Journal of The Bromeliad Society

VOLUME 43 • SEPTEMBER–OCTOBER 1993 • NUMBER 5

Journal of the Bromeliad Society

Vol. 43, No. 5 September–October 1993

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

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

Cover photographs. Front: *Aechmea tessmannii,* or a related species, from Ecuador (photo by P. Bak) is compared with a typical *A. tessmannii* shown on the back cover (photo by J. Manzanares). The discussion is on page 218.

CONTENTS

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

An Unusual Night-flowering *Guzmania* from Southeastern Ecuador

H.E. Luther

Guzmania alcantareoides **Luther sp. nov.**

A *G. wittmackii* (André) André ex Mez et *G. poortmanii* (André) André ex Mez, quibus affinis, bracteis primariis viridis et bracteis florigeris perminoribus differt.

Type: Ecuador; Zamora-Chinchipe, Cordillera del Condor, 1200–1500 m elev. *J. Kent legit.* Flowered in cultivation SEL 90-858, 15 Jan. 1992. *H.E. Luther s.n.* (SEL, holotype).

Plant flowering to 0.6 m tall. Leaves densely rosulate, spreading, 45–75 cm long, appressed punctate lepidote throughout, dark green. *Leaf sheaths* elliptic, 6–10 x 4–6 cm, densely brown punctate lepidote, especially adaxially. *Leaf blades* ligulate, acute to acuminate, 35–50 mm wide. *Scape* erect, 12–15 x 1 cm. *Scape bracts* foliaceous, spreading at 75°–90° from the axis, 40–60 x 2–3 cm, acute to acuminate, appressed punctate lepidote, dark green. *Inflorescence* laxly bipinnate, conical, 45 x 25 cm with 10 to 14 branches. *Primary bracts* like the upper scape bracts decreasing gradually in size toward the apex of the inflorescence, 7–37 cm x 20–37 mm, bright green to yellow-green. *Branches* with a flattened 2–5-mm long base, spreading with the primary bracts, 2- (rarely 3-) flowered. *Floral bracts* triangular, obtuse, slightly falcate, 38–40 x 10–15 mm, thin, nerved, carinate, appressed punctate lepidote, pale green. *Flowers* with a pedicel 1–2 mm long, anthesis nocturnal. Sepals narrowly elliptic, acute, 35–37 mm long, nearly free, thin, pale green. *Corolla* with slightly spreading lobes, arcuate, ascending and slightly zygomorphic. *Petals* narrowly oblanceolate, obtuse, 80–95 x 5–8 mm, ca ½ agglutinated, pale yellow, becoming contorted and flaccid post-anthesis. *Filaments* 6–7 cm long, white, anthers 7–9 mm long, yellow. *Stigma* exserted at anthesis with spreading lobes 3–5 mm long. Both the stamens and pistil becoming flaccid and contorted post-anthesis.

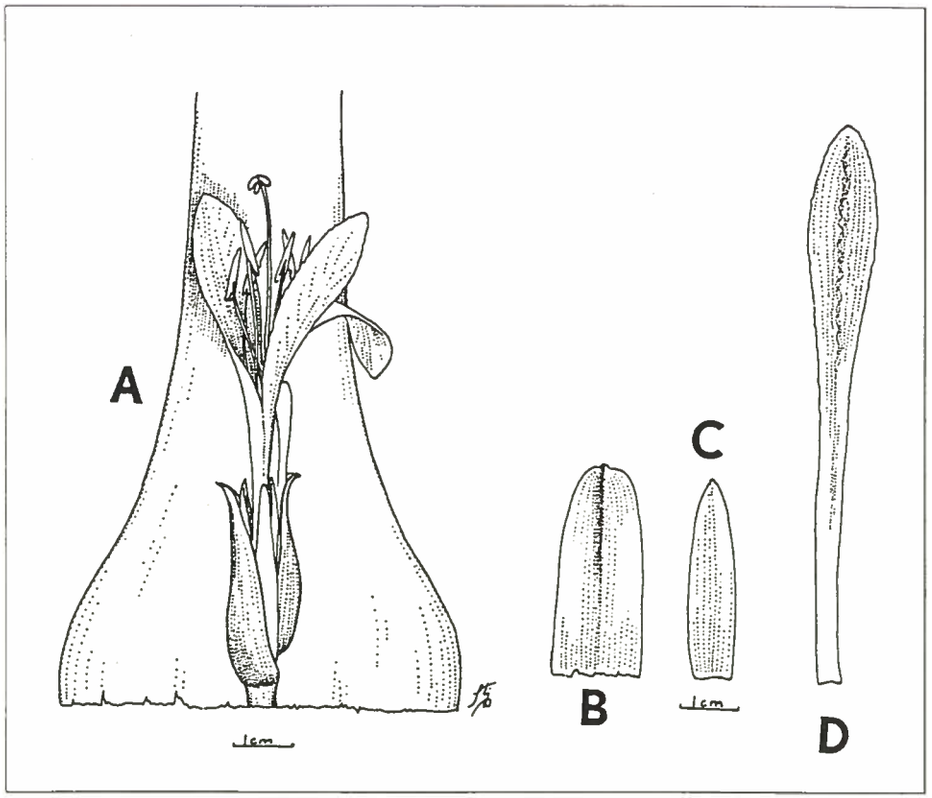
Guzmania alcantareoides presents a remarkable example of convergence with certain other Tillandsioids assumed to be bat-pollinated *(Vriesea* subgenus *Alcantarea, Tillandsia* subgenus *Pseudalcantarea).* These share a syndrome of nocturnal anthesis and fragrance production (in the case of this new guzmania, an odor of slightly spoiled cabbage), large flowers with the corolla, stamens and

Vern Sawyer for Selby Gardens

Figure 1.
Guzmania alcantareoides,
shown in flowering state.

pistil withering and spreading post-anthesis, and relatively large anthers. This suite of characters is unique in the genus as other presumably chiropterophilous guzmanias produce either small (mostly less than 3 cm long), widely spreading, white, cream or pale green corollas with a regularly spreading androecium (e.g.: *G. coriostachys* (Grisebach) Mez, *G. fosteriana* L.B. Smith) or in the case of *G. mucronata* (Grisebach) Mez, a much larger (ca. 5 cm long) campanulate green corolla with the androecium somewhat asymmetrically presented and greatly resembling the "secund vrieseas" *(Vriesea* section *Xiphion,* sensu stricto) in flower form.

The related *Guzmania wittmackii* is a day-flowering, brilliantly colored species of the western slopes of the Andes in Colombia and Ecuador. Very little is known of *G. poortmannii* (the type of the defunct genus *Thecophyllum* (André), not seen since the original collection of 1882, but the description notes that it also has highly colored bracts. It is also reported to have a violet corolla, a



Stig Dalström

Figure 2.
Guzmania alcantareoides. A) inflorescence branch and base of subtending primary bract; B) floral bract; C) sepal; and D) petal.

character that remains unverified and otherwise unknown in the genus *Guzmania.*

The M.B. Foster Bromeliad Identification Center
The Marie Selby Botanical Gardens
Sarasota, Florida

San Diego World Bromeliad Conference, 1994 – *Bromeliads In Paradise,* Update #3

Jack Percival

Of special importance and of great excitement is the announcement that the featured speaker of the conference will be one of the plant world's most esteemed authorities on the bromeliads of Brazil, Elton M.C. Leme of Rio de Janeiro. We are most grateful that Sr. Leme has agreed to share his vast knowledge and to travel to San Diego. He is a frequent contributor to the *Journal;* his latest article appears in this issue.

San Diego is the scene of excitement, many meetings, and detailed planning. The red carpet is amaking with one consideration in mind: to make the 1994 conference one that all bromeliad enthusiasts will remember for years. The Planning Committee is working overtime to make sure that the conference presents the world's most beautiful bromeliads, speakers of renown, instructive seminars, lovely local gardens, interesting nurseries, commercial booths, and, of course, the popular rare plant auction as well as the banquet.

The banquet this time will be really different. It will be a real Hawaiian luau: throbbing drums, the fire of tiki torches, beautiful dancers with animated body movements, all amid the lush tropical foliage of San Diego.

We encourage our bromeliad friends throughout the world to register for both the conference and the Hanalei Hotel as soon as possible. The details of registration may be found in the ad on page 231 of this issue. We request that everyone bring plants appropriate for the rare plant auction. Auction proceeds will be donated to the M.B. Foster Bromeliad Identification Center, the Marie Selby Botanical Gardens in Sarasota, Florida.

Free transportation between Lindbergh Airport and the Hanalei Hotel will be provided for all registrants. They will be issued travel vouchers. The vouchers will be valid until 30 June 1994—another good excuse to linger and enjoy San Diego. Those not registered will be charged $5.00 each per trip. Children under 12 years of age may travel free. At the airport, look for the PUBLIC SHUTTLE, which is all white with black stripes.

In future Updates, we shall continue to keep you informed of conference details as well as activities in the San Diego area that visitors will enjoy in their free time.

One last note: we must correct an error in the conference registration information. Social registration after 1 April 1994 will cost $135.00 and not $115.00 as shown in the form enclosed with the May–June issue of the *Journal.*

San Diego, California

Nidularium linehamii, a New Species

Elton M.C. Leme **Drawing and photos by the author**

***Nidularium linehamii* Leme, sp. nov.**

Inter generis species valde singularis, a speciebus omnibus laminis foliorum modice coriaceis, bracteis primariis subintergris vel prope apicem perminute serrulatis, floribus pedicellatis, pedicellis ca. 5 mm longis, sepalis anguste lanceolatis ca. 30 mm longis differt.

Plant propagating by ascending stolons ca. 10 cm long and ca. 1 cm in diameter. *Leaves* ca. 15, ligulate, suberect, rosulate, forming a subtubular rosette; *leaf sheaths* narrowly elliptic, ca. 15 cm long, 7–8 cm wide, densely and minutely brown-lepidote and greenish on both sides, sometimes reddish outside and toward apex; *leaf blades* sublinear, inconspicuously narrowed at base, 15–20 cm long, 3.5–4.5 cm wide, densely but inconspicuously white-lepidote on both sides, green, subcoriaceous, apex acute to rounded and apiculate, margins laxly serrulate, spines 0.5–1 mm long. *Scape* 7 cm long, 0.7 cm in diameter, white glabrous, distinctly shorter than the leaf sheaths; *scape bracts* triangulate, apex acute and apiculate, ca. 2.5 cm long, ca. 2 cm wide at base, minutely brown-lepidote, not hiding the scape. *Inflorescence* subcylindric, ca. 7 cm long, ca. 3 cm in diameter, almost completely sunk in the rosette; *primary bracts* ovate, erect with the apex slightly spreading, without distinction between blade and sheath, brown-lepidote toward apex, green with exception of the red margins and apex, subentire or very minutely serrulate near the apex, apex acute and apiculate, the outer ones ca. 9 cm long and ca. 5 cm wide at base; *branches* ca. 7, the outer ones with 3–4 flowers, subflabellate, complanate, ca. 5.5 cm long (without the petals), ca. 2 cm wide, shortly pedunculate; *floral bracts* lanceolate, acute to acuminate, entire, ca. 2.5 cm long, ca. 0.8 cm wide, hyaline, carinate, glabrous, from equaling the length of the ovary to the midpoint of the sepals. *Flowers* ca. 5 cm long (without the petals), distinctly pedicellate, pedicels ca. 5 mm long; *sepals* subsymmetric, narrowly lanceolate, acute, ca. 30 mm long, ca. 6 mm wide, connate at base for ca. 5 mm, obtusely if carinate, glabrous, red after anthesis; *petals* known only by fragments, apparently with a basal tube without appendages; *stamens* unknown; *ovary* oblong-ellipsoid, ca. 18 mm long, ca. 6 mm in diameter, subtrigonous, white, glabrous; *epigynous tube* ca. 1 mm long; *placentae* central; *ovules* numerous, apiculate.

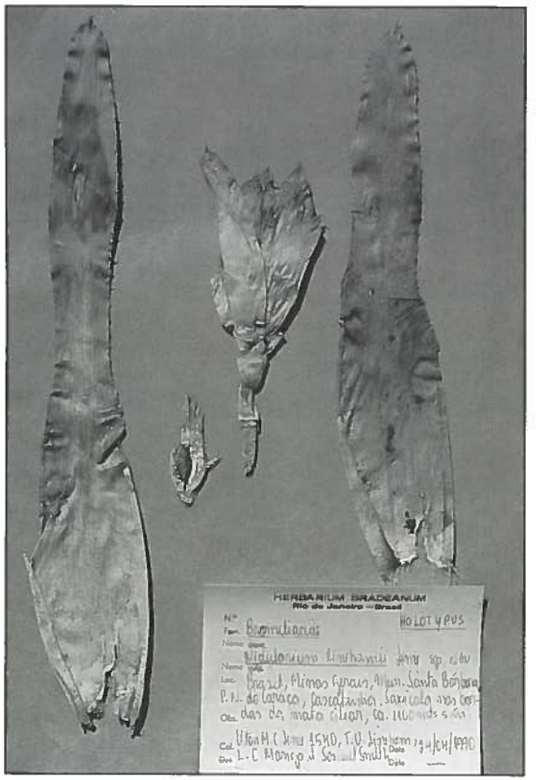
Type. Brazil. State of Minas Gerais, County of Santa Bárbara, Natural Park of Caraça; rupiculous near the Caraça River, just above the Cascatinha Falls, about

Photos by author

Figure 3.
A population of *Nidularium linehamii* in habitat.

Figure 4.
Nidularium linehamii,
a post-flowering specimen.

Figure 5.
Nidularium linehamii, specimen.
Herbarium Bradeanum,
Rio de Janeiro.

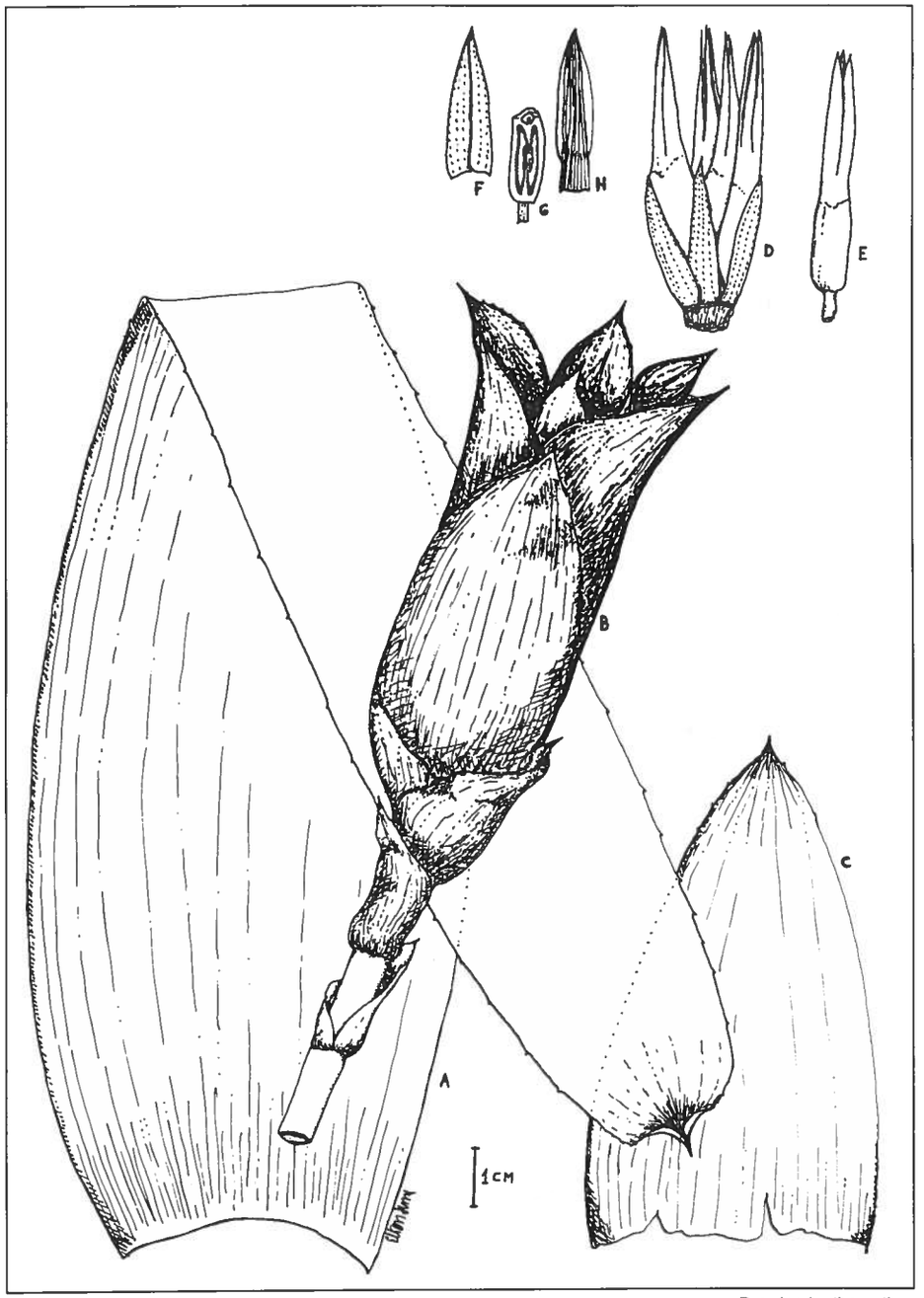


Author

1,100 m above sea level. Col. *Elton M.C. Leme 1540, Thomas U. Lineham, Samuel Smith & Luiz C. Marigo,* 24 April 1990. **Holotype:** HB.

Despite the predominance of rocky fields in the area of collection, the *N. linehamii* was found growing on partially shaded rocks on the border of a riparian forest along the Caraça River, about 1,100 m above sea level. Propagating by means of ascending stolons, it was observed forming a small population side by side with *Neoregelia bahiana.* The place, well lighted and very humid because of the proximity of the river, was very rich in terms of bromeliad diversity. We observed in that area *Aechmea lamarchei, Cryptanthus glaziovii, Quesnelia indecora, Vriesea friburgensis* var. *paludosa,* as well as *Nidularium* aff. *fulgens,* Vriesea sp., *Dyckia* sp. to name a few.

This new *Nidularium* is distinct when compared with previously described species mainly by its subcoriaceous and subtubular appearance, the pedicellate flowers, the subentire primary bracts, and the narrowly lanceolate sepals. On the other hand, because the petals are known only by fragments it is uncertain if it



Drawing by the author

Figure 6.
Nidularium linehamii Leme. A) leaf; B) inflorescence; C) primary bract; D) outer fascicle; E) flower; F) floral bract; G) ovary; and H) sepal. Inflorescence at early anthesis.

belongs to the typical *Nidularium* subgenus or to the subgenus *Canistropis*[1] although its stoloniferous habit and apiculate ovules are characteristics usually related to the latter.

With *Nidularium linehamii* we express our gratitude and pay tribute to one of its collectors, the editor of the JOURNAL, Thomas U. Lineham, Jr. for his indefatigable contributions and the improvement of the bromeliad world.

Rio de Janeiro

ACKNOWLEDGMENTS:

We thank Father José Tobias Zico for permitting us to collect in Caraça Park and for supporting our studies.

NOTE:

1. Bradea 4 (32): 219–254; February 1986.

BIRTHDAY GREETINGS to Monsieur and Madame Marcel Lecoufle on their 80th birthdays. Charming is an overworked adjective but I can't think of one more descriptive of them.

Marcel has served as honorary trustee since 1968. He is a generous contributor, a faithful supporter of the society, and the reliable friend of recent editors. Among his many contributions have been the several hundreds of photo slides that he presented to us two years ago. He continues to donate both slides and valuable excerpts from his extensive library.

Marcel says that he no longer is active in his orchid business, which is now operated by his daughter and her husband, who are continuing as fourth generation members. But when last seen, Marcel and Suzanne were busily working in the office. Good health and long life to them both.—TUL

The Brazilian Bromeliads; Dr. Wawra's Trip to Brazil In 1879

[a translation by T.U. Lineham, continued]

Part II

In which Dr. Wawra with the princes August and Ferdinand visit the botanical garden, three other locations in or near the city of Rio de Janeiro (22–27 June); Cantagallo and nearby places and the Organ Mountains (28 June–5 July); the emperor's estate at Santa Cruz (6–8 July).

Our second excursion—to Cantagallo and nearby places—took place on the 28th of June. In the meantime, we had undertaken three short visits on Corcovado, to Gávea, and the heights of Tijuca. During the second, we by chance paid a visit to our compatriot Glasl, director of the botanical garden, whose cordial greeting and excellent lunch served in the garden left me with the best possible memory. Subsequently, I had the frequent pleasure of his company and was able, thanks to him, to become acquainted with another Brazilian botanist, the famous palm and orchid expert Rodriguez Barbosa. Glasl, since then, has been kind enough to send a beautiful collection of Brazilian palms and vines to me in Vienna. I express my gratitude to him here.

Our trip to Tijuca[5] lasted two days. We received the hospitality of Lord Bomretiro, a statesman much in the emperor's favor, at that time in charge of the acclimatizing park located midway up the mountain. There, among other things, we found *Nidularium plumieri*.[6] The park is located half way up the road to the summit; the plants being cultivated there have been planted among the trees spared in the primitive forest. The result is a mixture of indigenous and foreign plants, unfortunately not classified. In this confusion there are objects of which the rest of the world is ignorant but which are of great interest to the botanist whose scientific knowledge is prey to endless agony because of the lack of information about a goodly number of the individuals.

On the morning of the next day, before sunrise, we scaled the Pic de Tijuca. It is surmounted by a narrow granite needle—the "dio de Tijuca"—accessible only with climbing apparatus, its narrow platform, no larger than 20 square meters at the most. From there the eye embraces a superb panorama. It is the culminating point of the country around Rio. From its summit, one enjoys an unlimited view of the bay and the most distant islands, which stand at the port

entrance. But all that is of no concern to the botanist; this miserable needle has not even a shadow of vegetation except for some clumps of bamboo and the weeds that one encounters everywhere and in abundance in the tropics. It is only on the rocky slopes that *Vriesea glazioviana*[7] is found.

On the 28th of June we left for the Organ Mountains by way of Nova Friburgo making a turn toward Cantagallo. We crossed the gulf early in the morning and took the train from Nicteroi for Nova Friburgo. During this trip I became acquainted with a third Brazilian botanist, M. Schüch-Capanema, now director-general of the Brazilian telegraph system. His father, who was Austrian by birth, had accompanied the Archduchess Léopoldine to Brazil and there had taken the surname Capanema. The Imperial Museum of Vienna contains innumerable plant specimens gathered by the elder Schüch in his new fatherland.

The railroad from Nova Friburgo is the most artistically constructed in Brazil. It climbs boldly without benefit of tunnels while clinging to the sides of the mountain up to a height of 3,000 feet. Some Fell locomotives provide the service.[8]

At Cordeiro, the station closest to Cantagallo, Baron Novafriburgo was waiting for us. (Newly ennobled Brazilians prefer to borrow their title of nobility from their possessions [Bomretiro, for example] and the old family name soon falls into oblivion). This man is the most wealthy *facèndero* in Brazil. He owns a territory in the neighborhood of many thousands of square kilometers in extent, crossed by telegraph lines and carriage roads, and cultivated by 3,000 slaves. Slavery still exists in the interior in spite of certain restrictive laws and of being legally suppressed. The wealth of the facenderos is calculated according to the number of their slaves, and the poorest of those whom we have met during our travels own at least 18 heads. I should note on this subject that throughout Brazil when one uses the word "facendero" it means the native owner of the lands as opposed to immigrant colonists.

The residence of the powerful proprietor is located on high ground from which it is possible to discern a good part of his territory. That is where we spent the first night. The next day, the princes went off to hunt tapir. As for me, accompanied by a guide, I resolved to explore the nearby virgin forest. A two-hour tramway ride took us to our respective hunting grounds.

The forest is the most beautiful that I had seen during this trip. It owes its enchanting aspect to the circumstance that palms constitute a considerable part of its formation since it scarcely attains the imposing majesty of the virgin forests of the north (of Ilhéos, for example), which I had a chance to view during

Figure 7
Billbergia reichardtii Wawra. Collected in the vicinity of Juiz de Fora, Minas Gerais, by Dr. Wawra in 1879.

These plates were photographed by Marcel Lecoufle from Dr. Wawra's ITINERA PRINCIPUM S. COBURGI...published in Vienna, 1883–1888. *Billbergia reichardtii,* plate number 22, is 27 x 35 centimeters; *Nidularium ferdinando-coburgii,* plate number 20, is twice that size.

Figure 8
Nidularium ferdinando-coburgii Wawra. Collected at Teresópolis, Rio de Janeiro.

my second voyage in 1860. In order to get there, we had first of all to cross a very large field of sugar cane, which even today in spite of all, is still a rough and painful task. Along its lower edge, the forest is gloomy, thick, and humid. Scarcely a breath of wind moves the leaves. Higher up, toward the top of the mountain it becomes thinner. Bamboo appears scattered among the trees. The interesting *Quesnelia strobilospica*[9] grows in the middle part.

On the third day, we returned by train to Nova Friburgo in order to travel by horseback the 14 milles[10] separating us from Teresópolis, a little town situated at the foot of the Organ Mountains. There is no road, as such. Travel is through the mountains across untouched forests of araucaria and cleared land; not a town or village on the entire journey. We spent the night under the roof of a wooden shelter like those inhabited by the *dii minorum gentium* among the great landowners. Let us say, if you prefer, the wealthy peasants of Brazil. Those who travel across these nearly empty lands depend on the hospitality of the facenderos and that is always liberally extended. The lowliest of them is always ready to give shelter to travellers who may be assured at all times of a friendly and cordial welcome. They are sure of finding a clean bed, an excellent repast prepared in Brazilian fashion, and a bottle of good, strong wine, which the host keeps in reserve for strangers, but which he, himself, never touches. The master of the house and his family live in a plain and somewhat patriarchal fashion. We were surprised to find scientific instruments such as aneroid barometers and the like as well as agricultural journals printed in Rio, which do not seem to be lacking in any respect, in these primitive dwellings. We spent the night in a small *facienda* (of 18 slaves).

3 July. It is now remained for us to accomplish a very difficult job: a crossing of 8 milles over the mountain. And the road followed only cleared land, lacking in scenery, without landscape, and of no botanical interest. To complete this calamity, nearly at the end of our travel—2 miles before reaching Teresópolis—the entire terrain, mountain and valley disappeared from view under countless stalks of *Pteris aquilina,* crowded and pressed together to the extent of leaving no space for other plants of the region. This vile plant plays an important role all over Brazil. It is the fatal consequence of deforestation. It is found everywhere and gives, to the despair of the botanist, a look of desolate monotony to the countryside. And so it was much later that we arrived at Teresópolis, tired, worn out, and exasperated by the sight of that damnable fern.

The following day, the 4th of July, was devoted to a trip to the Organ Mountains. Half way up the road to the top, my guide lost both the road and his head. I tried to make out a track through the twisted and stunted trees and the bamboo thickets (or, better, *Olyra).* Finally, after sufferings and extraordinary

efforts we reached the crest of the mountain (1,100 m.). Unfortunately for us there was hardly any time to spend there because we needed the last hours of daylight to make the perilous descent. So, after casting a hasty glance at the Gulf of Rio sparkling under the rosy rays of the setting sun, we retraced our way. Darkness overtook us in the midst of the untrodden forest. We decided to spend the night there sheltered under the branches of trees and bushes. I can testify, to my surprise, to the comforts offered the weary traveller through the generous hospitality of Nature. On the next day we returned to Rio.

The emperor had invited us to visit Santa Cruz, an estate comprising a model plantation worked by a thousand freed slaves. We left early on the 6th of July from Cristóvão, the imperial pied-à-terre. The locomotive, all decorated with flags and streamers, took us in two hours to Santa Cruz. The emperor was received by his negro population amidst deafening cries of joy and to the extraordinary sound of horrid instruments, under the light of innumerable rockets bursting everywhere.

Towards evening, we visited the plantation on which the emperor has founded great hopes. We paid him well-deserved tribute of admiration, although his organization did not seem to us a convincing argument in favor of the labor of freed slaves. Moreover, the next day I was given a somewhat amusing proof of the way that these negroes understand freedom.

We stayed as guests of the emperor for two days. Santa Cruz rises in the midst of a vast, marshy plain from which one can wrest a few "arpents"[11] of tillable land only at the cost of mad expenditures and desperate labor. The low-lying hills in the area are extremely dry and bare. I wanted to explore them and, at the emperor's express order, two negroes were provided as guides. But instead of leading me, as was understood, to the foot of the hills where there was an abundance of marshy plants, my fellows went off in exactly the opposite direction toward a little knoll in the middle of the plain to conduct a leisurely hunt for bangas, a kind of rodent somewhat like a rat that hides in tree tops and provides these gentlemen a succulent roast, but one that would scarcely serve to fill a small pot.

I soon took my departure. I turned bridle and went off by myself without the negroes' seeming to worry about me or wanting to interrupt their hunt. My purpose was to reach the range of hillocks. But the way through those wretched marshes seemed beyond discovery and when, finally, I came on a good track, night fell and I had just enough time to get back to the residence. While on the way, I again found my two hunters who were not ashamed to claim a tip to recompense them for their zeal and devotion.

It was a day lost to my memory. It is true that I was compensated for this small deception by the pleasure of having a quite intimate chat with the emperor himself. It is truly good luck to enjoy the favor of a conversation with a prince who is so richly endowed, so completely versed in the areas of the sciences and arts.

[to be concluded]

ENDNOTES:

(These and earlier notes have been supplied by the translator chiefly from sources identified in the Acknowledgements.)

5. Now the Parque National de Tijuca on the heights west of Rio and bordering Corcovado.

6. *Wittrockia superba* Lindman.

7. *Vriesea geniculata* (Wawra) Wawra.

8. The Cantagallo railway ran from Nichteroy (Niterói) to Nova Friburgo, a distance of 150 km. Construction was begun in 1860 with a track gauge of 5 feet, 3 inches. About 39 km beyond Porto de Caixas, the railway encountered a steep escarpment, which was deemed insurmountable for a conventional railway. To make the climb, the railway obtained locomotives that had been used in France on a tunnel construction railway and changed the gauge to 1109 mm. These engines used the "Fell" system of traction, which was broadly similar to, but different in actual workings from, a cog railway system. The line up the escarpment was opened in 1873. The sharp curves possible with such a narrow gauge and the steep gradients possible with the Fell system suggest that a climb of 3,000 feet without tunnels—as mentioned in Dr. Wawra's report—would be a possibility.—R.S. McGonigal.

9. *Quesnelia blanda* (Schott ex Beer) Mez.

10. Nova Friburgo and Teresópolis were connected by a secondary road some 60 km long according to a contemporary map. The term "mille," as used, does not appear to relate to the Latin *mille* or to other readily determined units of measurement.

11. About an acre and a half (English).

THE TIME HAS COME (said Lewis Carroll) to talk of many things...including the selection of a new editor. Old horse has been pulling this wagon for eleven years. Last October I suggested to Odean Head that it was time to start looking. In my annual report to the board at its 1993 meeting in May, I wrote that I intend to complete my tenure with the publication of issue number 6, volume 44 (1994). Odean has appointed a committee.—TUL

Puya prosanae, a New Dwarf *Puya* from the Andes of Bolivia

Pierre Ibisch and Elvira Gross

During botanical investigations within the framework of a German-Bolivian project of technical cooperation (PROSANA) in the Bolivian province of Arque (Ibisch, 1992), a new dwarf species of *Puya* was found that shows the remarkable growth habit of a cushion plant. Within the bromeliad family this growth habit is well known from *Abromeitiella.* It is interesting to note that *Puya raimondii* Harms, the biggest bromeliad, and some dwarf puyas occur in the Bolivian flora. Rauh (1983) described *Puya hromadnikii,* from the south of Bolivia, which is related to *Puya minima* L.B. Smith and *Puya tuberosa* Mez.

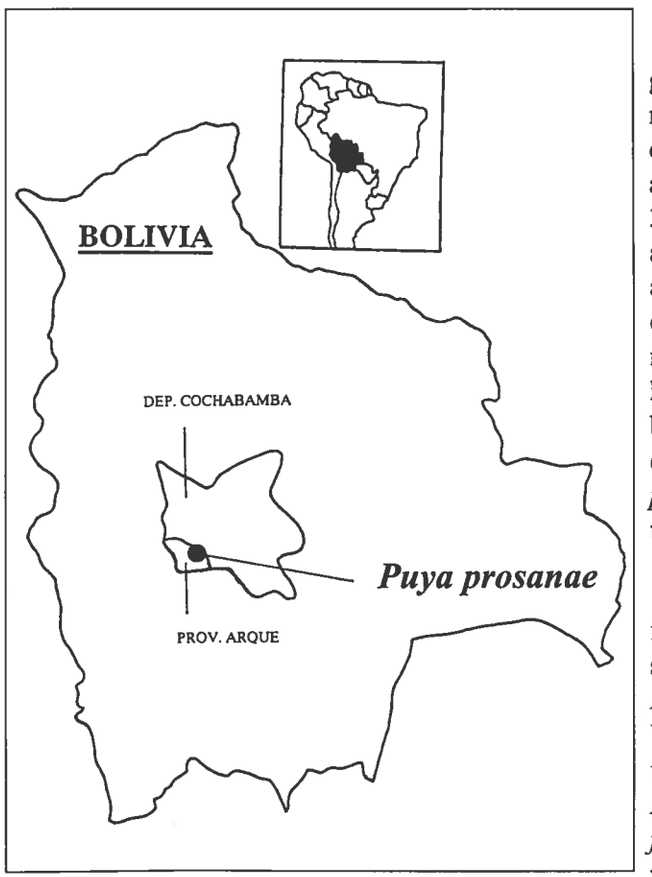


Figure 9.
Map of Bolivia, showing the locality of *Puya prosanae.*

Puya prosanae grows among rocks on rocky slopes and on degraded, stony soil at an altitude of 3500–3700 m. The mean annual temperature is about 11° C. The precipitation of 650 to 700 mm is restricted to the humid season of October to April. The flowering period of *Puya prosanae* is November to February.

Puya prosanae is found within an open, scrubby vegetation of *Baccharis polycephala* Wedd., *Satureja boliviana* (Benth.) Briq., *Baccharis dracunculifolia* DC., and others with a grass-stratum, which is generally dominated by *Stipa ichu*

(R. & P.) Kunth. The historical vegetation of the area is believed to be a forest of *Polylepis besseri* Hieron., of which numerous relicts are found. Specimens of *Alnus acuminata* H.B.K. can be observed near small rivers and along brooks. The vegetation is heavily influenced by the land use of the quechua-farmers: the collecting of firewood and livestock grazing are the main components of degradation. Like other members of the genus, *Puya prosanae* is eaten by the animals.

The new species is named after the German-Bolivian project PROSANA (Proyecto de Seguridad Alimentaria-Nutricional en la Provincia de Arque), which tries to reach a sustainable development for the farmers in the province of Arque.

Puya prosanae is distributed in the northeast of Arque. Within the area of occurrence, the species is not rare. Other puyas were found in the same region, namely *Puya cardenasii* L.B. Smith (2700–3750 m), *Puya glabrescens* L.B. Smith (ca. 3750 m) and *Puya mirabilis* L.B. Smith (ca. 2900 m).

***Puya prosanae* P. Ibisch & E. Gross, sp. nov.**

Similis est *Puyae humilis* Mez, sed differt ab ea in characteribus sequentibus:

Pulvini maiores. Folia breviora et angustiora. Inflorescentia breviter-cylindrica, non fusiformis. Bracteae florales breviores, non longiores quam petala. Flores subsessilis, non 2–3 mm longe pedunculati. Petala rubro-violacea, non viridia.

Holotypus: *Pierre et Claudia Ibisch 625 A* (20. 11. 1991)=B.G. Bonn 10 000, in herb. inst. bot. system. univ. heidelb. (HEID); isotypus: Herbarium La Paz, Bolivia (LPB).

Distributio: supra Chapi-Chapi, Prov. Arque, Dept. Cochabamba, Bolivia, 3500-3700 m.s.m.

Puya prosanae is similar to *P. humilis* Mez but differs from it in the following characteristics: Cushion-forming, not caespitose. Leaves shorter, only 6–8 cm, not 20–25 cm long and narrower, only 2–3 mm, not 7 mm wide. Inflorescence short-cylindric, not fusiform. Floral bracts shorter, not longer than the petals. Flowers subsessile, not 2–3 mm long, pedicellate. Petals red-violet, not green.

Plant stemless, flowering up to 14 cm high, forming cushions. *Cushions* with radial growth, dying from the center in age, 20–30 cm in diameter, with more than 20 single *rosettes;* these bulbous at the base, the bulb 2.5 cm high and

Figure 10.
Holotype of *Puya prosanae*, P. & C. Ibisch No. 625 A.

Pierre Ibisch

1.5 cm wide. *Leaves* only few per rosette. *Sheaths* conspicuous, broad-ovate, 1.5 cm long, 2 cm wide, light brown on both sides, in the upper part lustrous dark brown especially beneath, membranaceous, nerved, the margin near the transition to the blade serrate, above sparsely brown lepidote. *Blades* narrowly triangular, acuminate, 6–8 cm long (in culture up to 10–20 cm long), above the sheath 5 mm broad, at midlength 2–3 mm wide, lepidote on both sides, above soon glabrous, at the margin with teeth 1–2 mm long, light brown, retrorse, spaced every 5 mm and almost opposite. *Scape* erect, 6–9 cm long, 2 mm wide, brown, densely lepidote. *Scape bracts* densely imbricate, erect, the basal ones subfoliate, with filamentous and serrate blades, the middle and upper ones ovate-lanceolate, acuminate, 1.5–2 cm long, finely serrate, nerved, with conspicuous midrib, lepidote beneath, reddish, gradually changing into the floral bracts. *Inflorescence* simple, short-cylindric, 5 cm long, up to 2.5 cm wide, more or less densely spirostichous with 5 to 15 flowers. *Floral bracts* erect, ovate, acuminate, up to 2 cm long, 1 cm wide, rose red, dry-membranaceous, nerved, sparsely lepidote, inconspicuously serrate. *Rachis* covered by the floral bracts, thin, dark brown, lepidote, more or less angled. *Flowers* erect, subsessile, 2 cm long, petals

Pierre Ibisch

Figure 11.
Habitat of *Puya prosanae* on a rocky slope with very low vegetation cover.

exceeding the floral bracts. *Sepals* narrow-triangular, acuminate, 11–12 mm long, 2–3 mm wide, free to the base, hyaline margined, rose reddish, sparsely lepidote, apically inconspicuously serrate, the posterior carinate. *Petals* erect, ligulate, 16–17 mm long, red-violet, darker and spirally contorted after anthesis. *Stamens* and *style* included. *Fruits:* capsules 1.5 cm long. *Seeds* 2–2.5 mm long.

Holotype: *Pierre & Claudia Ibisch 625 A* (20. 11. 1991)–B.G. Bonn 10 000, in Herb. Inst. Bot. System. Univ. Heidelb. (HEID); isotype: Herbarium La Paz, Bolivia (LPB).

Locality and distribution: Above Chapi-Chapi, Prov. Arque, Dept. Cochabamba, Bolivia, near the crossroads Cochabamba-Oruro (km 82), 3500–3700 m elev. Further observations in the area of the type locality in the northeast of Arque, not rare.

REFERENCES:

Ibisch, P. 1992. Vegetationskundliche Studien als Beitrag zur Ökologischen Charakterisierung der Provinz Arque (Bolivien). Entscheidungshilfe für die Bewertung der Naturraumpotentiale und eine ökosystemgerechte Landnutzungsplanung. Univ. of Bonn. Diss. (unpublished). Spanish translation: Cuaderno de Investigación, No. 1. Prosana. Cochabamba, Bolivia.

Rauh, W. 1983. *Puya hromadnikii* Rauh, sp. nov. Bromelienstudien, Tropische und subtropische Pflanzenwelt, 41:5–9.

Smith, L.B.; Downs, R.J. 1974. Pitcairnioideae. Flora Neotropica 14/1. New York: Hafner Press.

Pierre Ibisch

Figure 12.
An older cushion of *Puya prosanae* with one plant flowering.

ACKNOWLEDGMENTS:

The first author is indebted to Dr. H. Schoeneberger, GTZ (Cochabamba), who made possible the botanical-ecological work supported by the GTZ and the Richard-Winter-Stiftung within the Project PROSANA. The team was very kindhearted and helpful. We hope that PROSANA will grow and flower like *Puya prosanae* in the unfavourable environment of Arque for the sake of the great people of that province.

Bonn/Heidelberg

IF YOUR SOCIETY, its anniversaries, events, and projects have not been mentioned, the probable reason is that the editor didn't know about them or didn't read your newsletter carefully enough. Write notes on your newsletter to attract my attention. Write a lot or a little. Everybody likes to read about people—Ed.

Book Reviews

For the first time, to our knowledge, there are two books written in Spanish for bromeliad hobbyists, welcome additions to the literature. They are listed in the order in which received by the reviewer.

BROMELIAS PARA AFICIONADOS, Comite de Bromeliologia, Sociedad Venezolana de Ciencias Naturales, Caracas. 59 pages, 31 color photos and six black and white drawings; glossary; illustrated soft cover; 22 cm. Price not given. Write to the Comite: Calle Arichuna con Calle Cumaco, Apartado Postal 1521, El Marqués, Caracas, Venezuela.

In the first few pages the several authors provide a survey of the bromeliad family, the forms and structures, brief notes about cultivation; short descriptions of aechmeas and tillandsias. Almost half of the book is then taken up with a discussion about and listing of "Las Bromelias de Guayana," the "Lost World" of Conan Doyle, the territory of tepuys.

This is an interesting approach to bromeliad discussions because what seems to be an introductory course continues as a highly specialized lecture. The reader is taken from first words to an immersion in home-country bromeliad information. So much the better for those looking for a summary of the especially exotic genera including *Navia, Lindmania, Brocchinia, Connellia, Steyerbromelia, Brewcaria,* and *Ayensua.* These lists, with few exceptions, match the binomials in the Luther List of 1992. Other genera represented in the Guayana are also mentioned.

The drawings serve not only to decorate but to instruct. One, describing the kinds of inflorescence with symbols, is especially good. The color reproduction is, unfortunately, uneven but many of the pictures are excellent. An errata list included in the review copy adds the photo credits and corrects the obvious errors.

The Comite is to be congratulated on publishing this instructive book. It should attract the interest of many potential members.

BROMELIAS; MANUAL PRACTICO DE CULTIVO, Ana Racagno de Rousse. Fondo Editorial Tropykos. 1992. 72 pages, 37 color photographs, illustrated soft covers; bibliography; index of photographs and general index; 22 cm. US$12.00. ISBN 980-325-005-1. Order from the publisher: Calle El Escorial, Edf. Luxor, Of. 71, Apartado Postal 47.687, Caracas 1041-A.

After a very brief summary of bromeliad history, the author states that her purpose is to facilitate the understanding and cultivation of bromeliads and to avoid the use of scientific terminology as much as possible while doing so. She states that this guide is directed toward students, collectors, and growers of bromeliads with the wish to fill the void of this kind of publication in Spanish. She adds that this work is not scientific but the compilation of many years of experience in cultivating these interesting plants.

Dr. Rousse describes in the next few pages the essentials of cultivation: water, humidity and ventilation, temperature, light, propagation, flowering, fertilizing, and diseases. She has a few words about displays and gardens.

From there, she describes the commonly grown genera and their cultivation and mentions representative species. The photographs are placed with related subject matter. She and her son, Pierre, took the pictures in her collection. With her clearly stated purpose, the author has provided instruction in a few simple words.

There may be matters that experienced growers will want to dispute, some color reproduction is not of the best and two photos are upside down. The reviewer has provided the latter condition often enough to know, and who has not had that experience with her/his own slide shows?

We hope that our Spanish-speaking hobbyists will appreciate this work of a dedicated aficionada.—TUL

ANNIVERSARY NOTES.

The Bromeliad Guild of Tampa Bay, Florida, is celebrating its 30th anniversary this year. Their most recent newsletter recites proudly and with justification the many activities and achievements of the Guild in recent months but notes with regret that much of the history is being carried around in Founder Ervin Wurthmann's head. We suspect that lack of written record is common among our affiliates. Best wishes to friend Ervin and congratulations to the officers and members of the Tampa Bay Guild.

The Bromeliad Society of Australia, "the first in Australia," is also 30 years old, as announced in its newsletter *Bromeletter* with the commonly heard plea for more of the members to volunteer their help at shows and meetings. While it is now winter in Australia and summer is just plain hot in many parts of the northern hemisphere, we have common problems: the few who do get criticized by the many who won't. Participation is the key word. Cheer up! mates, you deserve congratulations for your successes over these many years.—TUL

An Exceptional Form of *Aechmea tessmannii*

Chester Skotak

Aechmea tessmanii Harms occurs in the Amazonian drainage of Colombia, Ecuador, and Peru from 100 to 1350 meters elevation. On a recent trip to the Loreto area of Napo Province in Ecuador with Peter Bak of Holland and Luis Sota of Costa Rica, I found an exceptional form of *A. tessmannii* or a related species (front cover). The plant was growing in a tropical rain forest near Ishpano at 1000 meters elevation.

According to H.E. Luther, specialist for Ecuadorian Bromeliaceae, the plant differs from *A. tessmannii* by having the inflorescence more densely branched with the branches shorter and more numerous and the sepals conspicuously exserted beyond the floral bracts. Compare this plant with a typical *A. tessmanii* (back cover), collected and photographed by José Manzanares of Quito, Ecuador. Whatever this attractive aechmea is, it is worthy of cultivation in any collection.

Alajuela, Costa Rica

THE EDITORIAL ADVISORY BOARD HAS A NEW MEMBER: PAMELA KOIDE.

I am very pleased that Ms. Koide has agreed to become a member. She is well known as a collector, a horticulturist, and a conservationist. She is a director for the California region. Her energetic and timely help during the recent CITES conference is an indication of the sincerity of her interest entirely apart from her concern as a grower. Her presence on the Board will emphasize our interest in both the practical and scientific aspects of our activities.—TUL

SPECIAL THANKS ARE OWED TO RECENT CONTRIBUTORS TO THE *JOURNAL* COLOR FUND: To Dr. Leonard Kent of Vista, California, to Catherine Buckley of Orlando, Florida, and to the San Diego Bromeliad Society.

We greatly appreciate their financial support and confidence in our work.—TUL

Regional Reflections

Seed Germination

There's nothing quite like growing cryptanthus or for that matter, any bromeliad from seed. It's an incredible feeling, watching a tiny, hard, little seed grow up into an adult! On the other side of things, it's a really inexpensive way of increasing your collection and makes for good trading material!

I read all I could on bromel seed growing, which not only wasn't very daunting, what with every different type seed needing different soil, light, etc. I simply don't have the time, or the room, to give each seed group individual care.

At $1.00 for a pack of seed, I decided to try, anyways, using my own, very simple method. I use this method for all bromel seeds except tillandsias.

I sow my bromel seed on the same mix I use for the adults—50% Canadian peat and 50% perlite, wetting with warm soapy (Ivory) water.

Warm, soapy water will dampen the peat evenly and quickly. This mix is placed in a flat to a depth of one inch. Seeds are placed on top of the mix (in groups of species, or hybrids) and plastic name tags placed beside each group. I sow dyckias, neos, orthos, and crypts all together in each flat used. I prefer flats with drainage holes, as I can then bottom-water by placing the flat in the bathtub. Fill your bath with warm soapy water, or water the flat after you've had a bath. This used bathwater is called gray-water and is very good for plants. The soap residue acts as a natural insecticide and fights bacteria. Again, the warm, soapy water will also evenly dampen the mix.

Next, I place a clear plastic lid over each flat. Having for years grown other plants by seed, I knew what a difference bottom heat can make.

I hadn't heard much about using bottom heat on bromel seeds, but I gave it a try and the results were spectacular! Germination can start as quickly as one hour from sowing, and all seeds are usually germinated after three days. I used to use an electric heating pad but one, it's electric and the seed flat is damp, and two, Mr. Harvey Beltz sent me so many seed, knowing I hadn't the heart to throw out the excess, that I was sowing eight or ten flats at a time and heating pads aren't cheap!

Looking around, I realized my king-size waterbed could easily hold ten flats of seed...so they got the waterbed, I got the couch! I keep the bed at 26° C,

place the flats directly on the mattress and cover the flats with a white cotton sheet. After 2–3 days, every one should be germinated and the sheet can be removed. After two weeks the flats are placed on the plant shelves under artificial light and treated as adults, but still bottom-watered. At three weeks, the seedlings are potted up individually and their adult life begins.

SUMMARY: 50% Canadian peat
50% perlite

Dampen with warm, soapy water, fill a flat to 1" depth.
Cover with clear plastic lid.
Place on waterbed mattress and cover with white cotton sheet, for 2–3 days.
Remove sheet, provide some light.
After 14 days, place seedling flats with adults.
At 21 days, pot up individually.

It may be a weird way to grow bromels by seed, but it's quick, easy, and very inexpensive! (If you don't have a waterbed, children's sizes are very inexpensive, and if you later decide not to grow more seed, the bed liner makes a great garden pool!)

Lynn Rowe
Friedhof Str. #21, 6452 Hamburg, Germany
Reprinted with permission from the Cryptanthus Society JOURNAL
May 1992

Aechmea pectinata

About ten years ago I bought a small pup of *Aechmea pectinata.* The pup steadily grew bigger year after year, until it had to be moved from the shadehouse shelf and placed on the floor of another house where it received just a tinge of early morning sun. Over the years it produced one offset, which I removed when it grew big enough.

Several times the bottom leaves coloured and I thought, Aha! It is going to flower. But the said leaves just died off and were eventually removed. I had known many members whose plant had flowered only a few years after buying a pup so what was I doing wrong? I didn't fertilize it and I'm afraid that in the latter years, didn't repot it because the size and cruel spines made me think twice.

Early December, to my delight, I noticed the telltale gathering of small leaves in the centre of the cup. The stalk of the inflorescence began to rise and each day I watched for colour to come to my beautiful plant. But nothing—not a

touch of colour—and I thought, Am I going to be duped after waiting all these years?

I went on holidays for a week after Christmas and that week was very hot. When I returned I went to look at my *Aechmea pectinata.* What a magnificent sight! All the bottom leaves were a brilliant, deep, watermelon pink. Correction! Not all of each leaf, but it was as if a mad artist had dipped his brush into the paint and splashed it willy-nilly, to make a masterpiece of eye-catching beauty. Each day since, the colour has spread further up the plant towards the cup.

The inflorescence stands tall, like a little green pompom, the flowers are green and last a day, leaving little tufts of brown when finished. Nothing takes from the beauty of the colour of the leaves, which I believe will last for many, many months. My plant stands about three feet tall, with a spread of over four feet, and considering its age, the condition of the plant is very good. I would like to take it to the next meeting to show the new members, but would it fit in the car? I can imagine the look of horror on Barry's face!!!

So next time you see a pup of *Aechmea pectinata* for sale, why not buy it? Maybe your pup will flower quicker than mine, but if not the wait will be worth it when it does.

Joan Willams
Reprinted from BROMELETTER,
Journal of the Bromeliad Society of Australia Inc.
March/April 1993

Hopefully Helpful Hints

1. Got a big *Neoregelia* 'Fireball' you need to divide? Offsets put directly into new potting mix have a tendency to turn green. I root my fireball pups in a tray of moist perlite. When a good root ball is formed, pot in soil but do not shake off all the perlite from the new roots. The new plants will not lose color when handled thus.

2. Do you grow aechmeas and billbergias from seed? Watch your newly transplanted young seedlings. There is a small gray moth that deposits eggs in the center of the vulnerable young plants. These develop into tiny worms (larvae) that eat the centers, and it is not unusual, one morning, to find all the leaves fallen from the plants. Regular spraying with Dipel (or similar) is all the control necessary. Amazingly, many of these defoliated young seedlings will pup and survive.

3. Most vrieseas prefer to have dry feet. One exception is *Vriesea ospinae,* which needs to be fed regularly and the soil must be kept moist at all times. I overpot and grow with the pot standing in a tray of water. To further demonstrate its individuality, *Vriesea ospinae* will not bloom naturally unless it is allowed to clump. Most growers forget it. Do not take pups until blooming is past. The plant responds well to Florel and even the smallest offset will bloom, but the natural bloom is superior to the forced one.

4. There have been many suggested remedies for leaf quilling (the tying up of new center leaves). In my greenhouse the worst culprit is *Vriesea* Shima Rhyu. One drop of dishwashing liquid (Joy, etc.) works wonders. Try to catch the plant before it is too late and carefully put one drop in the very center. Then fill with water and allow to stand a few minutes. Leaves generally slide easily apart. I do not know if the detergent would damage the plant if left too long, so make a habit of flushing it all away as soon as the leaves have loosened.

Carol Johnson

Reprinted from the Florida Council of Bromeliad Societies Inc. "Newsletter," May 1992

No more detergent!

Have you ever found the center leaves of plants closed and fused together? In the past I noticed this condition seemed to come when I didn't get to water my plants for about two weeks and the water in the leaf axils had evaporated.

When I sprayed the leaves heavily with Physan 20 and then gently worked the leaves apart, I found that the leaves seemed to be cemented together with a sticky substance. I suspect that it was the residue of algae or mold that had been growing in the axil water and had dried like cement when the water was gone.

I tried putting a drop of liquid dish detergent into the cup of a few plants and then watering them thoroughly. The stuff foamed up a lot but seemed to act as a wetting agent, as I reported in my seminar at the WBC in Tampa. But I now want to alert readers to avoid using any detergents. On some plants I tested, I evidently dropped in more than one small drop of detergent (it's not easy to control), because the stuff not only remained for a long time, but it literally burned the center leaves of the plant.

A much better and safer wetting agent would be something like [liquid] Ivory soap. A drop of soap in a pint sprayer of water can make a solution you can spray into the leaves without burning them.

Herb Plever

Reprinted from "Bromeliana," New York Bromeliad Society, Inc. November 1992

Comment by Shirley Grubb, editor, Potpourri, *Greater New Orleans Bromeliad Society: Take your choice on a solution to the problem we call "quilling." Remember that Herb Plever is growing in indoor conditions and doesn't get our New Orleans rains. Carol Johnson grows her plants in a greenhouse and probably has an automatic (and frequent) water system. Also, are there other causes of quilling than lack of regular watering? It would seem so. Some clones seem to do this consistently even with sufficient water. Perhaps the solution depends on the cause.*

NEW SOCIETIES

We are very happy, indeed, to announce the formation of two societies: **Sociedade Brasileira de Bromélias** was formed on the 14th of June 1993. It is the first organization of its kind in Brazil that we know of. Its objectives include the study, cultivation, and conservation of bromeliads with great emphasis on the many aspects of conservation. We await with interest the publication of its quarterly, REVISTA BROMÉLIA. Congratulations to the first president, Luiz Felipe N. de Carvalho, the directors, and members. We wish you well.

The new society invites bromeliad fanciers everywhere to join. Regular membership dues are US$30, students US$15. Write to Sr. Renato Bello, Director of Administration, Av. Padre Leonel Franca, 90, Apto: 405, Gávea, 22451, Rio de Janeiro, R.J., Brazil (or to this editor) for further information.

The Florida East Coast Bromeliad Society was formed recently under the leadership of Art Hyland bringing to thirteen the number of bromeliad societies in Florida. This new group meets on the fourth Sunday of each month at 2:00 p.m. at Sugar Mill Gardens, Port Orange. Dues are $7.50 for individuals and $10.00 for families. It is truly encouraging to see such initiative in creating a local organization to bring together hobbyists to share information and plants. For information write or call: Arthur Hyland, 2200 Pine Hill Place, Orange City, FL 32763; 904-775-9919.

We invite the new societies to become affiliated with The Bromeliad Society to share our goals, to become active in this international organization, to contribute to and learn from the JOURNAL.-TUL

Questions & Answers
Conducted by Derek Butcher

All readers are invited to send their questions and observations about growing bromeliads as a hobby to the editor. Answers will be sent directly to you and some questions will be published.

Q. Why is *Tillandsia tectorum* so called?

A. Since the author of this species, E. Morren, may have told us the reason for this epithet but I can't find it, we shall have to resort to W.T. Stearn's BOTANICAL LATIN to find that *plantae tectorum* means "plants of roofs." Does that help? The Smith & Downs monograph says that the species is saxicolous and cultivated on roofs. Why should it be grown on roofs? I have seen Dr. Rauh's photographs of *T. latifolia* growing on roofs but never one of *T. tectorum* (always on rocks).

In the northern Mediterranean region there are plants called *Sempervivum* or "house leeks" and one species called *S. tectorum*. These plants were grown on houses even in pre-Roman times to protect the house against lightning. Does that name have anything to do with the tillandsias from Ecuador? I have been up, down, and through the literature and can find no mention of the roofs.

Would it be too much if I suggested that there may be a link between the fact that it comes from an altitude between 1,000 and 2,700 metres, and the Andes have been described as the "Roof of the World?"

Q. What should I do about *Neoregelia* offsets that are distorted or lopsided?

A. Let's go back to the basics and ask what we are doing that Nature didn't plan. Epiphytic bromeliads in the wild have the best chance of survival because of their ability to broadcast seeds. That fact means any food stored by the plant is directed firstly towards seed production and secondly towards producing offsets.

In its already crowded environment, the parent bromeliad is seeking to hang onto what it has and just one offset would be sufficient. We are all on the lookout for that offset because it promises a specimen of a particular plant. We may be greedy and try to get as many offsets as we can, but we learn quickly that if the offset is too small its food reserves will be inadequate for survival. Remember that every green leaf on a parent plant is an active food producer and the food, if not used to augment seed production, goes towards offsets.

If we translate this fact to our horticultural efforts the first step is to remove the flower head to promote offsetting. Next, the more green leaves we remove from the parent, the less food will be available. Finally, if all of the parent plant leaves are removed the only active food-producing factories will be the green leaves of the offsets.

We are now back with the question. What to do about obtaining symmetrical offsets?

1) Leave the flowering plant alone, enjoy its beauty, take whatever offsets appear.

2) Remove parts of the leaf or the entire leaves that may cause lopsided growth.

3) Remove all but the strongest and best shaped offsets early if you want champions.

You may want to try any of the above.

Q. What caused my *Neoregelia farinosa* hybrid to change from a lovely rose color to a dark maroon?

A. Neoregelias are known mainly for their colour changes in the inner leaves at flowering time. They also respond with colour change to heat and light intensity. If you grow them under lights you might be able to get constant colour values. In between, you should get the variations that give the greatest challenge and satisfaction.

I like colourful neoregelias and seek to put them in as much light as possible. Not too much light because that will bleach the leaves or cause sunburn. You must be careful. If all were dark maroon they would be boring. We are lucky that this does not happen because even plants next to each other do not share the same conditions.

Q. One of my variegated plants has produced a pure white offset. Is this a normal condition?

A. All plants have some green color in their leaves or trunks when growing. The greenness is provided by chlorophyll that enables the plant to convert energy into food. A variegated plant with notably less green than the normal plant works overtime to survive. An offset with no, or very little, chlorophyll is destined for an early death. It survives entirely on food provided by the parent. Separate it and say goodbye. At the same time, you will give the parent a chance to produce a normal offset.

BROMELIAD SOCIETY, INC.
BALANCE SHEET AS OF 12/31/92

	12/31/91	12/31/92
CURRENT ASSETS		
Cash – Texas Commerce Bank	11,303.13	21,261.80
Cash – General Fund Special	58,055.57	42,883.73
Cash – Life Membership Spec.	12,140.70	12,543.48
Cash – Padilla Research Fund	2,751.61	821.28
Cash – Padilla Endowment Fund	1,339.67	3,098.31
Total Cash	85,590.68	80,608.60
ADVANCES		
1992 World Conference	1,000.00	—
1994 World Conference	—	1,000.00
H. Beltz	200.00	200.00
V. Steckler	200.00	—
A. Navetta	375.00	—
Total Advances	1,775.00	1,200.00
FIXED ASSETS		
Library and Equipment	4,413.39	5,643.39
Less Depreciation	2,089.54	2,089.54
Total Depreciated Assets	2,323.85	3,553.85
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		
Racine Foster Memorial Fund	25.00	125.00
TOTAL NET WORTH	157,027.18	152,600.10

BANKS

Texas Commerce Bank	Merrill Lynch
Houston, Texas	Houston, Texas
Account 0055517	Account 581-07J70

BROMELIAD SOCIETY, INC.
FINANCIAL STATEMENT – 1992

Checking Account Balance – Start		11,303.13
RECEIPTS		
Advertising – Journal		6,407.23
Advertising – Roster		795.00
Back Issues		4,289.82
Color Fund		1,176.00
Culture Brochure		325.36
Cultivar Registration		768.00
Dividends		–0–
Interest – General		2,603.48
Interest – Endowment		1,259.84
Judges Certification		140.00
Medallions/Trophies		124.00
Memberships		35,352.97
Postage Refund		75.10
Seed Fund		1,603.77
Slide Library		40.00
Donations		300.50
Publications		15,863.48
Padilla Research		—
Padilla Endowment		500.00
Total Receipts		71,624.55
DISTRIBUTION		
Administrative		22.70
Affiliate Newsletter		–0–
Bank Charges/Fees		87.02
Culture Brochure		–0–
Culture Book		14,614.54
Cultivar Registration		158.78
BSI Meetings		604.29
Grants		5,000.00
Journal – Allowance	1,800.00	
Journal – Mail Service	7,953.49	
Journal – Misc.	1,032.08	
Journal – Printing & Photo	23,437.16	
Journal – Typesetting	5,088.00	
Journal total		39,310.73
Judges Certification		216.00
Medallions/Trophies		2,587.90
Membership – Contract	5,400.00	
Membership Expenses	1,715.75	
Membership total		7,115.75
President's Expenses		249.97
Publications		2,142.99
Roster		—
Secretary's Expenses		—
Seed Fund		2,315.57
Slide Program		—
Treasurer's Expense		38.39
Contingency Fund		—
CITES Program		1,012.00
W/O Advances		575.00
Total Distribution		76,051.63
TRANSFERS – NON-INCOME		
Padilla Endowment		500.00
Padilla Research		—
Total Non-Income Distribution		500.00
Total Gain/Loss period		–4,927.08
TRANSFERS – INCOME/EXPENSE		
Library		–1,230.00
R. Foster Memorial Fund		100.00
Grants		5,000.00
Interest – Special Accounts		–3,525.00
Charges – Special Accounts		66.90
CITES		1,012.00
Culture Book		12,886.85
Expense not requiring funds		575.00
Total Incl./Expense Transfers		14,885.75
Checking Account Balance end of period		21,261.80

BROMELIAD SOCIETY SPECIAL ACCOUNTS
YEAR ENDING DECEMBER 31, 1992

GENERAL FUND	
Begining Balance	58,055.57
Interest Received	1,779.43
Transfers	—
Total Income	1,779.43
Bank Charges, Fees	52.42
Grants	3,000.00
CITES Program	1,012.00
Culture Book	12,886.85
Total Disbursements	16,951.27
Ending Balance	42,883.73
LIFE MEMBERSHIPS	
Beginning Balance	12,140.70
Interest Earned	413.58
Life Members	—
Total Income	413.58
Bank Charges	10.80
Total Disbursements	10.80
Ending Balance	12,543.48
PADILLA RESEARCH	
Beginning Balance	2,751.61
Interest Received/Donations	72.15
Total Income	72.15
Bank Charges	2.48
Grants	2,000.00
Total Disbursements	2,002.48
Ending Balance	821.28
PADILLA ENDOWMENT	
Beginning Balance	1,339.67
Interest – Bonds	1,200.00
Interest – Other	59.84
Donations	500.00
Total Income	1,759.84
Bank Charges	1.20
Purchase Securities	—
Total Disbursements	1.20
Ending Balance	3,098.31
BROMELIAD IDENTIFICATION CENTER	
Beginning Balance	15,415.92
Interest Earned	1,161.04
Donations	340.00
Auctions	11,832.00
BSSF Interest Earned	—
Total Income	13,333.04
Bank Charges	14.00
Director's Expenses	5,155.00
Grants, etc.	—
Equipment	—
BSSF Expense	—
Total Disbursement	5,169.00
Ending Balance	23,579.96

BROMELIAD SOCIETY, INC.
BUDGETS – 1993 AND 1994

	1993 BUDGET	1994 BUDGET
RECEIPTS:		
Advertising – Journal	5,204.00	6,000.00
Advertising – Roster	—	800.00
Back Issues	1,500.00	3,500.00
Color Fund	1,000.00	1,000.00
Cultivar Registration	1,000.00	350.00
Culture Brochure	700.00	400.00
Dividends	6.00	6.00
Donations – BSI	200.00	300.00
Interest – General	4,500.00	3,000.00
Interest – Endowment	1,100.00	1,500.00
Judges Certification	100.00	100.00
Medallions/Trophies	1,300.00	200.00
Memberships	37,000.00	37,000.00
Postage Refund	200.00	100.00
Publications	12,000.00	12,000.00
Seed Fund	1,700.00	1,700.00
Slide Program	300.00	100.00
From General Funds	1,420.00	—
Total Receipts	69,230.00	68,056.00
DISBURSEMENTS		
Administrative Expense	100.00	100.00
Affiliate Newsletter	250.00	250.00
Bank Charges	100.00	100.00
Computer Upgrade	250.00	—
Conservation	200.00	200.00
Cultivar Registration	—	—
Culture Book	400.00	400.00
Culture Brochure	—	—
Director/BSI Mtgs.	500.00	600.00
Franchise Tax	10.00	10.00
Grants	2,500.00	3,000.00
Journal – Allowance	1,800.00	1,800.00
Journal – Mail Service	8,000.00	9,000.00
Journal – Miscellaneous	2,200.00	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	600.00
Judges Certification	200.00	300.00
Medallions/Trophies	2,750.00	2,750.00
Membership – Contract	5,400.00	5,400.00
Membership – Expenses	2,200.00	2,000.00
Membership – Envelopes	—	—
President's Expenses	200.00	200.00
Publications	1,500.00	2,000.00
Roster	3,000.00	—
Secretary's Expenses	200.00	100.00
Seed Fund	1,350.00	1,350.00
Slide Program	100.00	—
Treasurer's Expenses	200.00	100.00
Contingency	300.00	300.00
Reserves	—	696.00
Research	620.00	—
Total Expenditures	69,230.00	68,056.00

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

	Rates[1]	One Issue	Six Issues
ALL ADVERTISING PREPAID.	Full Pages	$125.00	$625.00[2]
Advertisers to provide any art work desired.	1/2 Page	70.00	350.00[2]
	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.

SALE OF *JOURNAL*, BACK ISSUES 1976–1988

This sale will be continued until further notice. We are greatly overstocked in all issues EXCEPT March–April of 1984. The sale is extended to include the volumes for 1987 and 1988.

Journal volumes for 1976 through 1988, postpaid cheapest rate

U.S. addresses .....$13.00 per volume

All other addresses ...$14.00 per volume

Three or more volumes to any address ...$10.00 per volume

Write for availability and price of the Bromeliad Society Bulletin.

PLEASE NOTE:
There are no volumes or separate issues of the *Bulletin* or *Journal* available for the years 1959–1975.

PAYMENT: Checks should be made payable to The Bromeliad Society, Inc. Members outside the United States should remit by International Money Order or cashier's check payable in U.S. funds on any U.S. bank. Personal checks not drawn on U.S. banks will not be accepted. If money order is to come under separate mailing, please indicate and include a copy, or the number and type of order.

ORDER FROM or address inquiries to:

Editor, The Bromeliad Society, Inc.
1508 Lake Shore Drive, Orlando, FL 32803-1305
Telephone: 407-896-3722

BROMELIAD CLASSIC IS AVAILABLE IN LIMITED QUANTITIES

Walter Richter's ZIMMERPFLANZEN VON HEUTE UND MORGEN: BROMELIACEEN. Heinz-H. von Koschembahr, 767 Mount Pleasant St., Winnetka, IL 60093-3834 has ten copies for sale at $38.00 each. This is the 3rd edition, 1965, Neumann Verlag. 380 pages, 31 color and 94 pages black and white illustrations and many black and white drawings. Long out of print.

San Diego 1994

World Bromeliad Conference

"Bromeliads in Paradise"

June 15–19, 1994

San Diego, California

ELEVENTH WORLD BROMELIAD CONFERENCE
THE SAN DIEGO BROMELIAD SOCIETY
ORGANIZED 1965
JUNE 15-19 1994

Come Early and Stay Late! Bring the Children! Vacation Time!

OUTSTANDING HIGHLIGHTS

The featured speaker: Elton M.C. Leme speaking on the bromeliads of Brazil
Judged Plant Show • Seminars • Plant Raffles • Growers Plant Sales
Cryptanthus Display • Rare Plant Auction • Society Exhibits • Local Garden Tours
Nursery Tours • Hawaiian Luau • Education!
Make your plans to come early and stay late. Make San Diego your Vacation Headquarters!

☞ REMINDERS FOR ALL ☜

Conference Registration Rates:
Includes All Conference Activities

Early $100.00
Until 1 November 1993
Regular $125.00
Until 1 April 1994
Late $145.00
After 1 April 1994

Social Registration Rates:
Includes All Conference Activities Other than the Seminars

Early.....$ 90.00
Until 1 November 1993
Regular $115.00
Until 1 April 1994
Late $135.00
After 1 April 1994

Banquet Only Rate: $40.00 per person

SHUTTLE BUS NEWS

The PUBLIC SHUTTLE Company has been hired to furnish free airport and hotel transportation for all registered Conference members. Persons NOT registered for the Conference will be charged $5.00 per trip. Children under age 12, free passage. Ground Transfer Vouchers to assure free travel will be issued to registrants. They will be valid until 30 June 1994 for those staying late—another good excuse to linger and enjoy San Diego. At Lindbergh Airport, look for the PUBLIC SHUTTLE, which is all white with black stripes.

REGISTRATION FORM 1994 WORLD BROMELIAD CONFERENCE

Name (print) _____

Address _____

City _____ State _____

Zip _____

Amount Enclosed $_____ BSI Affiliate Society _____

Enter quantity of ___ Regular Registration ___ Social Registration ___ Banquet Only

Make check payable to: S.D. World Bromeliad Conference

Mail registration form to: Joyce Brehm, 5080 Dawne St., San Diego, CA 92117

PLEASE NOTE: The Hanalei Hotel reservation number is 1-800-882-0858

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.

J. Manzanares

Aechmea tessmannii Harms, 1927. Named in honor of Günter Tessmann. "This handsome plant, 3 feet high, with stiff, broad, gray-gray leaves edged with conspicuous spines... floral bracts are shiny green, tipped with orange; the petals are orange." V. Padilla. The species is compared with an exceptional form on page 218 by Chester Skotak.

Calendar

2–5 September	4th International Cryptanthus Show and Plant Sale held in conjunction with The Sooner State Bromeliad Study Group 9th Annual Show. Plant entries Thursday, 1–9 p.m. Late entries Friday, 8 a.m.; Judging 8 a.m. Friday, Show and Sale open to public 1 p.m. Friday, Saturday 10 a.m.–5 p.m. and Sunday 10 a.m.–4 p.m. Debbie Goddard 918-835-6080 or Georgia Waggoner 918-733-4602.
18–19 Sept.	Seminole Bromeliad Society 1st Standard Bromeliad Show. Seminole County Ag Center auditorium, Sanford, FL. Judging on Sat. Show will be open to the public from 1–6 p.m. on Sat. and 9 a.m.–5 p.m. Sunday. No plant sales. Elaine Sizer, 904-734-9436.
9–10 October	Sarasota Bromeliad Society 12th Annual Show and Sale, cosponsored with Marie Selby Botanical Gardens. At the Gardens, 811 South Palm Ave.,Sarasota, FL. Saturday 10 a.m. to 5 p.m.; Sunday 10 a.m. to 4 p.m. Special reduced admission price to the gardens. John Worley 813-747-2231; Wally Berg 813-924-0060.
30 October	Bromeliad Guild of Tampa Bay Show and Sale. The Garden Center, 2629 Bayshore Blvd., Tampa, FL. 9 a.m. to 5 p.m. Open to the public. Nonjudged show, displays, exhibits, seminars, workshops. G.E. Patterson 813-996-6302.
13–14 November	Caloosahatchee Bromeliad Society presents "Treasures of the Rain Forest," a standard show and sale. Lee County Garden Council and 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. Hattie Lou and Sam Smith 813-694-1135.

The deadline for articles, ads, calendar, and other notices for the January–February 1994 issue of the JOURNAL is 1 November 1993.