lost World of the Tepuis," by Tom Melham, photographed by Jay Dickman. In: BEYOND THE HORIZON; ADVENTURES IN FARAWAY PLACES. (Washington, D.C.: National Geographic Society, 1992), 124–155.

Vegetative Propagation: Treatment with Cytokinin BAP Brings Interesting Initial Results

Bernhard Bessler

Translated by Harvey L. Kendall

Besides the growing number of commercial nurseries that have an interest in the highest possible propagation rate for the plants that they deal with, plant hobbyists are also interested in being able to propagate their plants effectively. No matter whether you would like to have trading material or whether you are trying to preserve and propagate rare species, a high propagation rate is always desired.

Collecting in the wild together with the destruction of natural habitats (e.g. rain forests) has led to the unanticipated inclusion of several tillandsia species in the Washington Species Protection Law. Thus, in the past year in Kyoto, seven-species (*T. harrisii*, *T. kammii*, *T. kautskyi*, *T. mauryana*, *T. sprengeliana*, *T. sucrei*, and *T. xerographica*) have been included in the appendix of the Washington Species Protection Law.

With the growing trend of including tillandsias in bromeliad collections or simply having them in the home, the volume has also increased in the trade. Figure 5 gives an insight into the dimension of trade just in the horticultural trade

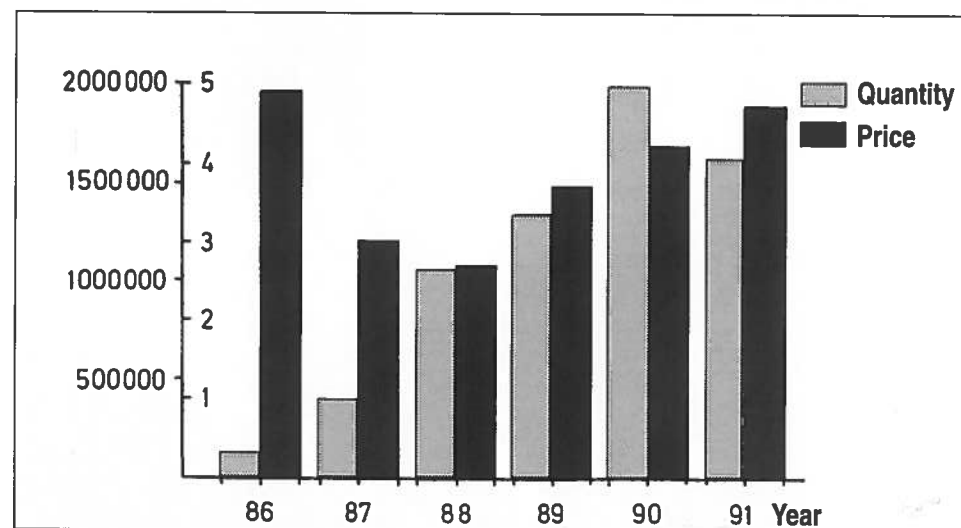


Figure 5.

Marketed quantity and average price of the tillandsias sold in recent years in Aalsmer. (Auction and sales office without note of individually listed species, e.g. *T. cyanea*).



Figure 6.

Tillandsia aeranthos after treatment with BAP. Left, control plant of equal age. The high degree of pupping and the retardation of leaf formation at the apex of the treated plant are seen clearly.



Photos by Author

Figure 7.

Even in *Vriesea zamoriensis*, the potential for offshoot formation after BAP treatment is evident.

center in Aalsmer, Holland (auction and sales office together). The actual number of plants must be even higher, since statistics in Dutch establishments in the categories evaluated here, "other tillandsias" (which excludes, for example, *T. cyanea* and other tillandsias) are listed as well as arrangements made up of several plants, for example, epiphyte trees. The average price shown in figure 5 has been compiled from data from the sales office and from auction. In 1990 in Aalsmer, tillandsias were sold in numbers similar to large-flowered cyclamen, for example. In 1991 the now-protected *T. xerographica* mentioned above in regard to the Washington Protected Species Law appears in the statistics.

Seed growing of tillandsias is possible in our latitude, but it is extremely tedious. A *Tillandsia aeranthos* takes about five years to reach bloom stage. Flower induction and subsequent seed development and harvest is possible by means of Bromeliad Ethrel (Zimmer and Weyers, 1991. See also DIE BROMELIE, February 1992). Of course bromeliads produce a few offshoots ("pups")—generally between one and four—in the leaf axils after the apical meristem (the tip of the growing shoot) has been transformed into an inflorescence. The growth system of bromeliads, however, is constructed in such a way that there is a dormant meristem ("sleeping eye") in every leaf axil of the rosette of leaves. These dormant meristems serve as reserves in case something destroys the pups that are most remote from the growing tip. As long as the plant continues to grow and form leaves at the tip, the axil buds are almost always prevented from growing. (Exceptions are possible, as, for example, in *Tillandsia butzii*.)

By removing the growing tip (breaking the apical dominance), we know that we can often induce branching of the plant structure. In *Tillandsia aeranthos*, however, such treatment has resulted in only about 50% of the cases producing more than one, usually only two, offshoots (Zimmer and Weyers, 1991).

In addition to actively destroying or chemically altering the apex, we know from the literature of substances that attack the hormonal balance of the plants in such a way that the apical dominance can be conquered and several side shoots can be produced. An example of these is the cytokinin Benzylaminopurin (BAP). In sunflowers, which generally are single-stemmed but nevertheless harbor sleeping eyes in their leaf axils, a spraying of BAP can cause strong branching. In Holland, attempts were recently made to increase the number of offshoots in cymbidiums (Vanos and Braamhorst, 1993). In 1977, Steward and Button were able to prove that spent shoots of paphiopedilums can be induced into vegetative propagation by an application of BAP. Plant material that is normally thrown away formed offshoots from dormant meristems; the offshoots grew into normal plants. Undoubtedly inspired by success in this field, there are some unsystematic attempts at using BAP on bromeliads described in American literature for bromeliad growers (Gardner, S. 1977 and Stoutemeyer, V. 1976). In an article on vegetative propagation of orchids, Billensteiner and Ritter (1983) also mention success with *Tillandsia tricolor*.

With this background—given the need for new propagation techniques for the practical protection of species and propagation of bromeliads—experiments have been conducted during the last two years at the Institute of the Cultivation of Ornamental Plants to propagate bromeliads vegetatively with applications of BAP. Some of these experiments have already been reported in the literature (Bessler, B. and K. Zimmer 1993). In the cases described here, self-propagated, mature plants of *Tillandsia aeranthos* were used as models.

Two possibilities exist for applying the BAP. After flowering (either through Bromeliad-Ethrel or naturally), the plant system branches. The pups can be removed. The old plant is usually discarded. If there are viable eyes on this old plant, there is still material for possible propagation. The second possibility lies in the direct treatment of young plants before the induction of bloom. By the appropriate stimulation of the “sleeping eyes,” the sprouting system could be used similar to mother plants from which offshoots are taken. Both methods were pursued at the Institute. Five-year-old plants of *Tillandsia aeranthos* grown from seed were brought into bloom by using Bromeliad-Ethrel. After offshoots were formed, they were left attached to the old plant for another 15 months. From all the plants that formed more than one offshoot, these pups were removed and grown on another three months as individual plants. The approximately seven-year-old remnants, i.e. the spent plants without offshoots, were dipped into a Cytokinin solution (0; 5 or 50 mg/l BAP) or were sprayed with solutions (three times per week with 25 mg/l BAP).

Similar treatment was given the former offshoots. In addition to a one-hour or 24-hour submersion in BAP solutions (0; 1; 5; 10; 25; 50 mg/l), a further batch of plants was sprayed so intensively with solutions of identical concentrations three times per week, that all the leaves and leaf axils were saturated. By the assessment date of the plants of former offshoots (10, 20, 30 weeks after beginning the experiment), the number of leaves developed after the beginning of the experiment was recorded. The “remnants” were examined for new offshoots only twice (after 18 and 36 weeks).

RESULTS

Remnants

As shown in Table 1, the remnants definitely offer the possibility of increasing the production of offshoots. After 36 weeks, however, many individuals of the dipped variants showed such severe damage that the treated specimens produced fewer offshoots than the control plant.

Remnants that were regularly sprayed (25 mg/l) produced the highest number of offshoots with an average of almost 5.6 viable pups.

Table 1. Effect of BAP treatment on remnants of *T. aeranthos*.

Method of treatment	Concentration	Number of offshoots after		Number of dead plants after	
		18 weeks	36 weeks	18 weeks	36 weeks
	0 ppm	3.6 ±2.0	4.1 ±1.5	4	6
4 hours submersion	25 ppm	1.8 ±1.8	2.9 ±1.4	3	12
	50 ppm	0.9 ±1.1	2.2 ±1.0	7	19
Spraying 3 times per week	25 ppm	4.8 ±3.4	5.6 ±3.1	0	4

Former offshoots

Although there were interesting results in the use of the old remnants, the results from the young individual offshoots were considerably more impressive. Similar to the dipped specimens of the remnants, the results of dipping the former offshoots were not convincing. Just 31 of 72 plants in the variants in the levels of concentrations 10, 25, and 50 mg/l showed a tendency to induced offshoot formation with 3.5 ± 2.3 offshoots. Much more noticeable in this part of the experiment was the number of plants with leaf damage. The higher the concentrations and the longer the plants were submerged, the more damage, which looked much like sunburn and which sometimes caused the individual plant to die.

Regular spraying with cytokinin solutions proved to be much more effective. With this form of application, there was no leaf damage; there was also no death of whole plants. On the contrary: many plants, especially those sprayed with the concentrations of 10 and 25 mg/l, developed a large number of offshoots in the leaf axils (figure 6). As can be seen in figure 7, twenty weeks after the beginning of the experiment the best specimens formed 20 offshoots on the average. At higher concentrations, the number of offshoots diminished. The analysis of the leaves formed during the treatment shows that the offshoot formation takes place at a cost to the number of leaves developed at the apex. The higher the concentration of the cytokinin solution, the fewer the leaves were developed. By an exterior tampering with the plant's hormone balance, there is somewhat of reduction of the apical dominance. It may also be assumed that after formation of offshoots, the latter take over the “leadership role” and correspondingly limit the apex.

Today, almost a year after the beginning of the experiment, it is further shown that in the specimens receiving concentrations of 25 and 50mg/l BAP, the growth of the tip is limited. Also, almost all of the newly formed offshoots of the

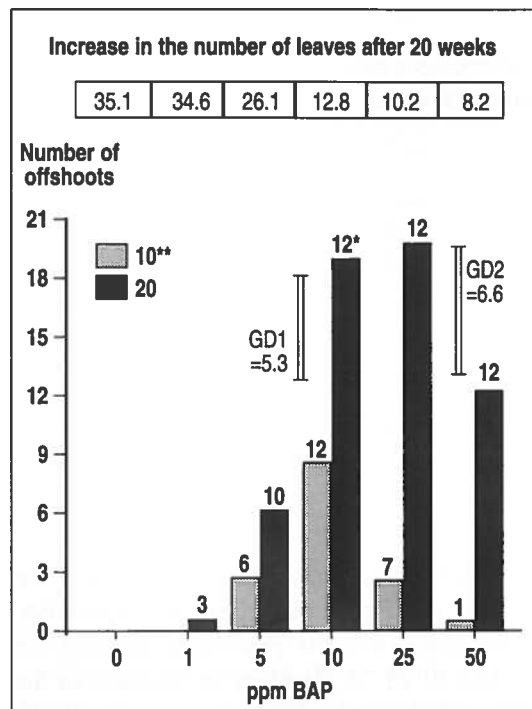


Figure 8.
Average number of offshoots and leaves developed during treatment in regard to BAP concentration and length of treatment

*=Number of plants with new shoots: n=12;

**=Number of weeks after beginning the experiment;
GD 1: Comparison of variants 5 and 10 ppm, 20 weeks;
GD 2: Comparison of variants 5 and 50 ppm, 20 weeks).

specimens receiving 50 mg/l are browned and retarded in their growth. The specimens receiving less than 10 mg/l BAP show an essentially more inhomogenous image than the specimens receiving 10 mg/l. Some plants developed no offshoots and subsequent to the treatment came into bloom. The optimal concentration for propagation of *Tillandsia aeranthos* in the use of BAP according to the present date is clearly 10 mg/l.

There are currently more experiments of this type underway. At the moment tests are being made to learn how many applications of the optimal BAP amount are necessary to achieve the maximum number of offshoots for propagation. Also, following these commercially useful results from using one species, other genera and species are being tested for their ability to form propagatable offshoots after directly tampering with the hormone system. As shown in figure 7, *Vriesea zamoriensis* demonstrates the ability to form offshoots without destroying or altering the apex. To be sure, in the current experiments the tendencies are not so clear as in *Tillandsia aeranthos*; nevertheless, the potential for use of this vegetative form of propagation for bromeliads is in any case present. For tillandsias, a path of propagation has been pioneered with the application of BAP. When the techniques still to be investigated are applied to additional species in the countries of origin where solar irradiation is greater, the removal of material from nature can be dispensed with completely. Also, in regard to BAP, one must con-

sider the cost of the substance (5 grams cost about 90 DM and is enough for 500 liters at the concentration of 10 mg/l). But let it be noted here that according to figures from the Sigma Company, which distributes BAP, there have been no intensive investigations of the toxic effect on humans. But there is warning that swallowing the substance can be deadly and that contact with the skin or with mucous membranes causes irritation.

If further experiments should show that the use of BAP can be expanded in bromeliads, a consideration of commercial use of BAP makes a lot of sense. The process of causing plants to produce pups when they have not yet bloomed and being able to utilize practically every leaf axil for the production of new plants, is intriguing. The applications are very promising and should be pursued further.

*Institute for Cultivation of Ornamental Plants
of the University of Hannover*

REFERENCES:

- Bessler, B. and K. Zimmer. 1993: Vegetative Vermehrung von "atmosphärischen" Tillandsien. I. Einfluß von Benzylaminopurin auf die Seitentriebbildung von *Tillandsia aeranthos*. *Gartenbauwissenschaft* 58(3):117-120.
- Billensteiner, H. and R. Ritter. 1983: On the vegetative propagation of orchids. *South African Orchid Journal* 14:1, 7.
- Gardner, S. 1977: Induction of lateral growth on vrieseas by cytokinin. *J. Bromeliad Soc.* 27:31-33.
- Steward, J. and J. Button. 1977: The effect of benzyl adenine on the development of lateral buds of *Paphiopedilum*. *Am. Orch. Soc. Bull.* 45:415-418.
- Stoutemeyer, V. 1976: Cytokinins and propagation of bromeliads. *J. Bromeliad Soc.* 26: 197.
- van Os, P. and P. Braamhorst 1993: Einsatz von Cytokinin bei *Cymbidien*. *Gartnerbörse+Gartenwelt* 93:112-113.
- Zimmer, K. and W. Weyers 1991: Blüteninduktion bei *Tillandsia aeranthos*, *Deutscher Gartenbau*, 45:2040-2041.
- Statistics: Statistisch overzicht Kamerplanten—Vereinigste Bloemenveiling Aalsmer, various years.

Reprinted from Die Bromelie, journal of the Deutsche Bromeliengesellschaft, 3/1993, by permission

Marjorie H. Pearl of Fort Lauderdale, Florida has sent a complimentary note enclosing a check for the JOURNAL color fund. Her esteem and generosity are greatly appreciated. Thank you, Maggie.—TUL

The Plants Named in Honor of Dr. Lyman B. Smith

Jason R. Grant

By the date of his ninetieth birthday, the eleventh of September 1994, one genus, one hybrid, and 41 species of plants had been named in honor of Dr. Lyman Bradford Smith. Of these, the genus, the hybrid, and 20 species are bromeliads. Most of the others were based on collections made by Dr. Smith during his expeditions to southern Brazil in 1928–29, 1952, 1956, and 1964.

Nearly all of the taxa names are of the usual etymological sort, a Latinization of either Dr. Smith's first or last name, or a combination of the two. One name, however, stands apart from the rest providing a glimpse of one of Dr. Smith's activities that few of us have known about. John J. Wurdack (1962:198) named and described *Leandra luctatoris*, based on plants that Dr. Smith collected in Santa Catarina, Brazil. He stated: "The epithet refers to both the classificatory courage and avocational activity of Lyman B. Smith." The Latin *luctator* means wrestler.

In order to find out more about his athletic interests and the plants named after him, I spoke with Dr. Smith at his home in Kensington, Maryland, on July 28th of this year. I learned that he had been an avid Greco-Roman wrestler during his undergraduate years at Harvard. Later, he wrestled as a member of the Boston Athletic Association and for the Washington, D.C., Y.M.C.A., winning numerous awards in the 125 lb. weight category. He spoke with great enthusiasm while describing his athletic achievements, especially his invention of a wrestling move he termed "the spinner."

While on the subject of sports, Dr. Smith recalled that it was during his high school days while playing golf with his father that he first became interested in botany. It seems that while standing in the middle of a fairway, he spied a *Carex* (sedge). Knowing that carices don't usually grow in such areas, he immediately began to examine the plant, forgetting the score, and losing interest in the game.

After discussing sports and the species named after him, Dr. Smith asked if I had checked *Hechtia*. I told him yes, there is a species in that genus named after him. Seeming pleased, he then asked about *Navia*. I told him that there was not. Thinking he had set me up, he replied quickly: "That's your assignment." With that, there was the perhaps too often-encountered famous line, "well... I mustn't take any more of your time," a clear indication that he was eager to get back to his own work.

The following list of taxa named in honor of Lyman B. Smith was compiled by searching INDEX KEWENSIS on CD-ROM, the lists of type specimens at both the U.S. National Herbarium and the Harvard University Herbaria available through the Gopher Server on the Internet, and simply asking the wise. Once separate lists were generated for those names with the potential of having been named in honor of

Dr. Smith, each record was scrutinized and excluded on the basis of its publication date or verified in its original publication.

De Plantis in Honorem L.B. Smithii Nominatis Bromeliads:

- Aechmea lymanii* W. Weber, J. Bromeliad Soc. 34:202–4. 1984. Syn. *Ortgiesia lymanii* (Weber) L.B. Smith & W.J. Kress, Phytologia 66(1):73. 1989.
- Ananas lyman-smithii* Camargo, Arq. Jard. Bot. Rio de Janeiro 14:281. 1956, nom. nud.
= *Ananas monstrosus* (Carrière) L.B. Smith, Phytologia 8:12. 1961.
= *Ananas comosus* (Linnaeus) Merrill, Interpr. Rumph. Amboin. 133. 1917.
- Billbergia lymanii* E. Pereira & E.M.C. Leme, Bradea 4(11): 72–76. 1984.
- Encholirium lymanianum* E. Pereira & G. Martinelli, Bradea 3:252–3, 256, 259. 1982.
- Hechtia lyman-smithii* K. Burt-Utley & J.F. Utley, Brittonia 39(1):37. 1987.
- Lindmania smithii* (Steeyermark & Luteyn) L.B. Smith, Ann. Missouri Bot. Gard. 73:695. "1986." 1987
—Basionym: *Connellia smithiana* Steeyermark & Luteyn, J. Bromeliad Soc. 35:152. 1985.
- Lymania* R.W. Read, J. Bromeliad Soc. 34:201. 1984.
- Lymania smithii* R.W. Read, J. Bromeliad Soc. 34:199–201, 212–6. 1984.
- Mezobromelia lyman-smithii* W. Rauh & W. Barthlott, Trop. Subtrop. Pflanzenwelt 16:13. 1976.
- × *Neophytum* × *lymanii* M.B. Foster, Bromeliad Soc. Bull. 8:73. 1958.
- Neoregelia lymaniana* R. Braga & D. Sucre B., Rev. Brasil. Biol. 34(4):491. 1974.
- Neoregelia smithii* W. Weber, Feddes Repert. 93:345–6. 1982.
- Nidularium lyman-smithii* E.M.C. Leme, Pabstia 4(1):6. 1993.
- Orthophytum lymanianum* E. Pereira & I. de Azevedo Penna, Bradea 4(1):3–4, 7. 1983.
- Pitcairnia lymanii* Matuda, An. Inst. Biol. Mexico 23:99. 1953.
= *Pitcairnia saxicola* L.B. Smith, Contr. Gray Herb. 17:29. 1937.
- Pitcairnia lyman-smithiana* H.E. Luther, J. Bromeliad Soc. 37:212. 1987.
- Puya smithii* Castellanos, Lilloa 2:13. 1938.
- Racinaea lyman-smithiana* J.R. Grant, Phytologia 76(4):286. 1994.
- Tillandsia lymanii* W. Rauh, Trop. Subtrop. Pflanzenwelt 13:58–63. 1974.
- Tillandsia smithiana* Carabia, Mem. Soc. Cub. Hist. Nat. 15: 257. 1941.
= *Tillandsia fendleri* Grisebach, Nachr. Ges. Wiss. Gott. "1864":17. 1865.
- Vriesea lyman-smithii* J.F. Utley, Tulane Stud. Zool. Bot. 24(1):35–37. 1983.
- Wittrockia smithii* Reitz, An. Bot. Herb. Barb. Rodr. 4(4):19. 1952.
= *Wittrockia amazonica* (Baker) L.B. Smith, Arq. Bot. S. Paulo II. 2:197. 1952.

Other Plant Species:

- Baccharis lymanii* G.M. Barroso, Rodriguesia 28(4):165. 1976. (Asteraceae)
- Begonia lyman-smithii* K. Burt-Utley & J.F. Utley, Brittonia 39(1):59. 1987. (Begoniaceae)
- Bulbostylis smithii* Barros, Darwiniana 11:761. 1959. (Cyperaceae)

Coccocypselum lyman-smithii Standley, Publ. Field Mus. Nat. Hist. Chicago, Bot. Ser. 8:165. 1930. (Rubiaceae)

Diplusodon smithii Lourteg, Sellowia 16:148. 1964. (Lythraceae)

Dyschoriste smithii Leonard, Sellowia 9:81. 1958. (Acanthaceae).

Eryngium smithii Mathias & Constance, Sellowia 23:47. 1971. (Apiaceae)

Galium smithreitzii L.T. Dempster, Allertonia 5(3):330. 1990. (Rubiaceae) Named in honor of both Lyman B. Smith and Raulino Reitz.

Ilex lymanii Edwin, Mem. N.Y. Bot. Gard. 12(3):134. 1965. (Aquifoliaceae)

Isoetes smithii H.P. Fuchs, Fl. Illustr. Catar. I, Fasc. Isoe. 16. 1986. (Isoetaceae)

Leandra luctatoris Wurdack, Sellowia 14:197. 1962. (Melastomataceae)

Linum smithii Mildner, Phytologia 23(5):439. 1972. (Linaceae)

Miconia lymanii Wurdack, Sellowia 14:164. 1962. (Melastomataceae)

Monteiroa smithii Krapov., Sellowia 14:61. 1962. (Malvaceae)

Myrceugenia smithii L.R. Landrum, Brittonia 32(3):374. 1980. (Myrtaceae)

Myrcia smithii C.D. Legrand & Kausel, Sellowia 13:290. 1961. (Myrtaceae)

Pamphalea smithii Cabrera, Bol. Soc. Argent. Bot. 7:200. 1959. (Asteraceae)

Peperomia lyman-smithii Yuncker, Biol. Sec. Agric. Estado Sao Paulo, Inst. Bot., No. 3 (N. Sp. Piperac. Braz.) 147. 1966. (Piperaceae)

Reitzia smithii Swallen, Sellowia 7:8. 1956. (Poaceae)

Rhynchospora smithii W.W. Thomas, Nem. New York Bot. Gard. 37:37. 1984. (Cyperaceae)

Symphyopappus lyman-smithii B.L. Robinson, Contr. Gray Herb. 96:19. 1931. *Eupatorium lyman-smithii* (B.L. Robinson) Steyermark, Fieldiana, Bot. 28(3):636. 1953. (Asteraceae)

ACKNOWLEDGMENTS:

I thank Dr. Lyman B. Smith for his thought-provoking and always entertaining conversation and Hollings Andrews for making his photograph available for publication.

LITERATURE CITED:

Wurdack, J.J. 1962. Melastomataceae of Santa Catarina. Sellowia 14:109-217.

A note concerning the photograph: Dr. Smith was an instructor during the 1966 Organization of Tropical Studies Tropical Epiphytes course. The photo was taken 3 km southeast of Sabalito, a town just east of San Vito. While in San Vito, Dr. Smith and members of the OTS course visited the home of Robert and Catherine Wilson, now the Robert and Catherine Wilson Botanical Garden.

Dept. of Botany, Univ. of Maryland
College Park, MD 20742-5815

Call for 1995 Nominations for the Office of Director

The Bromeliad Society, Inc., is managed by a Board of Directors elected to represent the members of the 10 regions of the society and by officers elected by the board. The details of the BSI organization and how the business of the society are conducted are explained in the bylaws. Every affiliated society has a copy of the bylaws. If you cannot find a copy, write to the BSI secretary, whose name and address are listed in the inside back cover of every issue of the JOURNAL. Your participation in the conduct of BSI business matters is essential. The matter at hand is the nomination of directors.

THIS IS THE CALL FOR NOMINATIONS FOR THE TERMS 1996-1998:

Regions having vacancies for the regular three-year term, 1996-1998—

Florida	1 director	California	1 director
Louisiana	1 director	International	2 directors
Texas	1 director		

Who may nominate? Any voting member of the society who resides in a region for which there is an opening may nominate any number of candidates to compete for that opening or openings.

Who may be nominated? A nominee must: (1) be a current, voting member of the society and have been a voting member for the three consecutive years prior to nominations; (2) reside in the region for which nominated; (3) not have served two consecutive terms as a director immediately preceding nomination; (4) agree to being nominated; (5) agree to serve as a director, if elected.

Procedure for nominating: (1) obtain the consent of the prospective nominee and verify compliance with the qualification criteria; (2) airmail nominations to the chairman of the Nominations Committee between 1 January and 18 March 1995 inclusive. Nominations by telephone will be accepted through 15 March but must be confirmed in writing; (3) supply with each nomination the full name, address, and telephone number of the nominee, the region to be represented, the nominee's local society affiliation (if any), and a brief autobiography of the nominee.

Mail nominations to:

John M. Anderson
Chairman, BSI Nominations Committee
Post Office Box 5202
Corpus Christi, Texas 78405 USA
Telephone: (512) 882-4551

Bromeliad Internship Applications Are Invited

Harry E. Luther

The Bromeliad Society, Inc., in cooperation with The Marie Selby Botanical Gardens, invites applications for internships involving intensive study of bromeliads. College-level students who have demonstrated an interest in pursuing a career in horticulture, botany, or a related field are encouraged to apply.

Bromeliad Society and Selby Gardens representatives will screen applications for this work-and-study program consisting of 14 weeks of 40 hours at the garden in Sarasota, Florida. Successful candidates will be awarded a stipend of \$11.00 per day and living quarters. Intern sessions begin in February, May, and September.

The work portion will be assigned and supervised by the director of the Bromeliad Identification Center. A study portion should be devoted to a project mutually agreed upon by the intern and the director. A study proposal should accompany each application and must be approved within the first two weeks of the program.

In order to complete the program satisfactorily, the intern is expected to prepare a project report of general interest and acceptable quality. The reports will be forwarded to the JOURNAL editor for possible publication.

The director of the Bromeliad Identification Center continues to welcome suggestions from society members for relevant projects.

Director, M.B. Foster Bromeliad Identification Center
The Marie Selby Botanical Gardens
811 South Palm Avenue, Sarasota, Florida 34236

Introducing: *Aechmea melinonii* by Harry E. Luther

Aechmea melinonii has had a long history in and out (mostly out) of horticulture. It was described in 1861 by Joseph Dalton Hooker based on a plant introduced into cultivation four years earlier from "South America." He gave it the common name "Copious-flowered Aechmea." He also likened the flower buds to the seeds of the "Crabs' Eye," *Abrus precatorius*, a poisonous, vining Pea.

Aechmea melinonii is native to northern South America, the Guianas and northeastern Brazil, in wet forests at low elevations. Its scarcity in contemporary horticulture is probably based on the fact that few bromeliad collectors visit this area.¹ The plant certainly possesses the attributes of a choice ornamental: medium size, ease of cultivation, and a colorful bloom of long duration. The pictured plant was obtained several years ago from Nat DeLeon. Its origin was not stated. As you can see, true *A. melinonii* should not be confused with an imposter that is often offered under this name. The latter, according to Elton Leme, is probably a form of *A. macrochlamys*.

M.B. Foster Bromeliad Identification Center
Marie Selby Botanical Gardens



Vern Sawyer for Selby Gardens

Figure 9. *Aechmea melinonii*

1. For an account of *A. melinonii* in its homeland see Lecoufle, M, *Plant Collecting in French Guiana*, the Brom. Soc. Bulletin 19:1, pp. 12-16, 1969.

A Guide to the Species of *Tillandsia* Regulated by Appendix II of CITES

Harry E. Luther¹

ABSTRACT: As of 11 June 1992, international trade in seven species of *Tillandsia* (Bromeliaceae) is regulated under Appendix II of CITES. To facilitate identification, *Tillandsia harrisii*, *T. kammii*, *T. kautskyi*, *T. mauryana*, *T. sprengeliana*, *T. sucrei*, *T. xerographica* are described and illustrated.²

INTRODUCTION

At the eighth meeting of the Conference of the Parties, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), held in Kyoto Japan, March 1992, two proposals (by Austria and Germany) were made to regulate trade in the bromeliad genus *Tillandsia*. Both proposed to list the entire genus (400–600 species) under CITES Appendix II. After opposition by the delegates of several of the range states (Bolivia, Guatemala, Honduras and Mexico) and the Netherlands, Switzerland and the United Kingdom, the proposal by Austria was withdrawn and the proposal from Germany was modified to include only seven species for listing on Appendix II. This proposal was accepted without objection. Regulation for these became effective on 11 June 1992.

To facilitate the identification, by regulatory officials, of the seven affected species of *Tillandsia*, this guide has been produced. Descriptions have been prepared based on examination of living specimens and supplemented by the published literature. In all cases, studies have included several examples of each species, growing under a variety of conditions and at different stages of maturity. Gross vegetative characters of each species are emphasized in the text and illustrations.

NOTE: *Tillandsias* prepared for shipment are often dried slightly. This usually results in increased recurving of the leaf blade toward the base of the plant and the leaf cross-section becoming more channeled or involute. Trichomes from dry plants should be examined and compared to the SEM photographs; wetting will mat the trichomes and obscure their features. Trichome features can be examined adequately under high magnification of a standard binocular dissecting microscope. Mature leaves taken from the lower 1/3 of the rosette are best; the abaxial (lower) surface of the leaf blade is usually free of dust or debris and is the area represented on the SEM photographs. Trichomes vary in size, shape and density on other parts of the leaf.

¹ Mulford B. Foster Bromeliad Identification Center, The Marie Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, FL 34236, U.S.A.

² Reprinted in part from SELBYANA, vol. 15, part 1, pages 112–115. The other five species will be described and illustrated in successive issues of the JOURNAL. Photographs were made by Vern Sawyer, drawings by Barbara Culbertson and Stig Dalström.

Tillandsia harrisii R. Ehlers, die Bromelie 1987(3):34–6. 1987...

DISTRIBUTION: Known for certain only from the cliffs along the Rio Teculután, El Zapato, Department of Zacapa, Guatemala at 500 m elevation.

STATUS IN HORTICULTURE: Common in cultivation.

DESCRIPTION: **Plant** a lithophyte, short to long caulescent, 6–30 (rarely to 80) cm tall, single or clustering; roots wiry, 1–2 mm in diameter, brown. **Leaves** densely arranged, spreading to recurving, often secund curving, 30 to 60 in number, light grey to silver-white. **Leaf sheaths** broadly elliptic, 20–30 mm wide, brown but densely and coarsely pale lepidote except at the extreme base. **Leaf blades** narrowly triangular, acute to attenuate, 10–25 cm long, 10–15 mm wide, channeled to involute, rather soft and brittle, densely covered with coarse, spreading, white trichomes and appearing slightly rough or pruinose. **Scape** erect, exerted above the leafy rosette. **Scape bracts** like the leaves but shorter. **Inflorescence** simple, cylindrical, 6–15 mm long, polystichously 5- to 10-flowered. **Floral bracts** broadly elliptic, rounded and apiculate to acute, 30–45 mm long, mostly or completely glabrous, shiny, orange to red. **Flowers** lasting a single day. **Sepals** oblanceolate, acute, 26–30 mm long, the adaxial pair carinate and 3–5 mm connate, pale green. **Corolla** tubular. **Petals** very narrowly oblanceolate, 55–60 mm long, shorter than the stamens and **style**, blue-violet.

SUMMARY: Small to medium (usually 6–30 cm tall; old, very long caulescent specimens are unlikely to be encountered) caulescent plant with spreading to recurving, channeled to involute leaves that appear slightly rough or pruinose and light grey to silver-white; a cylindrical inflorescence of red to orange bracts with a blue-violet, tubular corolla.

VEGETATIVELY RESEMBLES:

Tillandsia hondurensis Rauh, which is nearly stemless or very short caulescent with much shorter and narrower straighter leaves;

Tillandsia aff. *capitata* Grisebach (hort. synonym: *T.* “*Sphaerocephala*”) which has longer, more numerous and more densely arranged grey-green or dark grey leaves that are often tinged pink or salmon.

NOTE: *Tillandsia harrisii* is sometimes labeled by nurserymen as *T.* “*Blanca*”, *T.* “*Sphaerocephala Alba*”, *T.* “*Himnorum*” or *T.* “*Capitata White*.” It is propagated by offsets in large quantities by Guatemalan nurserymen.



Vern Sawyer for Selby Gardens

Figure. 10. *Tillandsia harrisii*.

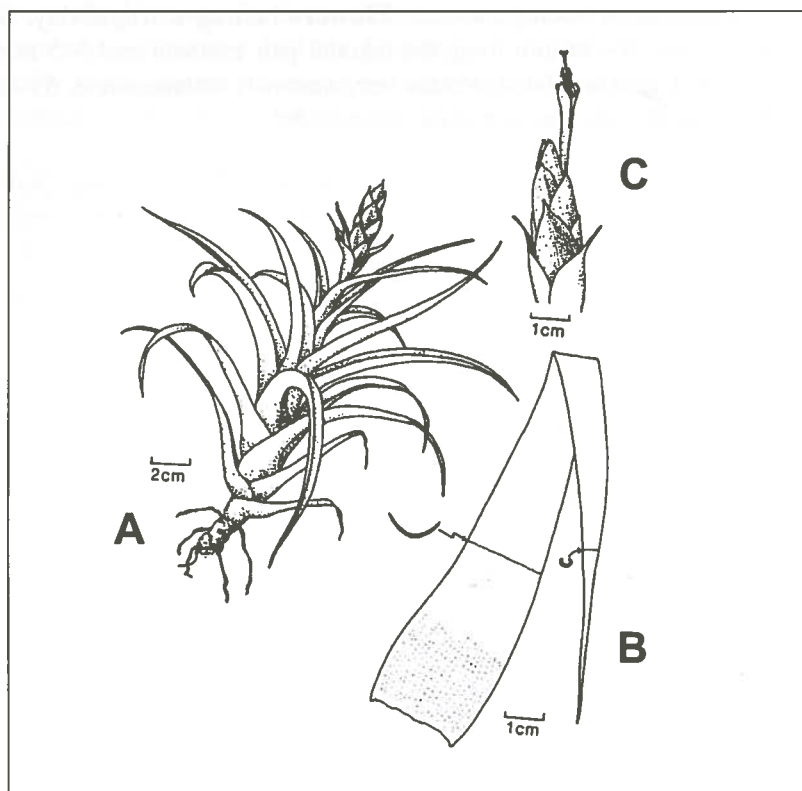


Figure. 11. *Tillandsia harrisii*.
A, habit; B, leaf; C, inflorescence.



Vern Sawyer for Selby Gardens

Figure. 12. *Tillandsia kammii*.

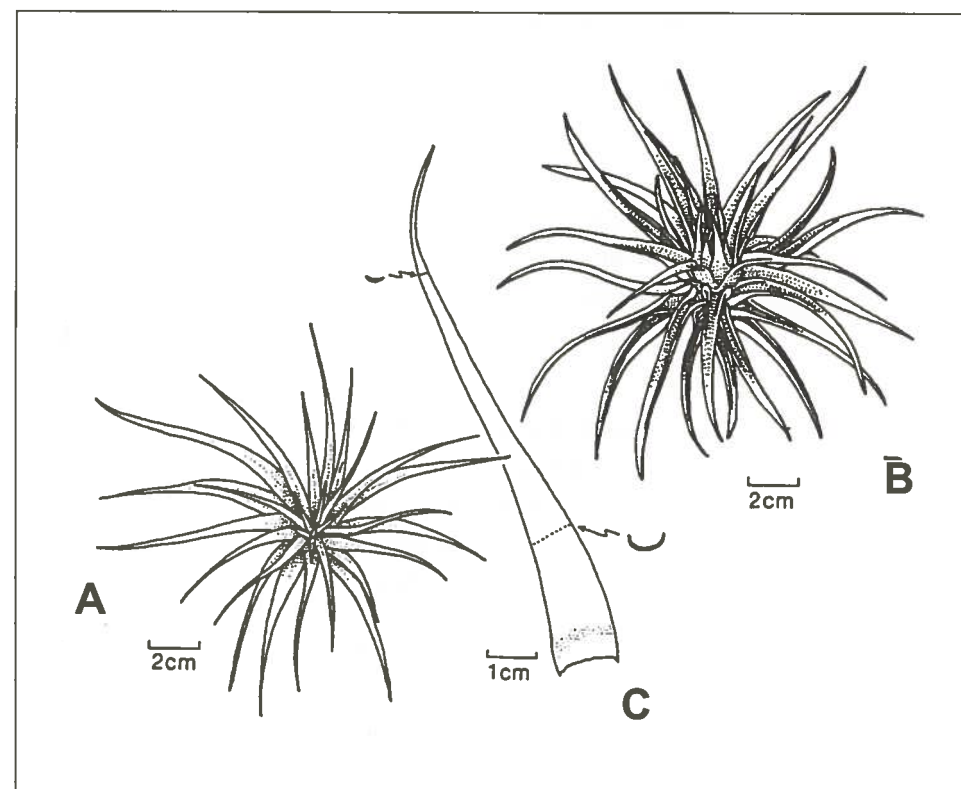


Figure. 13. *Tillandsia kammii*.
A, habit; B, habit of flowering plant; C, leaf.

Tillandsia kammii Rauh, *Tropische und subtropische Pflanzenwelt* 21:45–8. 1977....

DISTRIBUTION: Known from three disjunct sites in Honduras in the Departments of Olancho, Lempira and Copan, at elevations of 500–1200 m.

STATUS IN HORTICULTURE: Rare in cultivation.

DESCRIPTION: **Plant** an epiphyte, nearly 5–10 cm tall, single or clustering; roots wiry, 1 mm or less in diameter, brown. **Leaves** densely arranged, spreading to recurving, 30 to 50 in number, pale grey-green to silver. **Leaf sheaths** ovate to elliptic, 10–18 mm wide, tan but densely and coarsely pale lepidote. **Leaf blades** very narrowly triangular, attenuate, 5–12 cm long, 5–8 mm wide, channeled to involute, soft, densely covered with coarse, spreading, white trichomes and appearing slightly rough and pruinose. **Scape** very short, concealed within the leafy rosette. **Scape bracts** like the leaves but smaller, becoming rose or red during flowering. **Inflorescence** simple, very short and dense, 1–2 cm long, polystichously 3- to 8-flowered. **Floral bracts** ovate, attenuate to acute, 20 mm long, white lepidote, rose to red. **Flowers** lasting a single day. **Sepals** elliptic, obtuse, 14–16 mm long, the adaxial pair carinate and low connate, glabrous, pale green. **Corolla** tubular. **Petals** narrowly oblanceolate, 4 cm long, equalling or exceeded by the stamens and **style**, light blue-violet.

SUMMARY: Small to medium (5–10 cm tall) stemless plant with numerous and narrow soft, spreading to recurving, channeled to involute leaves that appear slightly rough and pruinose and pale grey-green to silver; a very short, partly concealed inflorescence with red to rose bracts with a tubular light blue-violet corolla.

VEGETATIVELY RESEMBLES:

Tillandsia sp. nov. (*T. velutina* R. Ehlers.; hort. synonyms *T. "Brachycaulos* var. *Multiflora*," and *T. "Brachycaulos* *Abdita*") which has fewer, broader, darker grey leaves that have less densely arranged, smaller silver trichomes;

Tillandsia plagiotropica Rohweder which has broader, usually shorter leaves that are stiffer and brittle and appear nearly white.

NOTE: The *Tillandsia* "*Brachycaulos* var. *Multiflora*" is very common in cultivation and is frequently exported from Guatemala. The *T. plagiotropica* is uncommon in cultivation.

[to be continued]

Journal of the Bromeliad Society Index

Volume 44, 1994

Covers (unnumbered pages) are listed as if numbered. Page numbers in *italics* refer to black and white illustrations; those in **bold face** refer to color photographs. New species or those with status changes are shown in both *italics* and **bold face**.

Adventures of a novice, Ed Prince	147–152, 176
<i>Aechmea anomala</i>	148, 150
<i>beeriana</i>	
<i>callichroma</i>	17–18–19
<i>haltonii</i>	49, 52
<i>macvaughii</i> . = <i>Ursulaea macvaughii</i>	
<i>melinonii</i>	259
<i>mulfordii</i>	17, 19
<i>poitaei</i> . Syn.: <i>Streptocalyx poitaei</i>	4
<i>strobilacea</i> . Syn.: <i>Chevaliera strobilacea</i>	53–54–55–56–57
<i>tuitensis</i> . = <i>Ursulaea tuitensis</i>	
<i>woronowii</i>	
Syn.: <i>Streptocalyx holmesii</i>	4, 9
Alphabetical list of bromeliad binomials, An, H.E. Luther, E. Sieff.	
4th ed. (review)	118; 169
Amateur's guide to greyish leaved Tillandsioideae, An, Derek Butcher (review)	168–169
Amazon, Bullis expedition to the	3–11
Anderson, Des. Bromeliad seed propagation and growing on	37
Anderson, John M.	230
Angel Falls, Venezuela	243–244
Baensch, Dr. and Mrs. H. Ulrich	163
Baensch, H. Ulrich. See Read, R.W.	
Baensch, Ursula	206
Baskerville, Ellen.	
Cultivar and grex registration; where we are now	27–29
Cultivar/grex registrations for 1991–June 1994	214–219
Belgians and the bromeliads, G. Samyn and F. Thomas	200–204
Berg, Walter H.	147–152
Bessler, Bernhard. Vegetative propagation: treatment with cytokinin BAP brings interesting initial results. Tr. by Harvey L. Kendall.	247–253.
Best of the best, 1991–1992, Valerie Steckler	13–16
Blackburn, Chet.	
The 1994 World Conference: bromeliads in paradise, Pt. 1, A general view.	220–221
<i>Puya alpestris</i>	73–74
<i>Quesnelia arvensis</i>	179–180–181
BOOK REVIEWS	
An alphabetical list of bromeliad binomials, 4th ed., H.E. Luther, E. Sieff	169
An amateur's guide to greyish leaved Tillandsioideae, 2nd ed., Derek Butcher	168–169
Bromeliads in the Brazilian wilderness, E.M.C. Leme, Luiz Claudio Marigo (review)	58–59; 144
<i>Brocchinia micrantha</i>	243–244–245–246
Bromélia, quarterly review of Sociedade Brasileira de Bromélias	212

Bromeliad guilds, societies, etc.:	
Australia, 177–178; Caloosahatchee, 16; Central Florida, 204; Comité de Bromeliologia, 116; Deutsche Bromeliengesellschaft, 247–253; Florida East Coast, 212; Greater Chicago, 16; Hawai'i, 57; Houston, 164; New York, 34–36; 75–76, 82; New Zealand, 36; 71–73; 82–83; Queensland, 37; River Bend, 16; Sacramento, 73–74; 179–181; 268–270; San Diego, 16 (see also World Bromeliad Conference, 1994); Sarasota, 16; Sociedade Brasileira, 200–204; 212	
Bromeliad internship applications are invited, H.E. Luther	84; 258
Bromeliad rock gardens, Tom Koerber	60–63
Bromeliad Society, Inc.	
Annual meetings, 1994, Decisions of	229–231
Annual meetings, 1994, Notice of	51
Committees:	
Judges Certification–Handbook revisions	12
Judging schools	12
Publication sales	233
Seed fund	45
Directors	
1994–1996 and 1995–1997, election results	229
Nominations open, 1995	257
Financial report 1993, budgets 1994, 1995	275–278
History	265–267
Honorary trustees	
Harry E. Luther	195–196
Roberto Burle Marx	198–199
JOURNAL color fund, gifts to	16; 57; 204; 253
Membership information and application	46; 190
Bromeliads VIII, Adelaide, S.A., 14–17 April 1995	167
Bromeliads in the Brazilian wilderness, E.M.C. Leme, L.C. Marigo (review)	58–59
Brown, Gregory K. See Palací, Carlos A.	
Bullis expedition to the Amazon, The, Lee Moore	3–11
Bullis, Patricia	3, 5–11
Burle Marx, Roberto, 1909–1994	198–199
Burton, Tom. Let your flower photos bloom with lots of color.	178–179
Butcher, Derek.	
An amateur's guide to greyish leaved Tillandsioideae (review)	168–169
<i>Tillandsia xiphioides</i> var. <i>tafiensis</i> , identification of	240
Cházaro-Basañez, Miguel. A commentary on <i>Tillandsia pamela</i>	80–81, 85
Care in use of chemicals [letter] C.E. Dills	274, 278

<i>Chevaliera strobilacea</i> = <i>Aechmea strobilacea</i> Chvastek, Jaromir. Some Mexican tillandsias	65-68
CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)	9-10; 230; 260-264
Colgan, Len, photographer	240
CONFERENCES, SYMPOSIA, ETC. Bromeliads VIII, Adelaide, S.A., 1995	167
World Bromeliad Conference, San Diego, 1994	32-33, 39; 69-70, 87; 125; 220-228
Costa, Andrea. Two new <i>Vriesea</i> species from the Atlantic Forest: <i>V. altomacaensis</i> and <i>V. arachnoidea</i>	159-164
Costa Rica, notes on the coastal endemic <i>Pitcairnia halophila</i>	170-172
Cultivar/grex registrations for 1991- June 1994, Ellen Baskerville	214-219
CULTURE Belgians and the bromeliads	200-204
Best of the best, 1991-1992	13-16
Bromeliad rock gardens	60-63
Don't confuse sphagnum moss with peat moss	213
"Feeding" bromeliads	127-129
Growing <i>Tillandsia multicaulis</i>	36
Good root systems make strong plants	34-36
It may not be Kew Gardens, but	21-25
Of dreams'n things [<i>Tillandsia tectorum</i>]	82-83
<i>Puya alpestris</i>	73-74
<i>Quesnelia arvensis</i>	179-180
Dephoff, Laurie	71-73
<i>Deuterocohnia brevifolia</i>	222, 224
Revision of, M.A. Spencer, L.B. Smith	20
Dills, Charles E. Care in use of chemicals [letter]	274, 278
Dills, Charles and Sauny. It may not be Kew Gardens, but	21-25
DISEASES AND PESTS Don't confuse sphagnum moss with peat moss	213
Homeland of <i>Metamasius callizona</i>	173-176
Scale pests	75-76, 82
<i>Dyckia fosteriana</i> x <i>platyphylla</i>	15
Ecuador, a monumental species from	53-57
ECUADOR Bromeliads	53-57; 147-151, 176
Ehlers, Renate. <i>Tillandsia velutina</i> , a new species from Mexico and Guatemala	153-154-155, 192
Ehlers, Renate and Pamela Koide <i>Tillandsia rhodocephala</i> ; a new species from Oaxaca, Mexico	130-133
EXHIBITIONS, COMPETITIONS, ETC. Best of the best, 1991-1992	13-16
Bromeliads VIII, Adelaide, S.A. 14-17 April 1995	167
World Bromeliad Conference, San Diego, 1994	32-33, 39; 69-70, 87, 125; 220-228
EXPEDITIONS, SEARCHES, ETC. Adventures of a novice	147-152, 176
Bullis expedition to the Amazon, The	3-11

Commentary on <i>Tillandsia pamela</i>	80-81, 85
Some Mexican tillandsias	65-69
"Feeding" bromeliads, William L. Stern	127-129
Florida East Coast Bromeliad Society, Daytona Beach, FL	212
Flower, Andrew. Of dreams'n schemes	82-83
Foster, Racine	156
Fragrance in bromeliads, Greg Payne	268-270
Frank, J.H., M.C. Thomas. The homeland of <i>Metamasius callizona</i>	173-176
Grant, Jason R. Notes on the coastal Costa Rica endemic <i>Pitcairnia halophila</i>	170-172
The plants named in honor of Dr. Lyman B. Smith	254-256
GREENHOUSE CONSTRUCTION It may not be Kew Gardens, but	21-25
Gross, Elvira. <i>Chevaliera (Aechmea) strobilacea</i> , a monumental species from Ecuador	53-57
Guide to the species of <i>Tillandsia</i> regulated by Appendix II of CITES, H.E. Luther	260-264
<i>Guzmania "Attila"</i>	14
<i>inexpectata</i>	30-31
<i>kraenzliniana</i> var. <i>micrantha</i>	30-31
<i>nidularioides</i>	30-31
<i>pennellii</i>	165-166
Hanson, Bea	82-83
Here's a hint [for growing <i>Tillandsia multicaulis</i>]	36
Harry E. Luther elected honorary trustee	195-196
Head, Odean. We are considering a name change	267
<i>Hohenbergia andina</i>	64, 96
Homeland of <i>Metamasius callizona</i> , The, J.H. Frank and M.C. Thomas	173-176
Hood, Gerry. Don't confuse sphagnum moss with peat moss	213
HYBRIDS AND HYBRIDIZING Cultivar and grex registration; where we are now	27-29
Cultivar/grex registration for 1991- June 1994	214-219
In Memory Burle Marx, Roberto, 1909-1994	198-199
In vitro culture of <i>Vriesea hieroglyphica</i> , Helenice Mercier and Gilberto B. Kerbauy	120-124
Introducing..., H.E. Luther <i>Aechmea melinonii</i>	259
<i>Tillandsia beutelspacheri</i>	117-118
<i>Tillandsia plagiotropica</i> ,	197, 212
It may not be Kew Gardens, but, Charles and Sauny Dills	21-25

Johnson, Carol M.	229
JUDGES AND JUDGING Handbook for Judges, Revisions of.	12
Judging schools.	12
Kelley, Ella	57
Kendall, Harvey L. translator. See Bessler, Bernhard	
Kerbaudy, Gilberto B. See Mercier, Helenice	
KEYS TO TAXA <i>Ursulaea</i>	206
Koerber, Tom. Bromeliad rock gardens	60-63
Koide, Pamela	80-81, 85
See Renate Ehlers	
Lane, Roger, compiler. 11th World Bromeliad Conference award winners	222-228
Leme, Elton M.C. and Luiz Claudio Marigo. Bromeliads in the Brazilian Wilderness (review)	58-59
Lineham, T.U. book reviews.	58-59; 141; 168-169
Looking for bromeliads in the state of Táchira, Venezuela, Francisco Oliva-Esteve and Bruno Manara	99-106, 109
Lorenz, Elmer J. The way it was	265-267
Luther, Harry E. Bromeliad internship applications are invited	84; 258
Elected honorary trustee	195-196
A guide to the species of <i>Tillandsia</i> regulated by Appendix II of CITES	260-264
Introducing: <i>Aechmea melinonii</i>	259
<i>Hohenbergia andina</i>	64, 96
<i>Tillandsia beutelspacheri</i>	117-118
<i>plagiotropica</i>	197, 212
A new miniature guzmania from northwestern Ecuador	30-31
Luther, Harry E. and Edna Sieff. An alphabetical list of bromeliad binomials, 4th ed. (review)	118; 169
Lutz, Diana More than stamp collecting	271-273
M.B. Foster Bromeliad Identification Center	84; 195-196
Macaé de Cima Ecological Reserve, Rio de Janeiro	159, 161-162
Manara, Bruno. See Oliva-Esteve, Francisco	
Marie Selby Botanical Gardens	50, 52; 77-79; 96; 258
Marigo, Luiz Claudio, photographer. See E.M.C. Leme	
Mercier, Helenice and Gilberto B. Kerbaudy In vitro culture of <i>Vriesea hieroglyphica</i> ; an endangered bromeliad from the Brazilian rainforest	120-124
<i>Metamasius callizona</i>	173-176
<i>Mezobromelia bicolor</i>	151
Misnamed bromeliads, H.E. Luther. no. 14: <i>Aechmea haltonii</i>	49, 52

Monteith, Robert, photographer	222-223, 225
Moore, Lee. The Bullis expedition to the Amazon	3-11
More than stamp collecting, Diana Lutz	271-273
Mount Roraima, Venezuela	244
<i>Navia arida</i>	145, 165-166-167
<i>Neophytum 'Galactic Warrior'</i>	13-14
<i>Neoregelia princeps</i> x 'Marble Throat'	222
New miniature guzmania from northwestern Ecuador, A. H.E. Luther	30-31
Newly published bromeliad species, list of additions and changes	20
1994 World Bromeliad Conference: bromeliads in paradise, pt. I. The general view, Chet Blackburn	220-221
pt. II. Award winners, compiled by Roger Lane	222-228
Nomenclature changes	20
Oliva-Esteve, Francisco	164
A showy <i>Guzmania</i> from Venezuela and a cultivated <i>Navia arida</i>	145, 166-167
The Venezuelan <i>Brocchinia</i> <i>micrantha</i>	243-246
Oliva-Esteve, Francisco and Bruno Manara. Looking for bromeliads in the state of Táchira, Venezuela	99-106, 109
Oaxaca, Mexico, <i>Tillandsia rhodocephala</i> , a new species from	130-131-132-133
Palací, Carlos A. and Gregory K. Brown. The <i>Tillandsia zecheri</i> complex and a new intraspecific taxon from northwestern Argentina	107-108 (map)- 109-110-112-114-116
Payne, Greg. Fragrance in bromeliads	268-270
Pearl, Maggie	253
Percival, Jack. See World Bromeliad Conference, San Diego, 1994	
PHOTOGRAPHY Let your flower photos bloom with lots of color	178-179
<i>Pitcairnia halophila</i>	170-171-172
Plants named in honor of Dr. L.B. Smith, The, Jason R. Grant	254-256
Pleever, Herb. Good root systems make strong plants	34-36
Scale pests	75-76, 82
Prince, Ed. Adventures of a novice	147 (map)-148-151, 176
<i>Puya alpestris</i>	71-72-74
<i>cardonae</i>	103
<i>ctenorrhyncha</i>	78
<i>fosteriana</i>	72
<i>laxa</i>	73
<i>mirabilis</i>	72-73
<i>raimondii</i>	71-72
<i>Quesnelia arvensis</i>	179-180-181
<i>marmorata</i>	15

Racca, Jim, photographer.....	225; 230
<i>Racinaea</i> ; a new genus of Bromeliaceae, Michael A. Spencer, Lyman B. Smith.....	156–158
Rauh, Werner.....	53–54
Read, R.W. Congratulatory, Lyman.....	196
Read, R.W. and H.U. Baensch.....	
<i>Aechmea callichroma</i> , a new species described from cultivation.....	17–19
<i>Ursulaea</i> ; a new genus of Mexican bromeliads.....	193, 205–211
RESEARCH	
<i>In vitro</i> culture of <i>Vriesea hieroglyphica</i>	120–124
More than stamp collecting, Diana Lutz.....	271–273
Vegetative propagation: treatment with cytokinin BAP brings interesting initial results.....	247–253
Rousse, Ana. Xeric bromeliads.....	77–79
Samyn, G. and F. Thomas. The Belgians and the bromeliads.....	200–204
Schneider, Joseph, BSI founder.....	265–267
SEED CULTURE	
Bromeliad seed propagation and growing on.....	37
Showy <i>Guzmania</i> from Venezuela, and a cultivated <i>Navia arida</i> , Francisco Oliva-Esteve.....	145, 165–167
Sieff, Edna. See Luther, Harry E.	
Skotak, Chester.....	147–152, 176
Smith, Lyman B.....	241, 254–256
Birthday greetings to.....	196
See Spencer M.A.	
Sociedade Brasileira de Bromélias.....	212
Spencer, M.A. and L.B. Smith. <i>Racinaea</i> ; a new genus of Bromeliaceae (Tillandsioideae).....	156–158
Revision of the Genus <i>Deuterocohnia</i> (reduction of <i>Abromeitiella</i>), A.....	20
Spagnum moss. Do not confuse with peat moss, Gerry Hood.....	213
Staelens, Andy. What is the difference between a clone, a hybrid, etc.....	177–178
Steckler, Valerie. Best of the best, 1991–1992.....	13–16
William Louis Stern. "Feeding" bromeliads.....	127–129
<i>Streptocalyx holmesii</i> = <i>Aechmea woronowii</i> <i>poepigii</i> . = <i>Aechmea beeriana</i> <i>poitaei</i> . = <i>Aechmea poitaei</i>	
SYSTEMATIC BOTANY	
More than stamp collecting.....	271–273
Thomas, F. See Samyn, G.	
Thomas, M.C. See Frank, J.H.	
<i>Tillandsia beutelspacheri</i>	117–118
<i>brachycaulos</i>	153, 155
<i>capitata</i>	131, 133
<i>concolor</i>	67
Creation (<i>T. cyanea</i> × <i>platyrachis</i>).....	139
<i>denudata</i>	102
<i>duratii</i> × <i>cacticola</i>	225
<i>harrisii</i>	261–262
<i>kammii</i>	263–264
<i>leiboldiana</i>	225, 227
Syn.: <i>T. leiboldiana</i> var. <i>guttata</i>	
<i>lorentziana</i>	109
<i>mitlaensis</i>	66
<i>muhrii</i> . = <i>T. zecheri</i> var. <i>cafayatisensis</i>	
<i>multicaulis</i>	36
<i>narthecioides</i>	26
<i>pamelae</i>	80–81, 85
<i>plagiotropica</i>	197, 212
<i>quaquaflorifera</i>	48
<i>rhodocephala</i>	130–131–132–133
<i>seleriana</i>	67
<i>straminea</i>	288
<i>tectorum</i>	82–83
<i>turneri</i> var. <i>turneri</i>	103
<i>velickiana</i>	172
<i>velutina</i>	153–154–155, 192
<i>xiphioides</i> var. <i>tafiensis</i>	240
<i>yunkeri</i>	223
<i>zecheri</i> 107–108 (map)–109–110–112–114–116	
var. <i>cafayatisensis</i>	97, 109–110, 112–114–115
Syn: <i>T. muhrii</i>	
var. <i>zecheri</i> f. <i>brealitoensis</i>	109–110, 114–115
Two new <i>Vriesea</i> species from the Atlantic Forest, Andrea Costa.....	159–164
<i>Ursulaea</i> ; a new genus of Mexican bromeliads, R.W. Read and H.U. Baensch.....	193, 205–208–209–210–211
<i>macvaughii</i>	193, 207–208–209
Syn. <i>Aechmea macvaughii</i>	
<i>tuitensis</i>	209–210
Syn. <i>Aechmea tuitensis</i>	
Vegetative propagation: treatment with cytokinin BAP brings interesting initial results, Bernhard Bessler, tr. by H.L. Kendall.....	247–253
Venezuela, a showy <i>guzmania</i> from and a cultivated <i>Navia arida</i>	165–167
<i>Vriesea altomacaensis</i>	159–160–161–162
<i>arachnoidea</i>	159, 162–163–164
<i>delicatula</i>	223
<i>hieroglyphica</i>	120–124
<i>tequendamae</i>	102
Way it was, The. Elmer J. Lorenz.....	265–267
World Bromeliad Conference, San Diego, 1994.....	32–33, 39; 69–70 87; 125; 220–228
Xeric bromeliads, Ana Rousse.....	77–79

The Way It Was

Elmer J. Lorenz

Even after these many years since The Bromeliad Society was organized, the question is still asked: "Who was the founder of the society?" Probably very few members can answer that question.

In the first issue of the Bromeliad Society BULLETIN, Mulford Foster wrote: "The seed has germinated! A new horticultural society has been born. The Bromeliad Society came into being in the State of California where there are no native bromeliads growing, but where there are many natives growing bromeliads.

"It takes more than wishful thinking to start a real living and growing society, and it took a live, earnest group of southern Californians to bring this idea into being."

The one person who planted the seed that germinated into The Bromeliad Society was the founder of that society. It was Joseph Schneider who, at that time, was in charge of the world-famous cactus and succulent collection at the Huntington Library and Botanical Gardens in San Marino, California.

The Bromeliad Society had its beginning early in 1948 when Joseph Schneider wrote to Miss Kemble, organizer of Round Robins for the FLOWER GROWER MAGAZINE asking if she would gather a group interested in bromeliads to start a Round Robin flight. Her call for members brought responses from 13 prospective members including Victoria Padilla.

Miss Padilla became director of the Round Robin and we exchanged experiences with our bromeliads by correspondence for almost two years. Many excellent ideas were contributed by the members. It was the only cultural information available to early bromeliad enthusiasts. We soon, however, concluded that the Robin did not completely fill our needs especially since its flight was rather erratic at times, subject to long delays and occasional lapses.

In the summer of 1949 someone who realized that most of the Round Robin members lived in southern California suggested a get-acquainted picnic, but that excellent plan was not carried out. Then, in the spring of 1950, a notice was sent out to all members and others interested in bromeliads to attend a pot luck dinner at the home of Dorothy Behrends in Los Angeles on May 21st to discuss Joseph Schneider's suggestion that a bromeliad society be organized. Preliminary plans were made for forming such a group at that very enjoyable and friendly gathering where many of the fourteen who attended met one another for the first time.

That informal get-together was followed by an organizational meeting at the home of Mr. and Mrs. Frank Overton in Glendale. Rain deluged us the whole day. It never rains in California in September—well, hardly ever—but that day it poured.

When it was time to start the meeting you can imagine the surprise and delight of everyone when the one and only Mulford Foster made his appearance. Victoria, beaming proudly, presented him to the group. He had flown from Orlando, Florida, to join us. No one except the Overtons and Victoria knew of his being there until the moment he was presented.

We finally started discussing the organization of a bromeliad society with David Barry as temporary chairman. The first order of business was what to name the society. Names mentioned were: The International Bromeliad Society, The National Bromeliad Society, The Bromeliad Society. Mr. Foster favored the name THE BROMELIAD SOCIETY. He was very determined that we use that name for the simple reason that the shorter a name the easier it is to handle. He remarked that if we accepted the name The Bromeliad Society no matter how many other bromeliad societies were formed and named we would always be THE Bromeliad Society. He was so very persuasive with his arguments that we voted to name our group The Bromeliad Society.

The next procedure was to elect a Board of Directors. The following were chosen: Dr. Lyman B. Smith, Dr. H.B. Traub, Mr. Mulford B Foster, Mr. Ladislaus Cutak, Dr. Russell J. Seibert, Mr. David Barry, Jr., Mr. Morris Schick, Miss Victoria Padilla, and Mr. Elmer J. Lorenz. From the Board of Directors the following were elected officers: Mr. Foster, president; Mr. Barry, first vice-president; Dr. Seibert, second vice-president; Miss Padilla, secretary; and Mr. Overton, treasurer.

After the election of officers, committees were appointed to establish the bylaws, the matter of publications, dues, memberships, and affiliation groups. It was also decided that all individuals present would be known as FOUNDER members and all persons joining during the first year would be known as CHARACTER members.

After the formal meeting, Mrs. Overton served refreshments and asked the 21 guests to sign their names on the tablecloth. Later, Mrs. Overton's sister embroidered the names and in that way preserved the signatures from fading. The first and second annual meetings of The Bromeliad Society were also held at the Overtons' home and members and guests who had not previously signed the tablecloth were asked to add their signatures. That cloth was displayed at the 1994 San Diego World Bromeliad Conference.

Through the efforts of The Bromeliad Society and all the people involved in its success we have advanced from the question asked in the early days: "What is a bromeliad?" to the exclamation: "Oh, isn't that a beautiful bromeliad!"

Listed below are the names of the 21 individuals who attended the organizational meeting. A single asterisk indicates the names of active members, a double asterisk indicates those no longer active. The others are no longer living.

David Barry, Jr.	Susan W. Hutchinson
Ralph R. Barton*	Elmer J. and Joyce W. Lorenz*
Dorothy Behrends**	Frank and Lucille Overton
Lucy Brooks	Victoria Padilla
W. G. Brooks	Carolyn K. Rector
Dr. W. C. Drummond	Morris Schick
Mulford B. Foster	Denny Seibert**
J. N. Giridlian	Dr. Russell J. Seibert**
Mr. and Mrs. M. V. Hartman	Wilbur Wood*

Los Angeles, California

In addition to being a founder member and a past-president, Mr. Lorenz is also an honorary trustee of the society.—Ed.

We Are Considering a Name Change

I have always thought of the BSI as being an international society and I know that most of you feel the same way. We should feel this way because, in fact, we are a society with members in over fifty countries. This fact is evident at each of our World Conferences where we usually have at least twenty countries represented, some with good representation.

At the BSI Board meeting held in San Diego this year during the World Conference, we voted to proceed with the steps necessary to change our name officially from The Bromeliad Society, Inc. to The Bromeliad Society International. One of these steps may require a vote of the membership. So I want you to be thinking about whether you would be interested in such a change. We would still be the BSI but the main idea was to add some emphasis to the fact that we are international for the benefit of the entire membership.

We will let you know when and if the name change becomes official. It would then take some time to get the name changed in all the places that it appears.

*Odean Head, president
7818 Braes Meadow, Houston, TX 77071*

Fragrance in Bromeliads

Greg Payne

While back I was asked about how one locates fragrant tillandsias. I responded that there was no one complete source, that sources were scattered across the country and, in my experience, there wasn't even a good list of what to look for. Although true, I was not comfortable with that response. There had to be a better answer.

There's good new and bad news. First, we'll dispense with the latter. Fragrance among bromeliads can be considered a novelty, with probably fewer than 1 percent of the species falling into this category. There are, however, more fragrant *Tillandsia* species than in any other genus, which is good news as they are generally more available and more practical for collecting. Among these tillandsias, the xerophytic species tend to possess the stronger fragrances.

My exposure to fragrant tillandsias was the highlight of my first bromeliad show. Apart from the fantastic shapes and colors, those fragrances made a strong impression. I started a want list culling likely candidates from shows and references in magazines, books, and catalogs. The desired plants were slow to come by. So slow that fragrance eventually took a back seat to choices of shape and color. Whenever I saw a bromeliad I liked, I would ask if it was fragrant. It rarely was, of course, but another plant, which was fragrant, was sometimes suggested. There were easier hobbies but I persisted. The want list grew faster than the list of those found.

Serendipity factored in a few plants I bought simply on account of their shape. It was more than a pleasant surprise when I discovered the fragrant blooms. One, *Tillandsia scaligera*, which was not on my list, I acquired at the 1992 BSI World Conference from California Gardens. A couple of *Catopsis* species proved to be very fragrant. They were among miscellaneous, unidentified Mexican species from Pamela Koide of Bird Rock Tropicals. An otherwise unassuming plant with a fragrant bloom can become a quiet charmer.

Since we are thinking about a poorly defined subject, let me offer my observations about methods of pollination and fragrance. Most bromeliads are pollinated by birds. These plants produce larger amounts of nectar and have no fragrance. Their colors are shades of red and orange. The remaining bromeliads are pollinated by moths, bees or butterflies, and a few other insects. Among these are the fragrant bromeliads whose colors tend to be paler: whites, yellows, and yellowish orange, lavenders, olives, and browns. Moth-pollinated species are nocturnal bloomers having larger blooms and a fragrance that is strongest from

dusk to dawn. Those pollinated by bees and butterflies and the like have smaller flowers but also may possess the more intense fragrance. Among these, the xerophytic tillandsias are well represented.

Although the appeal of fragrance is universally observed, an individual's measure of it remains colored, in no small way, by personal preference. Our sense of smell is inextricably influenced in the present by environmental factors, sentiment, matters at hand, etc. More subtly, it becomes linked to memories elicited: things tied to a prior time, place, and emotion. We do not have the same olfactory references. What is enjoyable to one, might bring nausea to another. It seems a stretch that the same nose that savors an eye-smarting slice of limburger cheese can appreciate the bouquet of a rose. Apart from such extremes, we have varying delights within that range. Unlike the quantitative traits of color or sepal characteristics, the description of a fragrance remains a personal observation and can be related only in general terms. Personal preference is hard to judge.

The English language holds us at a slight disadvantage as well. It is easier to describe an unpleasant odor than a pleasant one. Unpleasant adjectives far outnumber pleasant ones. Disagreeable odors can be a source of humor and practical jokes, of derision, or even an indicator of ill health. Pleasant odors, on the other hand, connote ease and well-being and are just pleasant—unless overbearing, and then they stink.

Consider the foregoing and compound this muddle with bloom times and variables of humidity, temperature, and wind, which affect the perceived fragrance. Add to this the thoroughness exhibited by the taxonomist and we have some idea for the casual information on fragrance among bromeliads.

Not all bromeliad odors are equally engaging. Should you want a plant with a meaner air, consider *Billbergia horrida* whose scent has been compared to urea. Another charmer is *Vriesea jonghii*. Werner Rauh has likened its bouquet to opossum. Some of the not-so-fragrant dyckias remind me of a snout full of back-road dust. The fragrant neos are intriguing, but their delicate scent must compete with the algae present in the cup. The nose is quick to note the spiny-edged leaves.

My list began with three plants; it now contains more than forty. Knowing what to look for helps immensely. With a bit of research, one might limit selections by size, flower color, or even requirements of culture, which range from xerophytic to terrestrial, full sun to shade. Nearly half of these plants are readily available, but perhaps not all from the same source. Some suppliers annotate their lists for fragrance. Among them are Holladay Jungle,¹ Pineapple Place,² and Tropiflora.³ With a sharp eye and a list you may be in for a welcome surprise at your local plant table or nursery.

The next time the question about fragrant tillandsias arises, I will be better prepared. Meanwhile, for an added dimension to this esoteric pursuit, keep those olfactories prepared. You never know what a visit to the greenhouse or show might reveal.

PARTIAL LISTING OF FRAGRANT BROMELIADS

<i>Tillandsia arhiza</i>	<i>Tillandsia peiranoi</i>	<i>Cryptanthus odoratissimus</i>
<i>Tillandsia bandensis</i>	<i>Tillandsia polycarpa</i> ⁴	<i>Dyckia chlorosticta</i>
<i>Tillandsia crocata</i>	<i>Tillandsia purpurea</i>	<i>Dyckia odorata</i>
<i>Tillandsia cyanea</i>	<i>Tillandsia reichenbachii</i>	<i>Neoregelia chlorosticta</i>
<i>Tillandsia diaguitensis</i>	<i>Tillandsia scaligera</i>	<i>Neoregelia laevis</i>
<i>Tillandsia disticha</i>	<i>Tillandsia straminea</i>	<i>Neoregelia olens</i>
<i>Tillandsia dodsonii</i>	<i>Tillandsia streptocarpa</i>	<i>Neoregelia oligantha</i>
<i>Tillandsia duratii</i>	<i>Tillandsia usneoides</i>	
<i>Tillandsia dyeriana</i>	<i>Tillandsia venusta</i>	<i>Vriesea fenestralis</i>
<i>Tillandsia hamaleana</i>	<i>Tillandsia yuncharaensis</i>	<i>Vriesea fragrans</i>
<i>Tillandsia kurt-horstii</i>	<i>Tillandsia xiphioides</i>	<i>Vriesea cylindrata</i>
<i>Tillandsia malleontii</i>	<i>Aechmea cylindrata</i>	<i>Vriesea gigantea</i>
<i>Tillandsia monadelpha</i>	<i>Aechmea purpureorosea</i>	<i>Vriesea racinae</i>
<i>Tillandsia myosura</i>		<i>Vriesea regina</i>
<i>Tillandsia narthecioides</i>	<i>Catopsis nutans</i>	
<i>Tillandsia palacea</i>	<i>Catopsis wangerinii</i>	

This article appeared first in the February 1994 issue of The Bromeliad News, the Sacramento Bromeliad Society. It has since been revised by the author and is printed here with his permission.—Ed.

END NOTES:

1. P.O. Box 5727, Fresno, CA 93755.
2. 3961 Markham Woods Road, Longwood, FL 32779.
3. 3530 Tallevast Road, Sarasota, FL 34243.
4. This tillandsia labeled "*T. polycarpa*" came from Barrie and Yvette Fisher of Los Angeles. The name is not found in Luther's binomial list or Kiff's tillandsia check-list. It resembles *T. reichenbachii*, *T. palacea*, etc., but remains distinctive. The Fishers also sell a plant they call "*T. duratti*," long form that they got from Mike Kashkin some years back. This plant resembles an exaggerated form of *T. diaguitensis* more than *T. duratii*. It, too, is fragrant.

More Than Stamp Collecting

Diana Lutz

The loss of biodiversity is considered by many scientists to be the most serious problem facing humanity. But even as the planet loses species, so it may be losing expertise in some scientific fields needed for tackling the crisis.

"Everybody's talking about biodiversity and how we must assess the 'hot spots' of biodiversity," says Hugh Iltis, emeritus professor of botany and emeritus and acting director of the herbarium at the University of Wisconsin at Madison. "But where are the hands and minds that are needed to do the work of measuring petals and measuring stamens?"

The work Iltis describes with mock self-disparagement is the province of systematic biologists, the people who can tell one plant or animal from another and read the evolutionary story written in leaves and bones. A rational response to the biodiversity decline will require systematic knowledge about the world's biota. Toward that end, the U.S. Department of Interior has launched a National Biological Survey, with one of its missions to "inventory, monitor, and report on the status and trends in the Nation's biotic resources." And systematic biologists themselves are proposing, under the rubric Systematics Agenda 2000, "to discover, describe, and classify the world's species within 25 years."

But some biologists worry that there might not be enough trained personnel to carry out these initiatives. Rather like the endangered species they study, systematists are showing sign of distress. And some worry that shortages of funding and jobs in their field will continue.

The roots of the systematists' concerns lie partly in the growth of newer kinds of biology over the past three decades. "Academia simply expunged systematists and experts on groups of organisms, to replace them with trendier molecular, cell and population biologists," says E. O. Wilson, the Harvard biologist who has done more than anyone to call attention to the biodiversity crisis.

"The people who are making use of the biodiversity issue for increased visibility and funding and the like are, for the most part, not systematists," Wilson says. "We haven't quite reached the crunch time yet when the ecologists and the molecular biologists and the environmental planners and others come to realize that their operations are going to be thwarted by a simple inability to tell one kind of organism from another."

Iltis uses a German fairy tale to describe the relationship of systematic biology to biodiversity. "Schlarafenland is a land of milk and honey, where the quail

fly through the air, and if you're hungry you just grab one and eat it. There are whole ponds full of preserved sweet cherries, and there are mountains of pies, everything just for the taking. But to get there, you have to eat your way through an enormous mountain of porridge." The land of milk and honey, one gathers, is a world of species richness, and the mountain of porridge is the systematic biology that must be done to get there.

It is not clear whether the supply of expert porridge-eaters is declining; no one seems to have taken a good inventory of systematic biologists. Other indicators suggest a sort of stasis in the support for research and training in the field. James Rodman, program director of the systematic and population biology cluster at the National Science Foundation, says that funding for systematics "certainly has not increased [over the past 10 years]. In fact it has probably lost to inflation—despite all the hoopla over biodiversity." Rodman assesses the state of graduate training in systematics as "slightly worse than in 1985, but not dramatically so."

Systematists find cause for worry in smaller slices of data and in their experiences. Howell V. Daly of the University of California at Berkeley conducted a survey of entomology departments in 1992 and found that the number of faculty members who are systematists has remained remarkably stable over the past 10 years. But the number of graduate students seeking a Ph.D. in systematics has dropped by 28 percent—a trend that, if extrapolated, means "there will be no graduate students in systematic entomology in the year 2017."

Jane Gallagher, a phycologist at City College of the City University of New York, adds that those graduates still can't find jobs. Gallagher, with Carl Gans of the University of Michigan, chaired the human-resources committee for Systematics Agenda 2000. "It is clear that the number of students being trained in many fields of systematics now exceeds the number of collections-based jobs that can be filled," the committee concluded after analyzing a database compiled by the Association of Systematics Collections.

Or as Gallagher puts it, "It's the job market, the bloody job market, that's killing this field."

Certainly there is anecdotal evidence that looking for a job in systematics is a punishing experience. William Alverson, a young systematist who studies the Bombacaceae (the bass wood family) using both traditional monographic methods and the latest molecular and cladistic techniques, leads a financially precarious life these days as an honorary fellow at the University of Wisconsin's herbarium.

"To me it's like a bad love affair, in the sense that I'm not at the point where I feel I can walk away from it yet," Alverson says. "This is really what I want to do, and I've had a lot of training, and I love this kind of work. But it gets

so ridiculous at times, I do find myself thinking might be better to say forget it, I'm going to go make a living doing something else."

The good news for systematics is its solid base of respect among other biologists. In the early days of molecular biology it was fashionable to label systematics a higher form of stamp collecting. But no more. Peter Raven, director of the Missouri Botanical Garden, notes that just as the properties of metals cannot be used to predict the traffic flow in a city, "you can't predict the properties of organisms or aggregations of organisms from the principles of molecular biology."

Raven attributes the troubles of systematics to the vagaries of funding mechanisms and public patronage. "Biomedical sciences are funded by the National Institutes of Health, which have a budget of over \$10 billion, because we all want to live forever," he says. Federal support for the rest of biology, however, must be extracted from the budget of the National Science Foundation, which is roughly one-fourth the NIH budget.

Wilson and others hope systematists will persevere in the face of discouragement. They suggest that growing public concern over biodiversity will eventually translate into increased support.

Raven, for one, expresses some impatience with his peers' pessimism. He points out that the membership of the American Society of Plant Taxonomists has nearly doubled in the past 30 years. Systematic biology has grown more slowly than the rest of biology and is perceived to be shrinking, he says, "because what we want it to do and can see and imagine it can do is much larger and more important than we ever used to think."

Wilson says the "real revolution, in systematics lies ahead, in the serious expansion of biodiversity surveys combined with long term studies of local biodiversity directed toward understanding where biodiversity comes from and what maintains it. And the coming revolution will, I think, catapult systematists to a central position in biology." After a moment's thought he adds, "You can quote me on that."

Pages 120-121, v. 82 THE AMERICAN SCIENTIST, 5 May 1994. Reprinted by permission of AMERICAN SCIENTIST, journal of Sigma Xi, The Scientific Research Society.

Letter to the Editor

Dear Sir:

As a chemist I couldn't ignore Herb Plever's note about "No More Detergent!"¹

Transportation can be a significant factor when one makes a strong chemical. Look at many of your labels and note the high percentage of "Inert Ingredients." These are often there to dilute the chemical because the public cannot be trusted with the real thing. People too often do not read labels or follow directions. Also the American mentality often is "If one is good, two is better, and ten is glorious."

A friend in Minnesota wanted to kill some weeds. When I saw her lawn, there were back and forth streaks of brown, a cut leaf weeping birch dead halfway up and the new growth candles on her evergreen were curled like pigtales. It was obviously chemical damage so I asked her what she did. She said she was just trying to kill the dandelions. I asked her to show me the can. I asked how she used it, she said, "I put it in a fly sprayer and sprayed it." She was applying it straight!!

I pointed out that the label told her to put two tablespoons in a gallon of water before she used it. The company was trying to save her the shipping costs of a hundred gallons of water all the way from New Jersey, but she didn't read the label.

I just checked some labels I have. Two 2,4-D preparations were 85% and 90% inert. A Sevin dust was 95% inert and Chevron's Grass-B-Gon is a whopping 99.5% inert!

These manufacturers just can't take a chance with the real thing. What they sell you is still very strong, even after the dilution.

Unfortunately, most Americans are impatient. When they spray a dandelion they expect it to curl up and die while they watch. Actually, it is fairly subtle. Some curling of leaves appears. Then a couple of weeks later you will notice they are gone.

You must read the labels, follow directions and be patient. They will do what they promise.

Detergents are strong too, in their own way. I looked at several cleaners in our closet. Only two had a list of ingredients. When ingredients are listed on a label, they are listed in order of %. Both of the ones with a list had water as the major ingredient!

People also relate sudsing to cleaning. Actually I believe sudsing inhibits cleaning because it prevents contact between the detergent and the "dirt." In the early days, when detergents were first introduced by the ANSCO Corporation, free samples were passed out. Housewives did not believe a capful was enough when it

[continued on page 278]

¹JOURNAL, September-October 1993, pages 222-223.

BROMELIAD SOCIETY, INC. BALANCE SHEET AS OF 12/31/93

	12/31/92	12/31/93
CURRENT ASSETS		
Cash - Texas Commerce Bank	21,261.80	21,997.28
Cash - General Fund Special	42,883.73	44,062.92
Cash - Life Membership Spec.	12,543.48	12,894.73
Cash - Padilla Research Fund	821.28	843.92
Cash - Padilla Endowment Fund	3,098.31	4,395.21
Total Cash	80,608.60	84,194.06
ADVANCES		
Beltz - Seed Fund	200.00	200.00
WBC - San Diego 1994	1,000.00	1,000.00
Total Advances	1,200.00	1,200.00
FIXED ASSETS		
Library and Equipment	5,643.39	5,728.39
Less Depreciation	2,089.54	2,089.54
Total Depreciated Assets	3,553.85	3,638.85
OTHER ASSETS		
Investments - Unisys	200.00	200.00
Investments - USTN	14,665.65	14,665.65
Inventory - not adjusted	52,497.00	52,497.00
Total Other Assets	67,362.65	67,362.65
LIABILITIES		
BSI Memorial Fund General	125.00	125.00
TOTAL NET WORTH	152,600.10	156,270.56
BANKS		
Texas Commerce Bank		Merrill Lynch
Houston, Texas		Houston, Texas
Account 0055517		Account 581-07J70

BROMELIAD SOCIETY, INC. FINANCIAL STATEMENT - 1993

INCOME		
Checking Account Balance - Start		21,261.80
RECEIPTS		
Advertising - Journal	4,768.00	
Back Issues	3,905.62	
Color Fund	2,646.00	
Culture Brochure	128.50	
Cultivar Registration	120.00	
Interest - General	2,048.00	
Interest - Endowment	1,299.89	
Medallions/Trophies	2,678.40	
Memberships	32,017.20	
Postage Refund	67.54	
Seed Fund	1,299.00	
Slide Library	220.00	
Donations	466.17	
Publications	12,168.40	
Total Receipts		63,832.72
DISTRIBUTION		
Bank Charges/Fees	57.71	

Culture Book	182.04	
BSI Meetings	319.16	
Grants	500.00	
Journal – Allowance	1,800.00	
Journal – Mail Service	7,541.24	
Journal – Misc.	1,037.01	
Journal – Printing & Photo	25,531.56	
Journal – Typesetting	7,372.00	
Journal – Storage	371.00	
Journal total	43,652.81	
Judges Certification	149.94	
Membership – Contract	5,400.00	
Membership Expenses	1,276.80	
Membership total	6,676.80	
President's Expenses	142.18	
Publications	7,246.83	
Seed Fund	1,117.28	
Treasurer's Expenses	50.61	
Contingency Fund	66.90	
Total Distribution		60,162.26
TRANSFERS		
Total Gain/Loss period		3,670.46
TRANSFERS – INCOME/EXPENSE		
Library	-85.00	
Interest – Special Accounts	-2,907.69	
Charges – Special Accounts	57.71	
Total Income/Expense Transfers		-2,934.98
Checking Account Balance end of period		21,997.28

**BROMELIAD SOCIETY SPECIAL ACCOUNTS
YEAR ENDING DECEMBER 31, 1993**

GENERAL FUND		
Beginning Balance	42,883.73	
Interest Received	1,221.01	
Total Income	1,221.01	
Bank Charges, Fees	41.82	
Total Disbursements	41.82	
Ending Balance		44,062.92
LIFE MEMBERSHIPS		
Beginning Balance	12,543.48	
Interest Earned	363.35	
Total Income	363.35	
Bank Charges	12.10	
Total Disbursements	12.10	
Ending Balance		12,894.73
PADILLA RESEARCH		
Beginning Balance	821.28	
Interest Received/Donations	23.44	
Total Income	23.44	
Bank Charges	.80	
Total Disbursements	.80	
Ending Balance		843.92

PADILLA ENDOWMENT

Beginning Balance	3,098.31
Interest – Bonds	1,200.00
Interest – Other	99.89
Total Income	1,299.89
Bank Charges	2.99
Total Disbursements	2.99
Ending Balance	4,395.21

BROMELIAD IDENTIFICATION CENTER

Beginning Balance	23,579.96
Interest Earned	609.37
Donations	489.50
Auctions	—
Total Income	1,098.87
Bank Charges	22.74
Director's Expenses	5,200.00
Total Disbursement	5,222.74
Ending Balance	19,456.09

**BROMELIAD SOCIETY, INC.
BUDGETS – 1993 AND 1994**

	1994 BUDGET	1995 BUDGET
RECEIPTS:		
Advertising – Journal	6,000.00	5,000.00
Advertising – Roster	800.00	—
Back Issues	3,500.00	4,000.00
Color Fund	1,000.00	1,500.00
Cultivar Registration	350.00	—
Culture Brochure	400.00	400.00
Dividends	6.00	—
Donations – BSI	300.00	500.00
Interest – General	3,000.00	3,000.00
Interest – Endowment	1,500.00	1,500.00
Judges Certification	100.00	100.00
Medallions/Trophies	200.00	200.00
Memberships	37,000.00	35,000.00
Postage Refund	100.00	100.00
Publications	12,000.00	12,000.00
Seed Fund	1,700.00	1,500.00
Slide Program	100.00	200.00
From General Funds	2,000.00	2,000.00
Total Receipts	70,056.00	67,000.00
DISBURSEMENTS		
Administrative Expense	100.00	100.00
Affiliate Newsletter	250.00	—
Bank Charges	100.00	100.00
Conservation	200.00	200.00
Cultivar Registration	—	200.00
Culture Book	400.00	200.00
Director/BSI Mtgs.	600.00	600.00
Franchise Tax	10.00	10.00
Grants	3,000.00	3,000.00
Journal – Allowance	1,800.00	1,800.00
Journal – Mail Service	9,000.00	8,000.00
Journal – Miscellaneous	1,500.00	1,500.00
Journal – Print & Photos	27,000.00	27,000.00

Journal – Typesetting	7,300.00	7,300.00
Journal – Envelopes	1,000.00	—
Journal – Storage	600.00	650.00
Judges Certification	300.00	200.00
Medallions/Trophies	2,750.00	2,500.00
Membership – Contract	5,400.00	5,400.00
Membership – Expenses	2,000.00	2,000.00
President's Expenses	200.00	200.00
Publications	2,000.00	1,500.00
Roster	1,000.00	1,000.00
Secretary's Expenses	100.00	100.00
Seed Fund	1,350.00	1,350.00
Treasurer's Expenses	100.00	100.00
Contingency	300.00	990.00
Reserves	696.00	—
CITES Program	1,000.00	1,000.00
Total Expenditures	70,056.00	67,000.00

Letter to the Editor [continued from page 274]

didn't suds. So they added more. There is famous picture of traffic stalled on a bridge as people watched an enormous raft of suds coming down the river after the excess detergent went through the sewer plant and got all whipped up.

A sudsing agent has to be added to prevent people from overusing it. The cleaning action of the detergent is due to a long molecule with a water soluble end and a fat soluble end. It stabilizes an emulsion of oil and water so it can be rinsed out. The negatively charged "micelles" repel each other, thus stabilizing the emulsion.

To get back to Mr. Plevier's problem, he was adding the straight detergent, dropwise. This is actually an enormous amount.

I suggest diluting it first and then adding a drop of the diluted detergent. I can't give you an accurate amount, but if I were doing it, I would add a couple drops of detergent to a tablespoon of water and then use this mixture by the drop. Or you might put a "squirt" in a pint spray bottle and fill it with water. Mix well.

But, with all your chemicals, in the greenhouse, the garden, the garage, the kitchen, the bathroom, or anywhere else,

READ THE LABEL AND FOLLOW DIRECTIONS.

Charles E. Dills
1371 Avalon, San Luis Obispo, CA 93405

Advertising space in the *Journal of the Bromeliad Society* is available at the following rates:

	Rates ¹	One Issue	Six Issues
ALL ADVERTISING	Full Pages	\$125.00	\$625.00 ²
PREPAID.	1/2 Page	70.00	350.00 ²
Advertisers to provide any art work desired.	1/4 Page	45.00	220.00 ²
	1/8 Page	25.00	125.00 ²

¹ Cost for color ad furnished on request. ² Plus \$25.00 per ad change.

Advertising is presented as a service to our membership and does not necessarily imply endorsement of the product. Please address all correspondence to: Editor—Thomas U. Lineham, Jr., 1508 Lake Shore Drive, Orlando, FL 32803.

Bird Rock Tropicals



Specializing in Tillandsias

6523 EL CAMINO REAL
CARLSBAD, CA 92009
TEL.: 619-438-9393
FAX: 619-438-1316

Send SASE for price list

A NEW AND VALUABLE PUBLICATION "DE REBUS BROMELIACEARUM I"

Harry E. Luther and Edna Sieff. "This paper contains taxonomic and publication information for Bromeliaceae that was not included in, or which appeared after, the publication of the Smith and Downs monograph (1974–1979). It contains for new taxa, names and authors, publication sources and dates, etc." 85 pages. IN: SELBYANA 15(1) 1994. \$35.00. Order from SELBYANA, P.O. Box 1897, Lawrence, Kansas 66044-8897. Telephone 800-627-0629. A review will follow.

Michael's Bromeliads

Providing and outstanding selection of quality Bromeliads for the collector.

Send stamp for list of over 800 varieties from 30 genera. Specializing in Neoregelias.

Order by mail, or contact for appointment.

Michael H. Kiehl
1365 Canterbury Rd. N.
St. Petersburg, FL 33710
Phone: (813) 347-0349

Cactus & Succulent Society of America Invites You to Join!

As a member you will receive:

- A Subscription to the *Cactus and Succulent Journal* (6 issues)
- Voting Privileges
- CSSA Newsletters

To begin your membership, send a check or money order for \$30 (U.S., Canada, Mexico) or \$35 (other countries) in U.S. dollars drawn on U.S. bank to:

CSSA, P.O. Box 35034
Des Moines, IA 50315-0301 U.S.A.

Tropiflora

A Tradition of Quality Since 1976

Catering to Collectors
and the Wholesale Trade

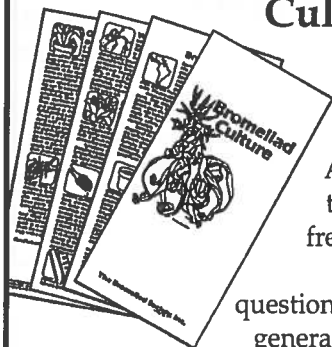
Hundreds of varieties of
greenhouse-grown
Bromeliads in stock and a
constantly changing inventory
of new, collected and
imported species and hybrids



Tillandsia Specialist, Largest Selection in the U.S.
Wholesale and Retail Catalogs FREE • Shipping Worldwide

3530 Tallevast Road, Sarasota, FL 34243
Phone (813) 351-2267 • Fax (813) 351-6985

Bromeliad Cultural Tips



Answers
the most
frequently
asked
questions by the
general public.

Hand out at shows,
displays and sales.

8-fold, self-mailer.

Postage will be billed.

Order early from:
Bromeliad Society, Inc.
2488 E. 49th • Tulsa, OK 74105

BROMELIACEAE

The following publications of Clyde F. Reed, or contributions of the Reed Herbarium are available. Please pay by check or money order (U.S. dollars). Sorry, no credit cards accepted. Please add postage and handling charge as indicated.

	BOOK PRICE	P & H DOMESTIC	P & H FOREIGN
Smith, Lyman B., <i>Bromeliaceae of Colombia</i> , 790 pages. Reprinted 1977.	7.50	2.50	3.50
Smith, Lyman B., <i>Bromeliaceae of Brazil</i> , 290 pages. Reprinted 1977.	7.50	2.50	3.50
Smith, Lyman B., <i>Notes on Bromeliaceae, I-XXXIII, 1953-1971</i> . Reprinted from <i>Phytologia</i> , 666 pages. 1971. Compiled and Indexed by Clyde F. Reed.	7.50	3.00	4.50
Smith, Lyman B., <i>Studies in Bromeliaceae, I-XVII, 1930-1954</i> . 550 pages. 1977. Compiled and Indexed by Clyde F. Reed.	7.50	3.00	4.50
Reed, Clyde F., <i>Cumulative Index to the Bulletin and Journal of the Bromeliad Society, Vol. I-XXX, 1951-1980</i> . 179 pages. 1981.	5.00	1.50	2.00
The preceding publications bought as a set of five.	31.50	5.00	9.50

Mail orders to:
DR. CLYDE F. REED
122 Main Street
Darlington, Maryland 21034 USA

BROMELIAD SOCIETY, INC. PUBLICATIONS

Please address all orders for the JOURNAL volumes 1976 through 1989 to:

BSI Publications Sales

29275 N.E. Putnam Road, Newberg, OR 97132

Each volume of the JOURNAL includes six issues.

Volumes for 1976 through 1989:

U.S. addresses.....\$13.00

All other addresses.....\$14.00

Three or more volumes to any address\$10.00

Volumes for 1990 through 1993:

U.S. addresses.....\$20.00

All other addresses.....\$25.00

THE PUBLICATIONS AD
IN THE SEPT.-OCT. 1994
ISSUE WAS IN ERROR.
THESE ARE THE
CORRECT PRICES.

➔ Address orders for and inquiries about the current JOURNAL and availability of the BULLETIN, 1951-1958, to: BSI Editor, 1508 Lake Shore Drive, Orlando, FL 32803-1305.

NEW PUBLICATIONS

ALPHABETICAL LIST OF BROMELIAD BINOMIALS

by Harry Luther & Edna Sieff

4th edition, 1994. 62 pp., 28 cm. \$10.00 each

The new edition includes validly published taxa accepted by BIC. It includes the new genus *Racinaea*, changes in *Deuterocohnia* and *Aechmea*. Indispensable for newsletter editors and conscientious growers.

CULTIVAR AND GREX REGISTRATION FOR 1991-JUNE 1994

Compiled by Registrar Ellen Baskerville

June 1994. 7 pp.; 28 cm. \$1.00

This is the first addition to A PRELIMINARY LISTING OF ALL KNOWN CULTIVAR AND GREX NAMES . . . (The Beadle List).

BSI JOURNAL BINDERS
(each binder holds 2 years of the
JOURNAL)

1-4 copies	8.25 each
5-9 copies	6.60 each
10 or more	6.40 each

BROMELIADS, A CULTURAL MANUAL
edited by Mark Dimmitt

1-9 copies	3.00 each
10-49 copies	2.00 each
50-329 copies	1.50 each
case of 330	330.00

PAYMENT: All orders are postpaid cheapest rate. Please remit by personal check drawn on U.S. bank, by money order, or by bank draft payable to THE BROMELIAD SOCIETY, INC. If a money order is to follow, include a copy of the serial number, amount, and type with your order. Send payment to:

BSI Publications, Sally Thompson
29275 N.E. Putnam Rd., Newberg, OR 97132

PINEAPPLE PLACE

3961 Markham Woods Rd.
Longwood, Florida 32779
(407) 333-0445



Open 1-5
Daily

Sunday by
Appointment

Mail order invited. We cater to
purchasers of specimen plants.
Special prices to BSI Affiliate
Societies for bulk purchases.
SASE for listing or come see us.

Carol & Jeff Johnson

LOS MILAGROS BILLBERGIAS



COMPLETE STOCK OF
SPECIES & HYBRID BILLBERGIAS

SEND SASE FOR CATALOG

DON BEADLE
FIRST DIRT ROAD
VENICE, FL 34292

PHONE/FAX (813) 485-1096

—APPOINTMENT ONLY—

7DROPS is all it takes!

Just 7 Drops of
"Schultz-Instant"
Liquid Plant Food
per quart of water,
every time you
water, gives you
outstanding results...
Guaranteed!



"Schultz-Instant"

For more information: Schultz Company
14090 Riverport Drive, St. Louis, MO 63043



VIRGIN CORK BARK!

Super for all plaqued species

By the piece or by the bale.

Ask about CORK NUGGETS, too!

Call for the Dealer or
the Distributor nearest you!

Maryland Cork Company, Inc.

Toll Free: (800) 662-CORK
Inside MD: (301) 398-2955

P.O. Box 126, Elkton, MD 21921



BROMELIAD BOOKS

Send for FREE 28-page catalog featuring
172+ cactus books, + orchid, bromeliad, fern,
South African, desert, stationery.

Sent surface mail anywhere in the world!

RAINBOW GARDENS BOOKSHOP
1444 E. Taylor St. Vista, CA
Phone 619-758-4290 92084
visa/mc welcome

WANTED

Aechmea stenosepala

John Anderson
Epiphitomy Extension Station
P.O. Box 5202
Corpus Christi, TX 78465-5202

Quality Tillandsia Since 1974



GROWERS AND DISTRIBUTORS OF
TILLANDSIAS AND BROMELIADS
1927 W. ROSECRANS AVE.
GARDENA, CA 90249
(310) 515-5200
(310) 515-1177 FAX

- GREATEST NUMBER OF SPECIES
- BEST PRICES AND QUALITY
- 98% OF PLANTS ARE PRODUCED AT
OUR 10 ACRE GROWING FACILITIES
- FULL LINE OF PROMOTIONAL MATERIALS:
-270 PAGE, FULL COLOR, TILLANDSIA
BY PAUL T. ISLEY, III
-24 PAGE GENUS TILLANDSIA BOOKLET
-HIGHLY PRAISED EPIPHYTES DELIGHT
FERTILIZER
-COLORFUL POSTERS AND LAMINATED PLACARDS

SASE FOR PRICE LIST
PAUL T. ISLEY III • JERROLD A. ROBINSON

TREEBORNE GARDENS



GRAPEVINE
AND
MANZANITA
CRAFTWOOD

503-469-6539

99211 BLACKBERRY LANE
BROOKINGS, OR 97415

WHOLESALE BROMELIAD SEEDLINGS

Tillandsia cyanea & *Vrieseas*
Bareroot and Liners



Hawaiian
Sunshine
Nursery

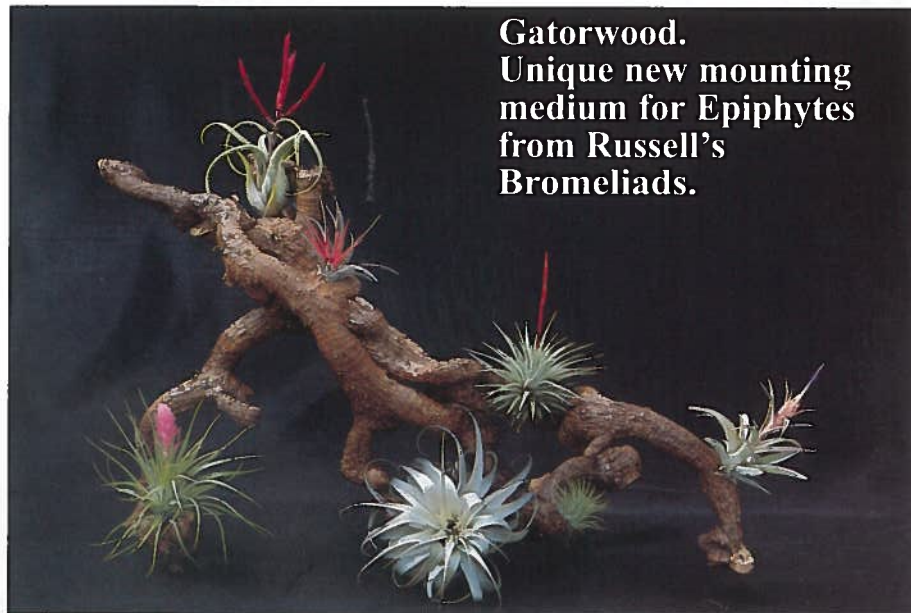
2191 Ainaola Dr.
Hilo, Hawaii 96720-3542

(808) 959-4088

Fax 959-4089

**Russell's Bromeliads for wholesale & collector.
Tillandsias and related supplies.**

1690 Beardall Ave., Sanford, FL, 407-322-0864, 800-832-5632, Fax 407-323-4190
Distributor inquiries welcome.



Gatorwood.
Unique new mounting
medium for Epiphytes
from Russell's
Bromeliads.

You are invited to join
THE CRYPTANTHUS SOCIETY
the largest affiliate of The Bromeliad Society, Inc.



*learn how to grow the
dazzling Earth Stars
and make new friends
all over the world.*

Membership (\$10 USA) (\$15 International) includes
four colorful issues of *The Cryptanthus Society Journal*
Ongoing Research and Plant Identification • Cultivar Publication
Slide Library • Cultural Information Exchange • Registration Assistance
International Shows with exhibits, seminars, tours and plant sales

Send SASE for culture information
or \$3.00 for a sample Journal to:
Carole Richtmyer, Secretary
3508 Seltzer • Plano, TX 75023 USA



**BRAND NEW 84-PAGE
COLOR CATALOG**
\$5 185 PLANTS
IN GLORIOUS
FULL COLOR
Cryptanthus
Bromeliads & Tropicals

Grow three times as many plants
in the same amount of space.
ADJUSTABLE™ POT HANGERS increase
light distribution, air circulation and
drainage. Durable plastic coating prevents
rust. Sizes to fit 3 to 8-inch pots in 6, 9
& 12 inch lengths. Grow better plants.
Send SASE for information, today!

SOUTHERN EXPOSURE
35 Minor Beaumont, TX 77702 USA (409) 835-0644

Bromeliad Society, Inc.
SEEDS
For Sale or Trade

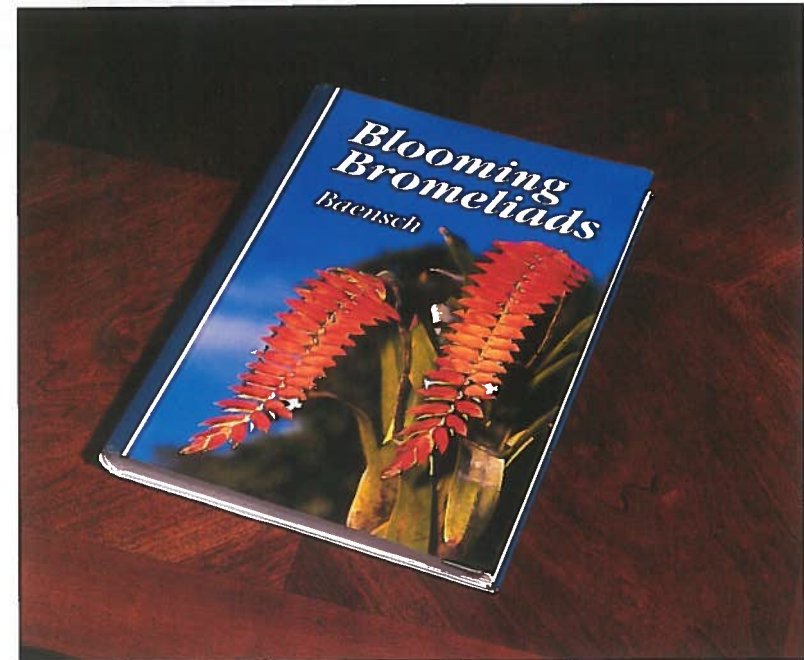
HARVEY C. BELTZ, SEED FUND CHAIRMAN
6327 South Inwood Road
Shreveport, LA 71119-7260

Send stamped, self-addressed envelope
for listing of available seeds.

Tillandsias
From Guatemala
(Retail & Wholesale)

Arthur Boe Distributor
P.O. Box 6655
New Orleans, LA 70114

Enclose stamped, self-addressed
envelope for flyer.



Available from December 1, 1994

BLOOMING BROMELIADS

Format 8½ × 11". • Art Print • 1000 Colored Pictures • 272 Pages
Contents: The Garden Tropic Beauty • Bromeliads in their Habitat
History • Biology • Growth Factors • Cultivation and Propagation
Bromeliads at Home and Outdoors • Bromeliads and Frogs • Glossary
Presented are: 730 species, varieties and hybrids of 33 genera.

Distributors:

Hagen (USA) Corp. Book Division
50 Hampden Road, P.O. Box 9107, Mansfield, MA 02048-9107,
Phone (508) 339-9531, Fax: (508) 261-9372
Bodé Export Corp., 48 N.W. 29th Street, Miami, FL 33127
(English/Spanish spoken) Phone (305) 573-2525, Fax: (305) 573-0209

List price: US \$119 each • Minimum 6: \$99 each
12 and more: special discount upon request
Visa and Mastercard accepted or cheque

Special offer: All orders prepaid, until February 28th, 1995
(There is a German edition for the same price)

For more information ask:
Tropic Beauty Publishers, Nassau/Bahamas
P.O. Box N 1105, Fax: (809) 327-5276

ORCHIDS AND BROMELIADS

Nursery-Grown Plants

Our Catalog No. 88 offers approximately 3,000 different Orchids and Bromeliads, species and hybrids. The Catalog also offers seeds of Orchids, Bromeliads, Philodendrons, Palms, and other greenhouse plants.

If you are interested in a copy of it, please send us US \$5.00 for airmail expenses (Cash only). We cannot accept checks of such small value.

SPECIAL PLANT OFFERS FOR BEGINNERS

We offer the following collections of orchid and bromeliad species, all carefully selected and correctly named, our choice. These are blooming-size plants. We guarantee their safe arrival and delivery by E.M.S. (Express Mail). All shipments listed will be accompanied by phytosanitary certificates. U.S. and Canadian customers must include import permit numbers with their orders. Shipments of orchid plants must be accompanied by the CITES certificate that costs \$5.00 for each order and often takes 2-3 months to be obtained. Please consider this when sending us your order.

	FOB	Inclusive EMS Mail expenses
50 different Orchid species	US \$190.00	US \$250.00
100 different Orchid species.....	375.00	475.00
50 different Bromeliad species	90.00	150.00
100 different Bromeliad species	250.00	325.00

Larger quantities may be sent by air freight collect
If you are interested, please write for our Wholesale Price List No. 94

Make checks for order payable to: Alvim Seidel, any bank in U.S.A.

ALVIM SEIDEL

Orquidario Catarinense Ltd.

P.O. Box 1, 89280 CORUPA - S. Catarina, Brazil

Tel. (0473) 75-1244

Rua (Street) Roberto Seidel, 1981

Founder: Roberto Seidel, 1906

Telex 474 211 ORKI BR

INT. FAX No. 55-473 75 1042

Since 1906 - One of the world's most complete nurseries

The Bromeliad Society, Inc.

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.

OFFICERS AND DIRECTORS

President - Odean Head, 7818 Braes Meadow, Houston, TX 77071.

Vice-president - Thomas W. Wolfe, 5211 Lake LeClaire Road, Lutz, FL 33549.

Editor - Thomas U. Lineham, Jr., 1508 Lake Shore Drive, Orlando, FL 32803-1305.

Membership secretary - Linda Harbert, 2488 E. 49th, Tulsa, OK 74105.

Secretary - Don Beadle, First Dirt Road, Venice, FL 34292.

Treasurer - Clyde P. Jackson, 21 Sherwood, Dayton, TX 77535.

Directors -

1992-1994 - Maurice Kellett, *Australia*; Polly Pascal, *Florida*; Charlien Rose, *Texas*.

1993-1995 - Don Garrison, *Texas*; Geoffrey Johnson, *Florida*; Pamela Koide, *California*; Fred Ross, *Louisiana*.

Continued in office since no replacements were elected for the 1993-1995 term:

Enrique Graf, *International*; Jacqui A. Watts, *International*.

1 Jan. 1994-31 Dec. 1996 - Lloyd Kiff, *California*; Roger Lane, *California*; Hattie Lou Smith, *Florida*.

16 June 1994-31 Dec. 1996 - Doris D. Bundy, *Northeast*; Sharon Garcia, *Southern*; Linda Hornberger, *Central*; Sally Thompson, *Western*.

1995-1997 - Peggy Bailey, *Florida*; John Anderson, *Texas*.

HONORARY TRUSTEES

David H. Benzing, *United States*; Olwen Ferris, *Australia*; Grace M. Goode, *Australia*; A.B. Graf, *United States*; Roberto A. Kautsky, *Brazil*; Marcel Lecoufle, *France*; Elmer J. Lorenz, *United States*; Harry E. Luther, *United States*; Harold Martin, *New Zealand*; William Morris, *Australia*; Werner Rauh, *Germany*; Robert W. Read, *United States*; Walter Richter, *Germany*; Lyman B. Smith, *United States*.

DIRECTORY OF COMMITTEE CHAIRMEN AND SERVICES

Affiliate Shows: Charlien Rose, 4933 Weeping Willow, Houston, TX 77092.

Affiliated Societies: Carol M. Johnson, 3961 Markham Woods Rd., Longwood, FL 32750.

Conservation: Mark A. Dimmitt, The Arizona-Sonora Desert Museum, 2021 N. Kinney Rd., Tucson, AZ 85743.

Cultivar Registration: Ellen Baskerville, 1819 Mid Ocean Circle, Sarasota, FL 34239.

Finance & Audit: Don Garrison, 406 E. Witcher Ln., Houston, TX 77076.

Judges Certification: Roger Lane, 551 Hawthorne Ct., Los Altos, CA 94022.

Membership and subscriptions to the JOURNAL: Please see inside front cover.

Mulford B. Foster Bromeliad Identification Center: Send specimens and contributions to Harry E. Luther, at the Center, The Marie Selby Botanical Gardens, 811 South Palm Ave., Sarasota, FL 34236. FAX: 813-951-1474.

Nominations: John Anderson, P.O. Box 5202, Corpus Christi, TX 78465.

Publication Sales: Sally Thompson, 29275 N.E. Putnam Rd., Newberg, OR 97132.

Research Grant: David H. Benzing, Dept. of Biology, Oberlin College, Oberlin, OH 44074.

Seed Fund: Harvey C. Beltz, 6327 South Inwood Road, Shreveport, LA 71119-7260.

Slide Library: Jim Racca, P.O. Box 1447, Iowa, LA 70647.

World Conference: Thomas W. Wolfe, 5211 Lake LeClaire Road, Lutz, FL 33549.



Chet Blackburn

A tray of flowering *Tillandsia straminea* photographed at Bird Rock Tropicals nursery. This is one of the fragrant tillandsias discussed by Greg Payne on pages 268–270.

Calendar

- 12–13 November Caloosahatchee Bromeliad Society exhibition (not a judged show) and sale. Lee County Garden Council & Activity Center, Fort Myers, FL. (Located directly in front of Lee Memorial Hospital on U.S. 41 (Cleveland Ave.) about 1 mile south of the Caloosahatchee River Bridge). Saturday, 9 a.m. to 5 p.m.; Sunday 10 a.m. to 4 p.m. Marie Bessellieu 813-674-0656.
- 25–27 January 4th Brazilian Bromeliad Symposium. Univ. of São Paulo campus, Ribeirão Preto, São Paulo, Brazil. Themes include ecology, physiology and taxonomy of the family, associated fauna, species conservation and legislation, the collector's role, ethics vs. collecting and extractivism. Speakers will include Harry Luther, David Benzing, Walter Till of the Univ. of Vienna, as well as Brazilian subject experts. Coordinators: Dr. Maria das Graças L. Wanderley, Botanical Institute, São Paulo and Dr. Helenice Mercier, Univ. of São Paulo. Preconference trips to three different regions and a postconference trip by boat to the Amazon region at special prices for members of Sociedade Brasileira de Bromélias. For trip information and booking: Lorraine Martins, telephone/fax (55) (021) 257-1510, address: Rua Joseph Bloch, 49, apto. CO-2, Copacabana, Rio de Janeiro-RJ, 22031-040 Brazil. For conference information: Dra. Helenice Mercier, tel. 11 813-8139, Rua Valdomiro Fleuri #251, São Paulo CEP 05514, Brazil.
- 15–17 April 1994 Bromeliads VIII, sponsored by the Bromeliad Society of South Australia. Royal Coach Motor Inn, Adelaide, South Australia. Lectures, visits to collections, rare plant auction. Some activities extra charge. Principal speaker: Renate Ehlers, Stuttgart, Germany. Registration AUS\$85 before 16 Dec. 1994. Registrar: M. Robinson, P.O. Box 260, Woodville, South Australia 5011, Australia.