Journal of The Bromeliad Society

VOLUME 44 • JULY–AUGUST 1994 • NUMBER 4

Journal of the Bromeliad Society

Vol. 44, No. 4 July–August 1994

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: *Navia arida* collected from the jungle of Bolivia State, Venezuela, by Dr. Charles and Fanny Brewer-Carias. The photograph of cultivated *Navia arida* specimens on page 166 makes an interesting contrast. Photo by Fanny Mendoza de Brewer. Back: *Tillandsia velutina.* A new species from Mexico and Guatemala is described on pages 153–155. Photo by R. Ehlers.

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.

Adventures of a Novice

Ed Prince **Illustrations by the author**

I'm not exactly certain when the notion of going on bromeliad collecting trip, and my decision to actually take the plunge, occurred. It's one thing to attend a monthly meeting featuring a speaker recently returned from some exotic tropical locale and say, "Someday I want to try my hand at collecting," and actually do it (figure 1). I suspect the picture of Dennis Cathcart (you know, the one in his Tropiflora ad) was central in my making the decision. I mean, I'm not even a minor player in the bromeliad big leagues. Moyna, my patient spouse, is the real enthusiast and grower. I just build the occasional shade house or bench.

It was fortunate that we had become friends with Wally Berg, an experienced collector and grower of unusually fine specimen plants. In a moment of weakness he agreed to allow me to accompany him and Chester Skotak on a collecting trip to Ecuador. Needless to say, I was the designated number three man in matters both minor and major.

Our base of operations was the Hotel Zumag in Quito, a city of modern beauty and old world charm, both of which were absent from the Zumag. The daily rate of U.S. $19 including private bath with lukewarm water made it tolerable.

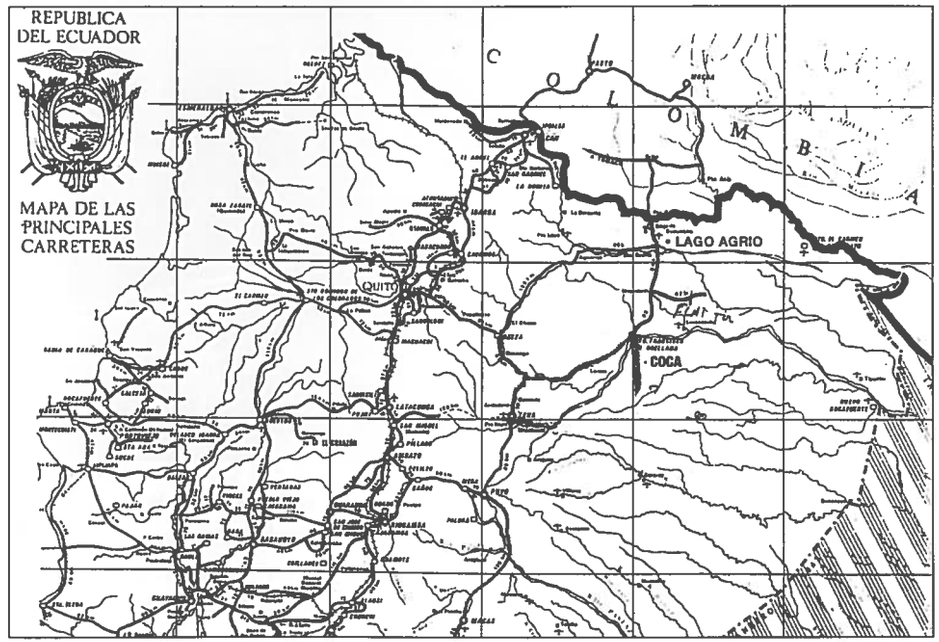


Figure 1.
Ed Prince and unidentified *Aechmea* species.

Figure 2.
Plants on car are all *Aechmea anomala,* not only the first time collected in 40 years but the first time ever in Ecuador.

We departed on the morning of Monday, July 11th, and headed southeast toward Baeza on a road that would take us up and over the mountains. We had rented a 1992 Chevy Trooper with four-wheel drive (don't leave home without one) and on pretty decent roads made our way over the Andes reaching altitudes exceeding 12,000 feet. All along the slopes we saw a great variety of plant life, including several dazzling bromeliads in full flower. Although easily accessible, none was collected as its chance of survival in Florida was nonexistent. The scenery surpassed all expectation and was, in a word, glorious.

Between Baeza and Tena the altitude dropped to below 3,000 feet and we started to see plants that would, given the proper care, survive in South Florida. I constantly shouted (from the back seat) "Stop the car, did you see that!" Chester or Wally would say, with just a hint of exasperation,"Yes, Ed, I saw it. That's not a bromeliad but a red leaf of a this or that." In all fairness to them, they never said anything to curb my enthusiasm but encouraged me to continue spotting as, who knows, I might actually see a worthwhile plant. By day's end we were in Tena, a town apparently built around a huge statue of an Indian. After rejecting two hotels that left everything to be desired (I finally asserted myself) we discovered the Hotel Mol, which had clean rooms and private baths. The owner/operator kindly cooked us a very good dinner of chicken and potatoes. Regardless of what your guidebook recommends, in Tena go for the Mol.

Tuesday morning found us on the road to Lago Agrio, an oil boom town. The road surface changed from basic unpaved rock and clayish mud to an oily sludge that made for smooth driving but literally got onto and into everything. To make it even more interesting, the rain began and continued for the next sixty hours, or so. All along the roadside we saw the type of tropical vegetation you dream about: orchids in full bloom, heliconias of every size and color, and yes, bromeliads in profusion. Whenever possible (but not too frequently as most bromeliads were nestled on the top branches of trees far too tall to reach) we stopped to gather plants that were for the most part either totally unknown to Wally or Chester (everything was unknown to me) or a different variety from those presently in their collections.

We arrived in Lago Agrio at almost sunset and immediately sought lodging. The town was teeming with oil-industry folk and consequently good accommodations were few and far between. We were really fortunate to get a single room containing four beds on the top floor of the Hotel Colon. The fact that hot water pipes didn't even reach the top floor was of little consequence as we were delighted to have a place to sleep. Nothing like a cold shower to take the chill off on a cool rainy night. We had dinner in the hotel dining room: chicken and potatoes. For any purists who are still reading this narrative in the hope of learning what we actually collected, please skip to the last paragraph where plant names and locations are revealed.

Wednesday morning after a breakfast of instant coffee and bread, we aimed for Putomayo and drove to within five miles of the Colombian border. We turned around with no regrets as the available bromeliads were the same as those collected earlier. We spent the rest of the day looking for and occasionally finding some different plants, for the most part aechmeas.

For readers who had not had the pleasure, I think it's time to spend a few lines describing the actual act of collecting a bromeliad. Step One, of course, is to spot the plant, which more often than not seems to be just a few yards off the road in a tree and just begging to be a part of your collection. Step Two is the discovery that between you and the tree is a medium-sized valley filled with a typical Everglades swamp. Step Three is (it won't be easy) reaching the base of the tree and realizing your plant is just a bit higher than you first estimated. In Step Four you discover that in the wild, bromeliads are super-glued to the limbs they so delicately cling to. The Final Step is holding your new prize in your own hands and watching all the previous tenants (most of which sting or bite or both) race to see which will claim your various body parts. But don't be discouraged, think of the fun and excitement you're having, and you're only two or three thousand miles from home. It's especially adventurous when you do it in the rain.

Wednesday night was a replay of Tuesday: same hotel, same room, same dinner. Thursday's objective was to reach Coca, another oil boom town. We had no major mishaps on the way unless you count getting a flat tire and finding your jack is broken. With our luck, an American petroleum worker stopped to help and we were soon on our way again. This was AECHMEA country and we saw them everywhere. We think we may have collected one plant that might turn out to be a real find. It is just possible that it might be *Aechmea anomala*, a beauty that hasn't been seen for many years (figure 2). Harry Luther will render the verdict.

On the outskirts of Coca we caught our first sight of *Aechmea romeroi*. It was in a lone tree standing in a field of grass and shrubs populated by a few cows. The fact that we could see only heads and horns gave rise to the suspicion that perhaps the ground was not as solid as we would have wished. That condition was verified by Chester as he approached the tree and appeared to grow shorter with every step he took. "I don't think I belong here," (a classic Skotak understatement) signaled surrender. After removing his boots and dumping the muddy water, he saw another handsome specimen a few hundred yards up the road and was able to collect it.

Chester is an excellent driver, it's his judgment that I sometimes fear. Having arrived in Coca and there still being an hour or two of light remaining we decided that the exploration of a "new" road (not on any presently existing map) would be in order. After a few miles it seemed to end at a small but swiftly moving river. As there was no bridge to be seen, I suggested we make a U-turn

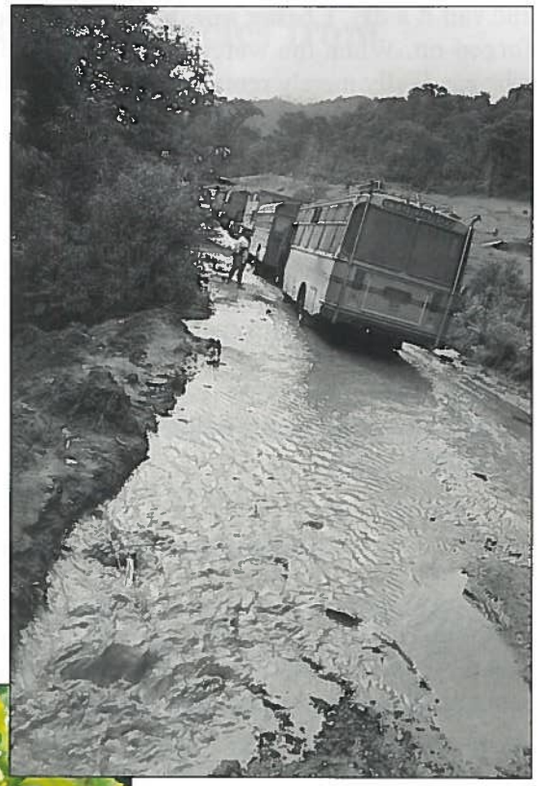


Figure 3.
A landslide closed the road to Quito for two days.

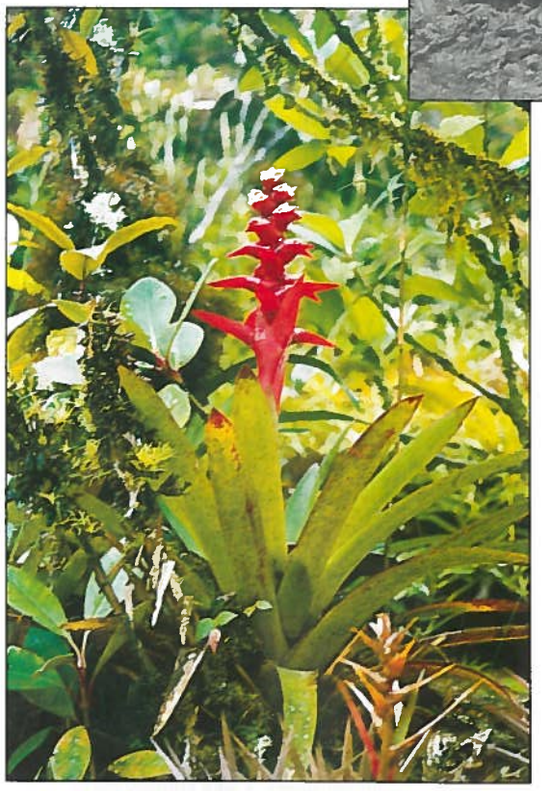


Figure 4.
Mezobromelia bicolor. This tall (nearly 5 dm) species was described by L.B. Smith in 1935. This plant is shown in its late blooming state.

and call it a day. Chester saw the lack of a bridge as a minor inconvenience and forged on. When the water level approached our feet I envisioned disaster whereas Wally merely remarked that it was deeper than it looked. Somehow our Trooper not only reached the opposite shore but repeated the feat on our return.

We made it to Coca and obtained rooms at the Hotel Oca. Fairly clean, but once again, no hot water. We discovered at dinner (chicken and potatoes) that because of all the rain there had been a major landslide and the road to Quito was closed to all traffic (figure 3). In the event you are wondering why there is so much emphasis on hotels, food, road conditions, and the like rather than on the bromeliads we collected, the simple truth is that it is much easier to write about a subject of which you have a little knowledge rather than grope and fumble over a subject that is almost totally foreign. The information relating to the identity of the plants collected is courtesy of Wally, Chester, and in some cases, Harry Luther.

We left Coca at six the next morning; no breakfast; not my idea of a good start. As this was our last day of collecting and as we had already accumulated quite a few nice looking plants, both Chester and Wally were very particular regarding any new acquisitions. About midmorning they spotted some completely different looking plants on a dead tree that was overhanging a fairly deep chasm. Wally literally took a dive (about ten feet headfirst) but fortunately was not permanently damaged. With the help of a young Indian, the plants and Wally were successfully retrieved. Wally said that a few bruised ribs were all in a day's work. It turned out that those were the last plants collected.

We arrived at the site of the landslide four hours after the road had reopened and were in a long line of heavy trucks and buses that travelled single file over a section of road still under muddy water. The rest of the trip was relatively easy. Arrived Quito tired but triumphant.

In five days we had covered about 1200 kilometers on roads designed for Jeep TV commercials, crawled and climbed in and on some very inhospitable territory, collected some (we hoped) new bromeliads, obtained various bites and bruises, and in short, had a blast.

A final thought: Just do it!

The following list is as accurate as possible regarding the plants we captured. As stated earlier, most belong to the genus *Aechmea*.

In the Tena area
Aechmea romeroi (two forms, one very large)
A. cucullata
A. abbreviata
Tillandsia adpressiflora (found in the vicinity of Loreto).
A natural hybrid of *A. chantinii* × *A. zebrina*
A natural hybrid of *A. romeroi* × *A. zebrina*

[Continued on page176]

Tillandsia velutina, a New Species from Mexico and Guatemala

Renate Ehlers **Illustrations by the author**

This plant, for which I propose the name *Tillandsia velutina,* has been available for many years in nurseries and sold under various names such as *T. abdita* or *T. brachycaulos* var. *multiflora*.[1] There is a very nice color photo of it in Paul Isley's book TILLANDSIA (pages 28–29) and his description mentions "a velvety look and feel."

When we collected the plant in 1988 on our first trip to Chiapas, I studied the material and found that it differed in so many characters from *Tillandsia brachycaulos* that it should be considered a new species.

***Tillandsia velutina* R. Ehlers sp. nov.** (back cover photograph)

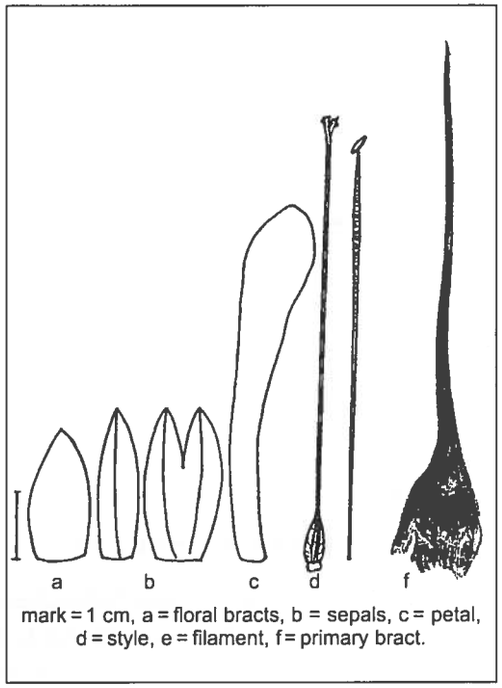
A *Tillandsia brachycaulos* Schlechtendal rosula magis expansa, foliis atroviridibus pruinose lepidotis, vaginis foliorum indistinctis magis brunneis, bracteis scapi dense pruinosis, foliis interioribus cinnabarinis nec carmineis, spicis usque ad basem fertilibus, inflorescentiis acrotonis nec basitonis, bracteis florigeris longioribus, sepalis longioribus et petalis paulo brevioribus differt; a *T. abdita* L.B. Smith bracteis florigeris glabris et sepalis subglabris postico usque ad 14 mm connatis recedit.

Typus. Mexico. Estado Chiapas, in via Motozintla-Tapachula, 1800 m s.m., 13.4.1989, leg. *K. & R. Ehlers EM891303* (holotypus, WU, isotypi, WU).

Plant stemless, growing in clumps, flowering to 15 cm high, to 25 cm wide. *Leaves* rosulate, numerous, spreading and decurved, dark green, with dense trichome covering. *Leaf sheaths* to 3 cm long, to 2 cm wide, indistinct, castaneous, abaxially densely grey, adaxially finely brown lepidote, the margins fringed with asymmetric, small trichomes. *Leaf blade* to 1.5 cm wide at base, narrowly triangular, attenuate, to 18 cm long, involute, abaxially keeled, dark green, densely fine-pruinose lepidote, more so abaxially. *Scape* short, 5–10 mm long, erect, stout, 1 cm in diameter; *scape bracts* foliaceous, very densely imbricate, sheaths to 2 cm long, ovate, distinct, imbricate and concealing the scape, the lower with blades to 10 cm long and reflexed, the upper ones to 7 cm long and spreading, densely fine-pruinose lepidote, at anthesis blushing carmine. *Inflorescence* ovate-capitate, to 3 cm long, to 2 cm in diameter, compound, with up to 9 densely polystichously arranged spikes one- to two-flowered and apically with up to 4 single, densely arranged, erect flowers (often with an additional depauperate

[1] T. brachycaulos *var.* multiflora *is considered by many specialists to represent a natural hybrid of* T. brachycaulos *and* T. caput-medusae.—*H.E.L.*

one). Sheaths of the *primary bracts* equaling the spike, enfolding its flat side and concealing it, the blades of the lower ones to 7 cm long narrowly triangular attenuate, reflexed, the apical ones very short and reduced. *Spikes* sessile, to 2.5 cm long, 1.2 cm wide, complanate, two-flowered (sometimes with an additional small, sterile one), or reduced to 1 flower. *Flowers* sessile. In the apical flowers, primary and floral bracts are reduced to one bract with intermediate characters, membranaceous, slightly lepidote and longer than the sepals. *Floral bracts* shorter than the sepals, 1.2–2 cm long, to 8 mm wide, elliptic, subacute, membranaceous, with hyaline margins, rose or carmine, white at base, nerved, glabrous, from nearly ecarinate to carinate. *Sepals* 1.8–2.3 cm long, to 5 mm wide, lanceolate, acute, membranaceous, nerved, yellow with rose apices, the abaxial one slightly, the adaxial ones strongly carinate and 8–14 mm connate, nearly glabrous, (only sparsely enlarged, punctuate lepidote). *Petals* to 4.7 cm long, blade 9 mm wide, acute, spatulate, indented along the sides, towards base 3 mm wide, forming an erect tube, the tips slightly curled back, violet, the apex lighter, amethyst, basal third white. *Stamens* to 15 mm exserted. *Filaments* to 6 cm long, in two sets of unequal length, near apex 1 mm wide, the apex rounded, violet (concolorous with the petals), towards base thin and white, somewhat twisted. *Anthers* erect, 2.5 mm long, 0.75–1 mm wide, elliptic, 1/3 from base versatilely fixed, castaneous, pollen light yellow. *Style* to 5.5 cm long, white, apically with violet spots, stigma 15 mm long, 15 mm wide, lobes erect, light green, slightly papillose [Type 1 Brown & Gilmartin (1984)]. *Ovary* 6 mm high, 25 mm wide at base, conical, triangular in cross section, white.



Drawing by R. Ehlers

Figure 5.
T. velutina R. Ehlers sp. nov.

Holotype. Mexico. State of Chiapas, on road from Motozintla to Tapachula, 1800 m s.m., leg. *K. & R. Ehlers 891303* (holotype,WU; isotypes, WU). Growing on pine trees with *Tillandsia fuchsii* Till, *T. butzii* Mez.

Habitat. Guatemala and Mexico near the common border. In Guatemala, the plant grows in humid forest areas, mostly on volcanic mountains.

Etymology: The name is taken from the Latin adjective, *velutina,* meaning velvety.

Additional material. Mexico. Chiapas, Motozintla, leg. *K. & R. Ehlers EM 880707,* 7.3.88. Guatemala. Depto. Guatemala, Antigua, San Lucas, Vulcan Bacaya 1200–2000 m, leg. *Uwe Feldhoff & Jürgen Mowinski,* 1989.

Tillandsia velutina differs from *T. brachycaulos* Schlechtendal as follows:

Plant a more spreading rosette, leaves darker green, more densely pruinose lepidote on both sides, the indistinct sheaths castaneous. Scape bracts densely pruinose. At anthesis, the interior leaves and primary bracts blush carmine in contrast to the cherry color of *T. brachycaulos.* The scape is shorter, the spikes are without sterile bracts, at the apex of the inflorescence several single flowers appear without primary bracts (in *T. brachycaulos* the apical spikes mostly are reduced to a single flower subtended by a primary bract). The first flowers appear at apex and the last flowers bloom from the basal spikes (the reverse in *T. brachycaulos*). The floral bracts and sepals are longer, and the petals are somewhat shorter.

Tillandsia velutina grows in damp forests, 1200–2200 m s.m. while *T. brachycaulos* normally grows from sea level to 1200 m (up to 1700 m) in dry areas.

Material of *Tillandsia brachycaulos* Schlechtendal examined:

Mexico. Temascaltepec, 1600 m s.m. *K. & R. Ehlers EM 851418;* Morelos Tepoztlan 1700 m s.m. *EM90030;* Michoacan, *K. & B. Woditsch s.n.,* March 1987; Morelia, Acostitlan *EM 902503*; Oaxaca: Pochutla *EM 881303;* Guelatao 1700 m *L. Hromadnik HR 4047;* Chiapas: La Trinitaria *EM 891206;* Frontera Contalapa *EM 891207.*

Guatemala. Zacapa: Rancho and Rio Hondo leg. *U. Feldhoff s.n.,* 1989.

Costa Rica. Puerto Arenas—Puerto Blanca leg. *U. Feldhoff s.n.,* 1989.

Nicaragua. Volcan Mombacho, leg. *Petr Stary CSFR s.n.,* 1989.

Tillandsia velutina also differs from *T. abdita* L.B. Smith by its glabrous floral bracts and subglabrous sepals, which are connate for up to 14 mm for the adaxial pair.

ACKNOWLEDGMENT: I wish to thank Dr. Walter Till of the University of Vienna for his cooperation, the type photographs, and the Latin diagnosis.

BIBLIOGRAPHY:

Brown, G.K.; Gilmartin, A.J. 1984. Stigma structure and variation in Bromeliaceae; neglected taxonomic characters. Brittonia 36(4):364–374.

Isley, P.T. III. 1987. TILLANDSIA. Gardena, Calif.: Botanical Press.

Stuttgart, Germany

Racinaea; A New Genus of Bromeliaceae (Tillandsioideae)

Michael A. Spencer & Lyman B. Smith

Abstract

A reevaluation of *Tillandsia* subgenus *Pseudocatopsis* (André) Baker revealed sufficiently distinct characters to warrant the establishment of a new genus, **Racinaea.** Named in honor of Racine Foster, *Racinaea* is described and discussed, and new combinations are provided for 46 species and 15 varieties.

The complete text was published in PHYTOLOGIA *(February 1993) 74(2):151–160. This is an extract of the text with the description and discussion omitted, and the full statement of name simplified by omitting all except the new and old names. An example of the original statement is:*

Racinaea adscendens (L.B. Smith) Spencer & Smith, *comb nov.* BASIONYM: *Tillandsia adscendens* L.B. Smith, *North Am. Fl.* 19:122. 1938. TYPE: MEXICO. *Botteri 1005* (HOLOTYPE: GH).

NEW NAME	OLD NAME
Racinaea adscendens	*Tillandsia adscendens*
R. aerisincola	*T. aerisincola*
R. blassii	*T. blassii*
R. commixa	*T. commixa*
R. contorta	*T. contorta*
R. crispa	*T. crispa*
R. cuspidata	*T. cuspidata*
R. diffusa	*T. diffusa*
R. elegans	*T. elegans*
R. fawcettii	*T. fawcettii*
R. flexuosa	*T. bakeri*
R. fraseri	*T. fraseri*
R. ghiesbreghtii	*T. ghiesbreghtii*
R. gilmartiniae	*T. gilmartiniae*
R. homostachya	*T. homostachya*
R. inconspicua	*T. inconspicua*
R. insularis	*T. insularis*
var. *latilamina*	*T. insularis* var. *latilamina*
R. jenmanii	*T. jenmanii*
R. laminata	*T. laminata*

R. lescaillei	*T. lescaillei*
R. membranacifolia	*T. membranacifolia*
R. michelii	*T. michelii*
R. monticola	*T. monticola*
R. multiflora	*T. multiflora*
var. *decipiens*	*T. decipiens*
var. *tomensis*	*T. multiflora* var. *tomensis*
R. pallidoflavens	*T. pallidoflavens*
R. pardina	*T. pardina*
R. parviflora	*T. parviflora*
var. *expansa*	*T. parviflora* var. *expansa*
R. pectinata	*T. pectinata*
R. pendulispica	*T. pendulispica*
R. penlandii	*T. penlandii*
var. *pendunculata*	*T. penlandii* var. *pendunculata*
R. pugiformis	*T. pugiformis*
R. quadripinnata	*T. quadripinnata*
R. riocreuxii	*T. riocreuxii*
R. ropalocarpa	*T. ropalocarpa*
R. rothschuhiana	*T. rothschuhiana*
R. sanctae-martae	*T. sanctae-martae*
R. seemannii	*T. seemannii*
R. sinuosa	*T. sinuosa*
var. *quirozii*	*T. sinuosa* var. *quirozii*
R. spiculosa	*T. spiculosa*
var. *micrantha*	*T. micrantha*
var. *stenoglossa*	*T. stenoglossa*
var. *ustulata*	*T. triticea* var. *ustulata*
R. steyermarkii	*R. steyermarkii*
R. subulata	*T. subulata*
R. tandapiana	*T. tandapiana*
R. tenuispica	*T. tenuispica*
R. tetrantha	*T. tetrantha*
var. *aurantiaca*	*T. aurantiaca*
var. *caribaea*	*T. caribaea*
var. *densiflora*	*T. aurantiaca* var. *densiflora*
var. *miniata*	*T. aurantiaca* var. *miniata*
var. *ramosior*	*T. tetrantha* var. *ramosior*
var. *scarlatina*	*T. aurantiaca* var. *scarlatina*
R. trapeziformis	*T. trapeziformis*
R. tripinnata	*T. tripinnata*

[Additions and omissions as provided in AN ALPHABETICAL LIST OF BROMELIAD BINOMIALS, compiled by Harry E. Luther and Edna Sieff, 4th edition, April 1994:

Additions:
Racinaea almeriae (Rauh) J.R. Grant[1]
R. domingos-martinis (Rauh) J.R. Grant
R. hauggiae (Rauh) J.R. Grant
R. nervibracteata (Gilmartin & Luther) J.R. Grant
R. pseudotetrantha (Gilmartin & Luther) J.R. Grant

Omissions:
Racinaea laminata syn. *T. laminata* (syn. *R. laminata, T. roetingii)*[2]
R. lescaillei syn. *R. spiculosa* (Zanoni et.al, 1986)[3]
R. sinuosa var. *quirozii* syn. *R. sinuosa*[4]

Note:
T. adpressa and all of its varieties have not yet (April 1994) been transferred to *Racinaea.*

NOTES:

1. Grant, J.R. June 1993. New combinations in *Mezobromelia* and *Racinea* (Bromeliaceae: Tillandsioideae). Phytologia 74(6):428–430.
2. H.E. Luther, pers. comm.
3. Zanoni, T.; Mejia, M.; Read, R.W. 1986. Notas sobre la Flora de la Isla Espanola. I. Bromeliaceae. Moscosoa 4:82:91–92.
4. H.E.Luther, pers. comm.

Corrections and Additions

Correct:
Volume 44, no. 3, pages 107 and following. Title: *Tillandsia zecheri* Complex And a New Infraspecific Taxon From Northwestern Argentina.

Additions:
Acknowledgements: We thank the Rocky Mountain Herbarium (RM) for facilitating herbarium loans for this work. We also acknowledge the following herbaria for specimens loans: Argentina (Salta, MCNS), Austria (Wien, WU), Germany (Heidelberg, HEID), and United States; (Field Museum (F), Harvard (GH), Missouri (MO), New York (NY), Sarasota (SEL), Washington D.C. (US), and Washington State.

Two New *Vriesea* Species from the Atlantic Forest: *Vriesea altomacaensis* and *Vriesea arachnoidea*

Andrea Costa

Photographs and diagnostic drawings by the author, habit drawings by Cynthia Luz.

The Macaé de Cima Ecological Reserve, in the City of Nova Friburgo, State of Rio de Janeiro, is important as the place where a remnant of the Atlantic Forest is being preserved (figure 7). Although this region in the Organ Mountains is near the City of Rio de Janeiro, its natural resources have been very poorly studied. The naturalists August Glaziou and E. Ule[1] visited the area in 1861–1863 and 1898, respectively, and left behind their botanical collections. Since 1987, the Atlantic Forest Program of the Rio de Janeiro Botanical Garden has been studying the flora of the Macaé de Cima region.[2]

Various vegetation types are found in this area of approximately 7000 hectares including slope forests, cloud forests, and high grasslands ranging in altitude from 1400 to 1800 meters above sea level. There are also cut-over areas in various stages of regeneration.

Fifty bromeliad species have been found including 16 of the genus *Vriesea* (Programa Mata Atlantica, 1990). Two new *Vriesea* species that grow in limited populations in the cloud forest of the reserve are described here.

***Vriesea altomacaensis* Costa, sp. nov.** (figures 6 and 8)

A Vriesea thyrsoideae *Mez cui affinis, foliis longioribus, apice acutis, ramis inferioribus bractea sterili singula ornatis, bracteis floriferis ecarinatis et luteis, floribus per anthesim secundis, pedicellis longioribus curvatisque differt.*

Plant flowering 0.8–1.2 m high, offsetting. *Leaves* erect forming a dense rosette, 0.55–1.10 m long; sheaths oblong, 13 cm long, 7.5–8.0 cm wide, brownish on both faces, bearing a brown band at base, densely lepidote; blades linear, 4.5 cm wide, not constricted at base, with inconspicuous, transverse, irregular, dark green lines, apex acute, sparsely lepidote adaxially and densely lepiodote abaxially. *Scape* erect, 50–80 cm long, 5–9 mm in diameter, pale green, glabrous. Lower *scape bracts* subfoliaceous, ovate, 8–20 cm long, imbricate,

1 Further information about E. Ule is not available from local reference material. Please tell the editor if you have biographical details.

2 Funding for this program is being provided by Shell do Brasil S.A., Instituto Pro-Natura, MacArthur Foundation, and CNPq.

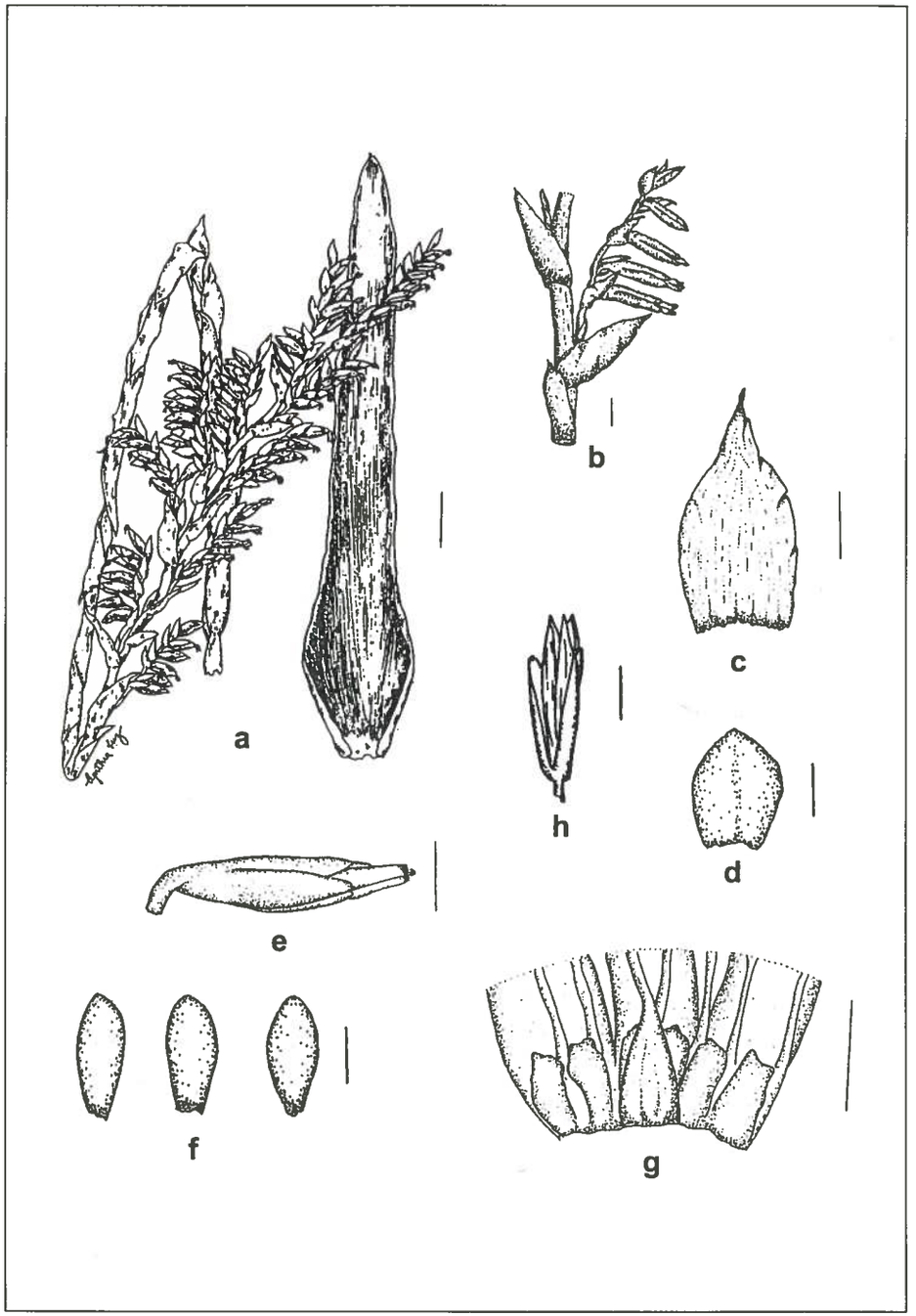


Figure 6.
Vriesea altomacaensis Costa: a, inflorescence and leaf (4 cm); b, branch (1 cm); c, scape bract (2 cm); d, floral bract (1 cm); e, flower (0.5 cm); f, sepals (1 cm); g, ligules (0.5 cm); h, fruit (1 cm).

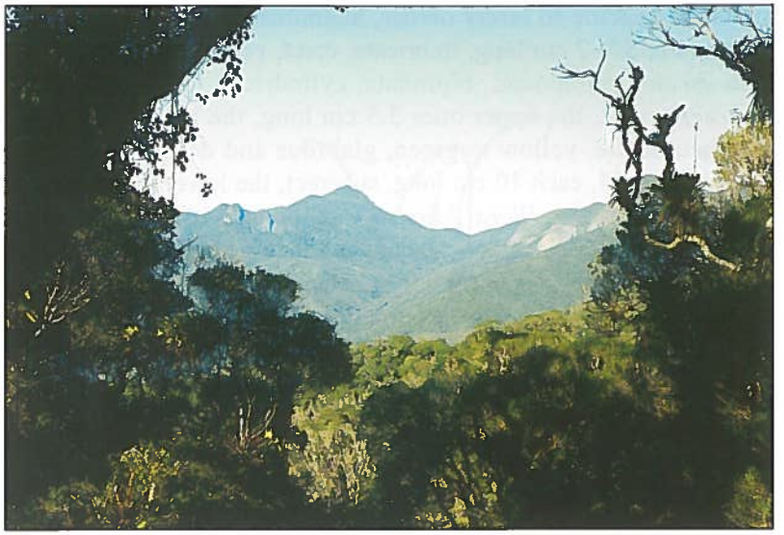


Figure 7.
General view of Macaé de Cima Ecological Reserve.

Figure 8.
Vriesea altomacaensis Costa: a dense and restricted population in the cloud forest.

erect, green, apex acute to rarely obtuse, acuminate, apiculate; the middle and upper ones ovate, 5.5–7 cm long, imbricate, erect, yellowish green, apex acuminate. *Inflorescence* compound, bipinnate, cylindrical, dense, 35–60 cm long. *Primary bracts* ovate, the upper ones 3.5 cm long, the lower ones 4.5–5.5 cm long, apex acuminate, yellow to green, glabrous and densely lepidote toward apex. *Branches* ca. 14, each 10 cm long, suberect, the lower ones bearing a sterile, carinate bract at base. *Floral bracts* ovate, patent, 16–25 mm long, shorter than the sepals, rarely carinate, apex acute and incurved, yellow, glabrous adaxially and lepidote abaxially. *Flowers* distichous, becoming secund, 3.5 cm long; pedicels curved, 5–9 mm long. *Sepals* obovate, 20 mm long, 5 mm wide, apex obtuse, yellow. *Petals* linear, truncate, basally connate for 2 mm, yellowish green, 28 mm long, bearing 2 basal truncate ligules, 4 mm long with irregular apex. *Stamens* included. *Fruit* 3 cm long.

Holotype. Brazil: State of Rio de Janeiro, City of Nova Friburgo, Macaé de Cima Ecological Reserve, trail to Serra dos Pirineus, elevation 1300–1400 m, col. *A. Costa 353 and others,* 16-IV-1991 (RB).

Paratype. Brazil: State of Rio de Janeiro, City of Nova Friburgo, Macaé de Cima Ecological Reserve, trail to Serra dos Pirineus, elevation 1300–1400 m, col. *A. Toscano de Brito* s.n., XII–1990 (RB).

Vriesea arachnoidea **Costa, sp. nov.** (figures 9 and 10)

A Vriesea flammeae *L.B. Smith cui affinis, vaginarum lineis transversalibus, irregularibus et atropurpureis, foliis longioribus et paulo latis, inflorescentia suberecta, floribus distichis et secundis, bracteis floriferis ovatis, acuminatis, apice incurvatis differt.*

Plant flowering ca. 20 cm high, stoloniferous. *Leaves* forming a ventricose rosette; sheaths elliptic, 8 cm long, 4 cm wide, green with irregular transverse, dark purple lines, scales castaneous on both faces, blades linear, 28 cm long and .05 cm wide, green marked with dark purple spots, densely lepidote adaxially and sparsely abaxially. *Scape* suberect, ca. 34 cm long, 2 mm in diameter, green, glabrous, Lower *scape bracts* elliptic at base, equalling the internodes, apex narrowly linear, ca. 12 cm long; the upper ones like the others but with a shorter apex. *Inflorescence* simple, suberect, 22 cm long, with 10 flowers; pedicels 8 mm long; internodes 10–13 mm long. *Floral bracts* ovate, 22 mm long, acuminate with incurved apex becoming secund with the flowers. *Sepals* elliptic, 24 mm long, basally connate for 2 mm, apex obtuse, carinate. *Petals* linear, erect, green, bearing 2 basal and obtuse ligules. *Stamens* exserted.

Holotype. Brazil: State of Rio de Janeiro, City of Nova Friburgo, Macaé de Cima Ecological Reserve, Sitio Hum Baccus,[3] elevation 1300–1400 m, col. *A. Costa 425 and others.* (RB)

[3] The name of the farm is "Sitio Hum Baccus."

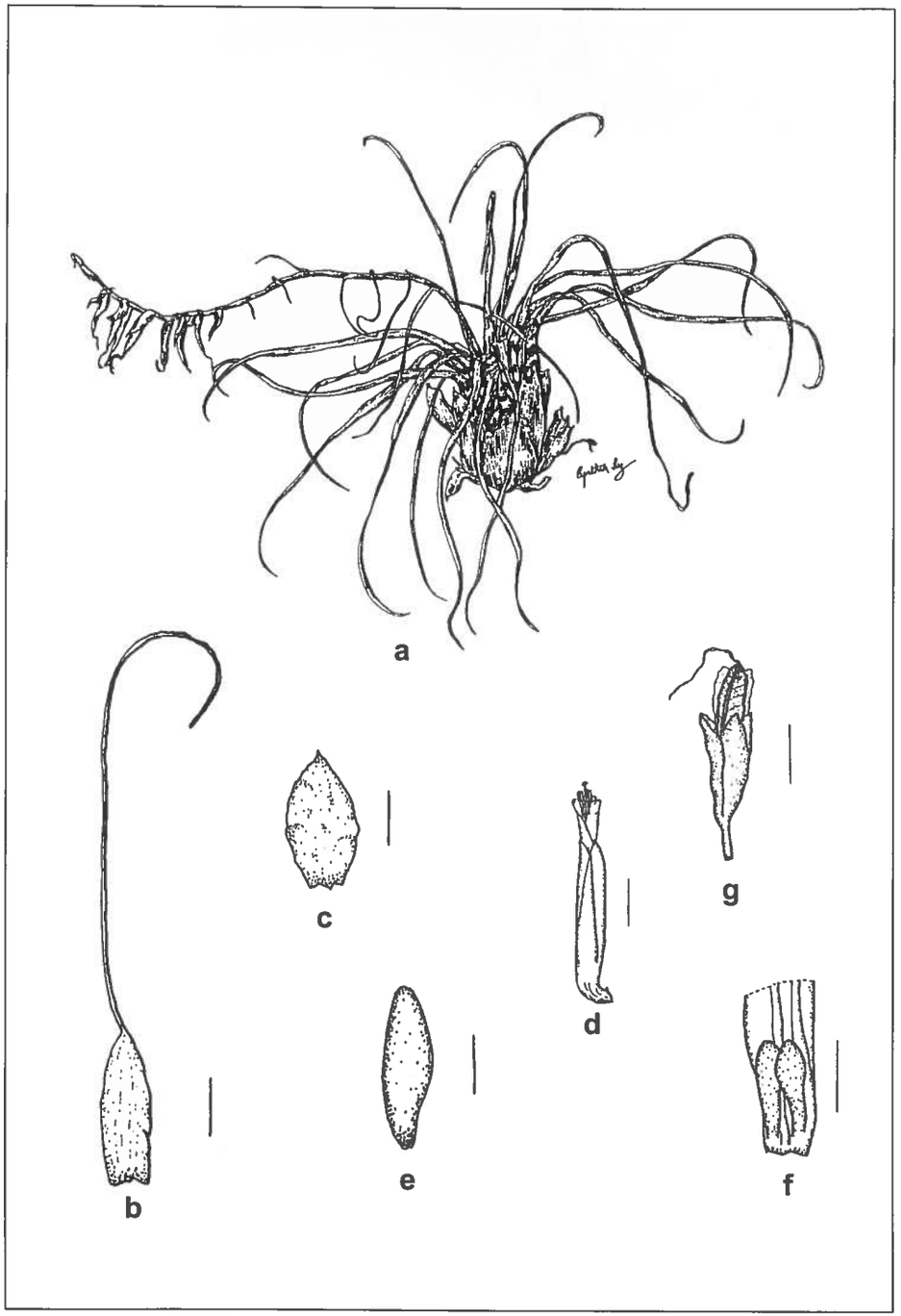


Figure 9.
Vriesea arachnoidea Costa: a, habit (2 cm); b, scape bract (1 cm); c, floral bract (1 cm); d, flower (1 cm); e, sepal (1 cm); f, ligules (0.5 cm) g, fruit (1 cm).

Figure 10.
Vriesea arachnoidea Costa in its habitat: terrestrial or epiphytic habit.

LITERATURE CITED:

PROGRAMA MATA ATLANTICA. 1990. Relatorio final. Jardim Botânico do Rio de Janeiro/IBAMA, Linhas de Açáo em Botânico/CNPq, Instituto Pró-Natura, John D. & Catherine T. MacArthur Foundation, Shell do Brasil S.A.

ACKNOWLEDGMENTS:

To Dr. Jorge Fontella Pereira for the Latin diagnosis, to Dr. Dorothy Araujo for revising the English text, and to Cynthia Luz for the habit illustrations.

Rio de Janeiro, Brazil

Donations to the Color Fund

We continue to smile because of recent, generous gifts to the Color Fund by Sr. Francisco Oliva-Esteve, Dr. and Mrs. H. Ulrich Baensch, and the Bromeliad Society Houston.

In recent months there have been great advances made in color reproduction. As a result, the equipment can now scan both transparencies and opaques as shown in the May–June 1994 cover and provide greater flexibility in the choice of JOURNAL illustration.

In spite of these gains, we are still running close to the line between membership income and production costs. We thank these recent donors and continue to encourage your participation.—TUL

A Showy *Guzmania* from Venezuela and a Cultivated *Navia arida*

Francisco Oliva-Esteve

During a recent, pleasant excursion to the Venezuelan Andes in the State of Táchira, in western Venezuela, I found an outstanding specimen of bromeliad never before illustrated in color. It was *Guzmania pennellii* L.B. Smith,[1] originally reported from Colombia and Ecuador. It is distributed as an epiphyte in the high rain forest of several páramos of the so-called "high barren lands" at 2400 meters above sea level.[2]

I found it growing as a terrestrial together with *Tillandsia turneri* var. *turneri, T. biflora*, and *T. tovarensis*. It was located in a group of five or six of the same species. What attracted my attention from a distance was the tall and brilliant inflorescence: 1.5–2.2 m in height and colored carmine and orange-red. The huge rosette measured probably 1.2–1.6 m in diameter. The leaves were 80–90 cm long and pale green or apple green. I took several color pictures of it (figure 11) and prepared samples for the Caracas Herbarium.

Later, and a little higher, we found a different species but not as attractive as *Guzmania pennellii.* The one-meter-tall inflorescence was past blooming but we made botanical specimens nevertheless. To our surprise it was identified as *Racinaea riocreuxii* (André) Spencer & Smith,[3] also found growing in Colombia and Ecuador.

Navia arida is now normally cultivated in Caracas gardens by several bromeliad enthusiasts (figure 12), among them my friends Pedro Glucksmann, Edith Steinbuch, and Henrique Graf. Another friend, the explorer and writer of the Lost World, Dr. Charles Brewer-Carias, called me one day to hurry to his house to identify a navia that he and his wife Fanny had brought from the jungle. I went the next day and saw a group of navias in their garden. At first glance they seemed to be a new species but, after careful examination of the flowers and leaves, it became evident that they were *Navia arida* (please see front cover). They were collected near the Parapapoy River in the Serrania Supamo, in Bolívar at 600 m.

---

[1] H. E. Luther, Bromeliad Identification Center, The Marie Selby Botanical Gardens, Sarasota, Florida.

[2] It was also collected here in May 1967 by J. Steyermark and G.C.K. & E. Dunsterville.

[3] Basionym: *Tillandsia riocreuxii.*

Figure 11.
Guzmania pennellii L.B. Smith. Photographed by the author at 2400 m in the state of Táchira, Venezuela.

Photographs: F. Oliva-Esteve

Photographs: F. Oliva-Esteve

Figure 12.
Navia arida as cultivated by Peter Glucksman in Caracas. The color variation between these plants and the wild-collected plant shown on the front cover should be noted.

This is one of the navias including *Navia splendens, N. phelpsiae, N. reflexa, N. aliciae, N. aurea, N. nubicola* that grow at low altitudes. They are easily propagated and grow outdoors where the temperature is between 75–95 degrees F. Figure 12 and the front cover present an interesting comparison of *N. arida* as found growing in the wild and as cultivated

Caracas, Venezuela

An Aussie Holiday with a Difference; First Call for the 1995 Conference

Many visitors to Australia think only about the Great Barrier Reef in Queensland, or Sydney, and yet Australia has many more attractions to offer. Just one example is the Eighth Bromeliad Conference to be held in Adelaide, South Australia at Easter, 1995.

This series of conferences is particularly notable for the published proceedings, a difficult performance and one not observed by all other societies to the loss of those who cannot attend. The key speaker at the 1995 conference will be Renate Ehlers, well known for her frequent reports of collecting and travel in Mexico. Information about Adelaide and the conference is available from Derek Butcher, 25 Crace Road, Fulham, South Australia 5024.

Calendar *(continued from back cover)*

17–18 September	River Ridge Bromeliad Society Annual Show and Sale. City Park Botanical Gardens, 200 Victory Avenue, New Orleans, LA. Sale hours: Saturday and Sunday, 10 a.m. to 5 p.m.; show hours: Saturday, 1 p.m. to 5 p.m.; Sunday, 10 a.m. to 5 p.m. Shirley Alcock 504-887-3190.
15–16 October	Seminole Society Second Judged Show. Agriculture Center, Route 17-92, Sanford, FL. Saturday and Sunday 9 a.m. to 6 p.m. Peggy Nuse, 904-673-2648; Charles Tait 904-789-1052.

Book Reviews

AN AMATEUR'S GUIDE TO GREYISH LEAVED TILLANDSIOIDEAE, 2nd edition, compiled by Derek Butcher, published by the Bromeliad Society of South Australia, Adelaide, 1992. 88 pages, black and white line drawings; soft cover; 21 cm. ISBN 0-64612950-3. Available from the compiler, 25 Crace St., Adelaide, S.A., 5024 Australia, (price not specified), or from Rainbow Gardens Bookshop, 1444 E. Taylor St., Vista, CA 92084, US $8.95.

Any amateur looking at an unknown bromeliad has to resolve a dichotomy: (a) ignore the unknown and call it a bromeliad, or (b) try to determine what kind of bromeliad it is. Dichotomous keys for identification were invented by Jean-Baptiste *chevalier* de Lamarck in 1778 for the purpose of helping with identification. In 1977 Dr. Lyman B. Smith and Dr. R.J. Downs published part three of their monograph on the bromeliad family containing revised keys to the tillandsioid subfamily. Those excellent keys have served the intended audience very well but they are somewhat intimidating to the many amateurs attracted in recent years to tillandsia study.

The concept remains unchanged: to present choices in series of pairs or couplets leading to identification of the subject. The basic requirement for using the keys is mastery of the vocabulary. If you don't know the words, you can't sing the song.

In 1986, Herbert Lehmann of the German Bromeliad Society published a second edition to his key to tillandsias based on petal color and living material. That very useful booklet greatly benefitted tillandsia fanciers who could read German did little to help others. Recognizing the need, Mr. Butcher translated that German to English and through the course of two editions has added many new introductions as well as name changes. Name changes continue for our benefit (and to our dismay) as, for example, the nearly wholesale regrouping of *Tillandsia* subgenus *Pseudocatopsis* into a new genus, *Racinaea* (see pages 156–158), but they do not invalidate the Lehmann/Butcher key .

The title of this book defines the scope. With the term "greyish-leaved" [grayish-leafed?] the author has included 318 tillandsia and 29 vriesea binomials. Excluded are the soft, green-leafed species such as *T. fendleri, T. complanata, T. deppeana,* and rarities.

This key uses fewer than twenty botanical terms. Line drawings, many from Dr. Werner Rauh's BROMELIEN, are provided to illustrate them. The basis is petal color groupings such as blue/lilac/violet, or white/whitish. That

arrangement simplifies the search. In section E, Petal-Yellow/Orange/Cream, for example, there are only 55 of the 318 total binomials. An alphabetical list with item number for each species serves not only an index but as a short cut. If, for example, the tag says *T. crocata* and you want confirmation, turn to item E26, page 72, to find "Leaf—with large spreading scales. Flower golden yellow, strong scent: *crocata.*" If your plant is not as described, you must turn to page 21, "How to use key." You will then be guided through eight simple steps to the correct name. With practice you can learn both the terms and the procedure.

Tillandsia hobbyists will find this guide used by itself or in conjunction with any of the tillandsia books reviewed here recently, and particularly the picture book by Hideo Shimizu, very helpful. Bromeliad societies and libraries specializing in botany should keep this work at hand for ready reference.—TUL

ALPHABETICAL LIST OF BROMELIAD BINOMIALS, compiled by Harry E. Luther and Edna Sieff, 4th edition, April 1994. 62 pages; 28 cm. Available from BSI Publication Sales, 27275, Newberg, Oregon 97132. $10.00.

This new edition follows the pattern of the earlier ones. It does not contain synonyms, publication data, horticultural hybrid and cultivar names. It does include validly published taxa accepted at the Bromeliad Identification Center and most published revisions. Most of the new genus *Racinaea* (former subgenus *Pseudocatopsis* of *Tillandsia*) is included; *Abromeitiella* species are listed under *Deuterocohnia*; *Streptocalyx* species show up under *Aechmea*. The purpose of the list is continued: to serve as a spelling guide. Some time, sooner than later, a revision of the Smith & Downs monograph will appear to put all of these changes in understandable order.

As noted earlier, users are counselled to check the new list against the old, and file the old in an inaccessible spot.

We are grateful to the compilers for the tremendous amount of painstaking applied to this on-going work.—TUL

Notes on the Coastal Costa Rica Endemic *Pitcairnia halophila*

Jason R. Grant **Illustrations by the author**

Two bromeliads occur along the ocean front of the Pacific coast of Costa Rica: *Bromelia plumieri* (E. Morren) L.B. Smith and *Pitcairnia halophila* L.B. Smith. These are among the few plants that colonize rock outcrops just above the high tide line (figure 13). Large colonies of each species can be found side by side on nearly vertical, and often otherwise unvegetated cliffs, between rock crevices, and on ledges. While *Bromelia plumieri* ranges from Mexico and the West Indies to Ecuador and northeastern Brazil, *Pitcairnia halophila* is endemic to Costa Rica. It is found only in the humid and rainy southern portion of Puntarenas Province from at least Quepos south to Parque Nacional Manuel Antonio and Punta Uvita.

Aptly named "salt-loving," *Pitcairnia halophila* flowers between November and January. It is restricted to a narrow margin along the coast and does not extend to the forest. Before collections were made during the last four years it was known only from its type specimen. After observing the species for several years, I can report that it is a distinct, narrow endemic, and provide a few additional details on its habitat and morphology.

***Pitcairnia halophila* L.B. Smith.** Phytologia 10:32. 1964.

TYPE: Costa Rica. Puntarenas: Quepos, base of cliffs at high tide level, 12 Dec. 1948, Foster 2669 (Holotype US).

Plant acaulescent, terrestrial, saxicolous. Leaves much reduced in compact plants growing in little soil, exposed to direct sun for the entire day or growing on more vertical faces, to the spreading and hanging forms that occur where the soil is deeper or outcrops are shaded for a significant part of the day either by rock ledges or vegetation. *Leaves* persistent, blades polymorphic, the outer ones reduced to short, barely noticeable short-serrate brown spines, the inner, and majority, foliaceous, linear. *Inflorescence* commonly simple, but bipinnate forms occur. *Flowers* radiate in an unusual double helix from the rachis, distinct from the two species it otherwise somewhat resembles in Costa Rica: *Pitcairnia megasepala* Baker and *maidifolia* (E. Morren) Decaisne, both of which have secund inflorescences. The flowers appear light yellow (figure14). Closer examination reveals the bright lemon-yellow of the pedicel, receptacle and calyx, the apricot color of the corolla (not cream as indicated by Foster on the type), and the bright golden yellow of the anthers and exserted portion of the pistil, including the stigma. *Receptacle* 3 mm long, 4–5 mm wide. *Sepals* narrowly triangular,

Figure 13.
Pitcairnia halophila. A colony growing on rocks just above high tide level.

Figure 14.
Pitcairnia halophila. Flower detail including the rachis and the bright lemon-yellow pedicel.

acuminate, carinate, thickened at the base, 20–24 mm long, 5–8 mm wide at base, 4–7 wide at the middle, bright lemon yellow at base, the tips light green to hyaline. *Petals* linear-obovate, acute, 47–54 mm long, 3–4 mm wide at the base, 7–8 mm wide just above the middle, displaced such that they form a hood over the androecium and gynoecium. *Stamens* 46–53 mm long; *filaments* 40–47 mm long, 0.75 mm wide, faint yellow to hyaline; *anthers* 6 mm long, 0.33 mm wide. *Pistil* 45–50 mm long; *ovary* 5–6 mm long, 4 mm wide, light grass green; *style* 38–42 mm long, 0.75 mm wide; *stigma* 2 mm long, 1 mm wide. *Capsule* 15–17 mm long; *seeds* 1.5–2.0 mm long, appendaged at both ends with a 1.0–2.5 mm-long awn.

Additional material examined: Costa Rica. Puntarenas: forest and adjacent beach just west of the entrance of Parque Nacional Manuel Antonio, May 1991, *Grant 91-01569* (CR, US); Playa Dominical, Dominical, 5 January 1992, *Grant 92-01731 & Rundell* (CR, MARY, NY, SEL, US).

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

Is It Ageotropic, Pendent, or Just Plain Upside Down?

From time to time the editor is faced with deciding which end is up and that's not easy in the case of plant photographs when there are no living specimens to observe, as evidenced by the cover picture of *Aechmea macvaughii* printed some months ago. And here is another instance, the cover picture of *Tillandsia velickiana,* (March–April 1993). After comparing the slide with the photograph of the herbarium specimen, it seemed reasonable to print the picture with the inflorescence pointing straight up.

Kevin Rice, Orange, California, wrote explaining that he had collected the plant and knew that the inflorescence was pendent. Soon after, he wrote again pointing to the evidence on page 61 of March–April 1994 issue in Tom Koerber's article about bromeliad rock gardens. There, in figure 6, is *Tillandsia velickiana* with its pendent inflorescence. We are now fully persuaded. We can hardly wait for the next opportunity.—Ed.

The Homeland of *Metamasius callizona*

J.H. Frank[1] and M.C. Thomas[2]

Metamasius callizona (Chevrolat), a previously obscure weevil species known from Mexico, Guatemala and Panama, was discovered in Florida in 1989 (O'Brien et al. 1990). Weevil specimens were found initially on an imported *Tillandsia,* then on native *Tillandsia,* and later on plants belonging to other bromeliad genera (Frank and Thomas 1991 a, b).

United States Department of Agriculture inspectors at United States airports and seaports try to intercept plant-feeding insects on shipments of plants from abroad. The insects intercepted are identified (as far as possible) and listed in a large annual publication. We examined these publications for the years 1979–1990 (2 volumes were missing from the set available to us), and found that *M. callizona* was intercepted in at least one shipment in most of these years. All of the shipments except one were of *Tillandsia* bromeliads, and all originated in Mexico.

These records suggest that *M. callizona* has been arriving in the United States *Tillandsia* shipments for over a decade. It was only a the matter of time before it managed to avoid interception by inspectors and establish a population here. The inspectors are not infallible and cannot be expected to detect weevil eggs or small larvae. The damage has been done in Florida. It is now Hawaii's turn to worry, not because Hawaii has a native bromeliad flora but because *M. callizona* also attacks *Ananas*. Other *Metamasius* species are known to attack bromeliads in the Neotropics (see O'Brien et al. 1990) and could yet manage to arrive in Florida or elsewhere and establish populations. **Extreme caution is required by exporters and importers of bromeliads.** Chemical dips should be used before export and after import for all imported bromeliads. The most reliable method to prevent this happening again with other weevil species is to restrict importation to seed.

With the information on a probable Mexican origin, we visited Mexico in July 1992 in search of *M. callizona* in its natural habitat. "Toxpam in Vera Cruz," is the type locality, and may have been in the vicinity of Córdoba in the State of Veracruz (Selander and Vaurie 1962). We hoped to confirm occurrence of the species there, define the habitat, examine the range of host-plant genera attacked, examine the associated fauna in bromeliads, and perhaps discover potential biological control agents.

---

[1] Entomology & Nematology Dept. University of Florida, Gainesville, FL 32611-0740.
[2] Division of Plant Industry, Florida Dept. of Agric. & Consumer Services, Gainesville, FL 32602.

Figure 15.
Weevil source areas. Collection points, shown by black dots, were derived from recent entomological publications and the authors' new records.

Following is a list of our collections:

• Near Isla (Veracruz), 4 July, *Ananas comosus* in large, well-maintained, unshaded fields and dying plants of this species piled in a corner of a field yielded no weevils

• Near Córdoba (Veracruz) 5, 7, 9 July, *Tillandsia heterophylla, T. ehlersiana, T. streptophylla* and *T. deppeana* in shade-houses yielded 54 *M. callizona,* but many *Tillandsia* and *Catopsis* spp. growing epiphytically on small trees in neighboring hillside woodland and on coffee trees, as well as up to perhaps 20 km distant on large trees on mountain sides and in a river valley yielded none;

• Conejos (Veracruz), 6 July, *T. concolor, T. recurvata, T. paucifolia* and *T. ionantha* growing epiphytically, and terrestrial *Bromelia pinguin* in an area of acacia scrub (doubtless with low rainfall) yielded no *Metamasius*;

• Near Huatusco (Veracruz), 8 July, *T. concolor* growing epiphytically on isolated trees in a valley of pasture grass, and in surrounding woodland yielded one empty *Metamasius* cocoon;

• Near Coatepec (Veracruz), 14–16 July, *Tillandsia utriculata* and *T. streptophylla* growing epiphytically on large trees in and near coffee plantations yielded 12 larvae, pupae and adults of *M. callizona*, whereas *T. ionantha, Aechmea bracteata* and *Catopsis* sp. yielded none;

• Near Pochutla (Oaxaca), 11–12 July, we examined *Tillandsia* of several species growing epiphytically in coastal woodland and in a river valley, but found no *Metamasius* [apparently from the same general area but in October, we were sent an adult *M. callizona* collected from *T. roland-gosselinii* by a horticulturist].

Weevil populations in nature were much smaller than those we had seen in areas of Florida that it has colonized. Bromeliads fallen from shade-trees in coffee plantations near Coatepec (and neighboring towns of Xico and Teocelo) yielded our only collections of living specimens from natural habitats. These habitats were at an altitude probably above 700 meters in areas that we judged to be of higher rainfall. We pulled the fallen bromeliads apart, but they yielded few animals other than ants, earwigs, and occasional scorpions and *Metamasius*. As in Florida, fallen epiphytic bromeliads were seen to be invaded by terrestrial ants; it may be that other insects desert fallen bromeliads.

We found *M. callizona* in *Tillandsia* only, and, in nature, mainly in *T. utriculata*. In Veracruz, *T. utriculata* reproduces vegetatively and is more colorful than in Florida (see Isley 1987). We examined many *Catopsis*, and a few *Ananas*, *Bromelia* and *Aechmea*, for presence of *M. callizona*, but they all seemed free of damage by weevils. Speciation of *Tillandsia* reaches an extreme in Mexico, and we suspect that *M. callizona* has specialized to this genus, even though in Florida it attacks bromeliads of other genera originating from other areas of the Neotropics. The only records of *M. callizona* we could find in the Mexican entomological literature were a specimen from *Aechmea mexicana* Baker in Veracruz, and another from *Vriesia* sp. in Puebla, both collected by C. Beutelspacher (Zaragoza 1974).

In Florida we have noticed that bromeliads produce offsets (i.e., reproduce vegetatively) when the parent plant is heavily damaged by *M. callizona.* Florida *T. utriculata,* however, does not produce offsets, but *T. utriculata* in Veracruz does do this. Is it just a coincidence, or has *T. utriculata* in Florida lost the ability to produce offsets because it has not until recently been exposed to attack by *Metamasius* weevils?

All the Mexican *Metamasius* that we collected as adults or reared to adults were *M. callizona*. Mexican and Central American distribution of *M. callizona* is shown in Map 1. This combines new collections from Veracruz and Oaxaca with all the earlier records we could find in the entomological literature.

ACKNOWLEDGMENTS:

We are grateful to the Office of International Research Programs of USDA-ARS for providing funds for our visit to Mexico.

REFERENCES:

Frank, J.H., Thomas, M.C. 1991a. *Metamasius callizona* kills bromeliads in southeastern Florida. J. Brom. Soc. 41: 107–108.

Frank, J.H., Thomas, M.C. 1991b. *Metamasius callizona* in four counties in south Florida. J. Brom. Soc. 41: 253–255.

Isley, P.T. 1987. *Tillandsia*, the world's most unusual air plants. Botanical Press, Gardena, California, xi + 256 pp.

O'Brien, C.W., Thomas, M.C, Frank, J.H. 1990. A new weevil pest of *Tillandsia* in south Florida. J. Brom. Soc. 40:203-205, 222.

Selander, R.B., Vaurie, P. 1962. A gazetteer to accompany the "Insecta" volumes of the "Biologia Centrali-Americana." Amer. Mus. Novitates 2099: 1-70.

Vaurie, P. 1966. A revision of the neotropical genus *Metamasius* (Coleoptera, Curculionidae, Rhynchophorinae) species groups I and II. Bull. Amer. Mus. Nat. Hist. 131:211-338.

Zaragoza C., S. 1974. Coleópteros de algunas bromelias epifitas y doce nuevos registros de especies para la fauna mexicana. Anales Inst. Biol., Univ. Nac. Auton. Mexico (Serie Zool.) 45: 111-118.

Adventures of a Novice *[Continued from page 152]*

In the Lago Agrio area
Aechmea chantinii
A. woronowii
A. tillandsioides
A. zebrina
Neoregelia eleutheropetala
*N. myrmecophila (*both neoregelias were found between fifty and eighty km. of Lago Agrio)

Near Coca
Aechmea mertensii
A. nivea (tentative identification).

From here and there
Guzmania rubrolutea (growing in the spray of a waterfall at 4200 feet)
G . mosquerae was found just south of Baeza
G. melinonis
Mezobromelia bicolor (figure 4).
Three as yet unidentified pitcairnias, and a few aechmeas.

11220 SW 107 Court
Miami, Florida 33176

Regional Reflections

What is the difference…

What is the difference between a clone, a hybrid, a cultivar, a seedling, and a sport? Contradictory explanations are going around so here it is:

1. A clone is obtained by vegetative means (division) and not by sexual means (seedlings are not clones). A clone is a part of the original plant and, therefore, has the same genetic material.

Examples of cloning—

a) Identical twin by division of a fertilised egg (if the division is not complete you have Siamese twins and until fully separated they are not true clones).

b) Division or separation of pups from mother plant or division of a plant colony, bulbs, tubers, etc.

c) Tissue culture.

d) Rooted plant cuttings.

e) Although on a different root stock, grafts may also be called clones.

f) Lower animals example. Cutting a crown-of-thorn starfish in two will result in each half growing to a full starfish.

g) Higher class animals are harder to clone. If you cut off the tail of a cow scientists are not yet able to grow a full cow back on it. However, progress has been made with amphibians. The genetic material (nucleus) from an amphibian egg cell (ovum) has been successfully replaced with the nucleus of an ordinary body cell of another animal.

2. Hybrids (or mules). Hybridising is the process of creating new, living organisms by crossing two different, but close, species. Those species must have a suitable number of chromosomes that are matched in shape and type. *[This statement is not always true, as in the case of* × *Cryptbergia.* GKB]

Example—Pollen (male sex cells or gametes) of a flower is used to pollinate and fertilize the ova (female gametes) of a flower of a different, suitable species. The seedlings from one single hybridization are not clones but brothers. They will share some genetic material and will carry also some traits from each parent.

It should be noted that hybrids, or mules, are often sterile. Repeated interbreeding may give very similar seedlings and they may look like twins, but they will never be twins or clones.

3. Cultivar is the name given to a plant that is cultivated for its special qualities. It may be a selected hybrid, a special seedling, a sport, or even a spe-

cial strain of a species. To keep it true, it must be cultivated by vegetative means only (cloning).

4. Seedling is a plant propagated by seed and is never a clone.

5. Sport (mutant) is the name given to a plant whose genetic material was accidentally altered. It is a mutation.

Example—If a branch or part of a tree shows flowers or leaves of a different colour or shape, and if that branch can be separately cultivated, you have a sport. But note that sports are often unstable and can easily revert or sport further.

Andy Staelens
Reprinted in part from BROMELETTER, *Bromeliad Society of Australia November/December 1993.*

Let Your Flower Photos Bloom with Lots of Color

The roses are out at Leu Gardens in Orlando. Cypress Gardens in Winter Haven is in full bloom, too, as are many other gardens throughout the Southeast.

It must be spring.

Flowers are classic subjects for photography. In fact, some of the world's most famous photographers count photos of flowers among their best works.

Here are a few things to keep in mind while photographing flowers.

The most important element in planning the photograph is the light. The bright, full sun of midday may seem the best choice, but the harshness of such light can actually reduce the intensity of color recorded on film. You'll do better to wait for an overcast day or to find an open, shaded area in which to photograph your subject

You also will find that early morning and late afternoon light will result in a more pleasing photo with warmer colors. Because the sun is lower in the sky at those times of day, sunlight becomes less harsh as it is filtered through more of the Earth's atmosphere.

Another key is to get close to the flower and to look for different angles. A straight-on shot can be interesting, but don't hesitate to kneel or lie down to find a different view. Look at the flower from all different heights and angles—you'll be surprised how dramatically different it might look.

Select a background that will contrast with the blooms and and other foliage to act as a "frame" for the image.

If your composition is still not compelling, get closer. Filling the frame with a colorful blossom will make a strong photo. Lenses with a macro setting will allow you to focus on objects very close to the camera. You also can buy magnifying filters to use with a single lens reflex camera that will allow close focusing.

The best film to capture the rich colors of a flower is one with a low ASA rating. A slower, 100 ASA film will have increased color saturation compared with, say, 400 ASA film. For the most dramatic color, try the slowest color films, those with a 50 or 25 ASA rating.

The slower ASA film will require slower shutter speeds for proper exposure so a tripod is a handy accessory. Select a small lightweight tripod. A big tripod will be too heavy to carry for any length of time, and a shorter, smaller tripod can be set to lower angles even with the flowers.

Also, having a camera braced on a tripod will make it easier to focus while doing a closeup and will allow you to leave the camera in place if you're waiting for the light to improve.

You also might have to wait for the flowers to stop moving. Even a light breeze can make a flower shake, which could create a blur on the film when using slower shutter speeds. Try shooting a few frames as the flowers sway to see if you like the colorful blurs they'll create, but be prepared to wait until the wind calms if you want sharpness.

And don't get overwhelmed. When confronted with thousands a flowers, it's easy to "scattershoot"—take shots without really thinking—and end up with dozens of photos, none of which is particularly good.

Tom Burton
Reprinted with permission of The Orlando Sentinel, *Sunday March 27, 1994.*

Quesnelia arvensis

Contrary to what the species name seems to imply, *Quesnelia arvensis* does not come from Arvin, nor for that matter, even Taft or Bakersfield.

Actually, *arvensis* means "from the fields," which is probably just as much of a misnomer as "From Arvin." The plant's natural habitat consists of wet, swampy, coastal forests in southeastern Brazil. It grows there in abundance, primarily as a terrestrial in dense masses on sandy hammocks that remain above water, but also to a lesser extent as an epiphyte in the trees shading them from above.

I will never forget the first one I saw in bloom. I had just entered the greenhouse at the late John Garretson's Nursery in Del Dios in 1976 and, my eyes were immediately drawn to an electric-red inflorescence that almost seemed to glow like a neon sign by the way the light was catching it.

The bright red floral bracts were incredibly intense. The bluish flowers seemed to be peeking out from between the colorful floral bracts as if trying to decide if they dare venture out any further, which, of course, they never did. That plant accompanied me home and in the seventeen years since, I have never been without at least one.

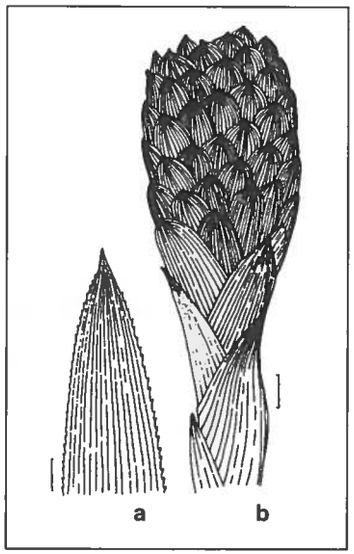


Figure 16.
Quesnelia arvensis: A, leaf-apex; B, inflorescence (from Smith & Downs, FLORA NEOTROPICA monograph figure 675). It is unfortunate that this drawing does not show the most outstanding characteristic, the striking stripes on the underneath of the leaves. Other species have faint stripes but none so obvious (RWR).

At the time I was amazed that a plant with such a fascinating inflorescence was not more commonly seen on the market than it was. In the years since, I've discovered some of the reasons why.

While the inflorescence is spectacular when it appears, the key phrase there is "when is appears." It does not bloom every year. In fact, I've only had about four or five blooms in the seventeen years I've had them around. That's frustrating, but it's a frustration that is apparently shared with others growers who have also lamented the scarcity of flowering in the species. I understand they are also not exactly free-blooming in their natural environment either. They tend to grow in dense masses in the wild with only one or two of the hundreds of plants in a population ever in bloom at any one time. However, I'm not sure it would be worth assembling hundreds of plants in a greenhouse just to get those one or two blooms, especially since the blooms are short-lived as they are infrequent.

It's also one of those bromeliads with sneaky foliage. It diverts your attention toward the pretty dark spines growing along the leaf margins, but it's the leaf tip that narrows to a small sharp point that bears watching. Every time a grower works around most of the quesnelias, (especially *Quesnelia testudo*) he is likely to come away with arms looking like those of a drug addict.

The plant is frequently confused with another close relative, *Quesnelia quesneliana*, which is also a denizen of wet coastal forests and has the same

general appearance and habit. *Q. quesneliana* is a bigger plant, however, and the inflorescence is not quite as intense in color, but is perhaps even more interesting. The upper parts of the floral bracts of *Q. quesneliana* have strongly crisped margins that look as if they were made of crepe paper. The larger *Q. quesneliana* also tends to develop a trunk-like stem with age.

Both *Q. arvensis* and *Q. quesneliana* are easily grown and are relatively hardy, though I've lost some of them in my unheated greenhouse during long cold snaps which didn't faze the neoregelias, nidulariums and tillandsias growing around them. I would rate them more like a 6 on a hardiness scale of 1 to 10.

In spite of their shortcomings, I would recommend most of the quesnelias. Just try not to get pulled over by a Narc after a transplanting session.

Chet Blackburn
Reprinted in part from Bromeliad News, *Sacramento Bromeliad Society, January 1994*

MARTIN TALL HAS BACK ISSUES of the BULLETIN/JOURNAL at $4.50 each:

1954, November–December
1956, September–October
1965, January–February
1969, March–April
1971, July–August

Write directly to him: 8377 Woodhaven Blvd., Woodhaven, NY 11421.

Questions and Answers

Q. I have a *Vriesea splendens* that I bought at a local nursery. When the inflorescence died, a pup emerged from the centre of the plant. It developed nicely over the span of about a year. I never removed any of the old plant for fear of damaging the pup. Now it is considerably larger than the original plant. About three weeks ago the bottom leaves started curling up longitudinally, both sides of the leaf curl in to the center of the leaf forming a tube. About six of the leaves are now affected. I repotted it but could find nothing wrong. It is potted in a soilless mix with the addition of seedling grade fir bark and sphagnum moss. It is fertilized about every three months. I keep the centre filled with water and water the plant weekly. It is situated six feet from a southeast window in an apartment. The temperature is usually between 21 degrees and 22 degrees C. The humidity is kept between 40% and 50%. It was treated about three times with a drench of Sevin over the last six months for the springtails but not since the last repotting (dosage two teaspoons of Sevin per liter of water). This is the only one of my bromeliads that this has happened to. Can you tell me the cause of this problem?

A. *Vriesea splendens* is a moisture-loving plant, but continually keeping water in the leaves while indoors is not good for any bromeliad. It is far better to water both the leaves and soil and then allow the plant to become nearly dry before watering again. The interiorscape industry has proven the longevity of bromeliads by using this approach.

Secondly, the use of Sevin as a drench on bromeliads is questionable. I am unaware of Sevin being labeled for this purpose. Three applications in a six-month period could change the soil chemistry. Besides changing the pH, beneficial bacteria in the soil may have been destroyed. These bacteria help facilitate fertilizer exchange through the root hairs of the plant. It is important to remember that pesticide residue and fertilizer salts are often retained in soilless mixes and can create stress if not periodically flushed out.

Finally, your plant could have been what is called in the trade a "washout." That is a plant that has had the soil removed for shipping purposes. This process can damage the root system and produce considerable stress on the plant.

We thank Herb Hill, Jr., Hill's Raingreen Tropicals, Lithia, Florida, for his thoughtful answer.—Ed.

Tropiflora

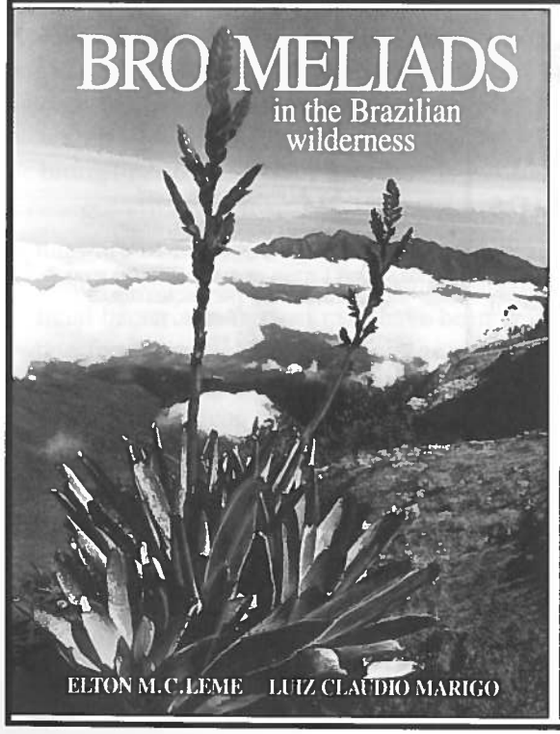
A Tradition of Quality Since 1976

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



The fruit of many years of joint effort of the authors, this book shows Brazilian bromeliads in their natural habitat, revealing aspects of their taxonomy, ecology, physiology, and relationships with wildlife and man.

Beautifully bound with high-quality printing!

9" x 11.5" hardbound, 184 pages, 210 color photos, 2 color plates, 7 maps, 30 genera and 200 species.

Order from:
Luiz Claudio Marigo
Rua General Glicério, 364/604
22245-120-Rio de Janeiro-Brazil
Tel.: (55-21) 285-4606
Fax: (55-21) 556-1832/225-6389

Books prepaid by check to Luiz Claudio Marigo send to the above address.

U.S. $65 ($60 for members of Bromeliad Society) plus handling and shipping:

	regist. surface mail	regist. air mail
U.S.A.	US $18.00	US $23.00
Europe	US $20.00	US $31.00
Australia, New Zealand	US $24.00	US $41.00

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—

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.

EXOTIC HYBRIDS

Lee Moore The Adventurer

P.O. BOX 822
MIAMI, FLORIDA 33156
PHONE & FAX (305) 274-3980

Specializing in Neos & Aechmeas and Bromeliad Species from Peru
Price list on request

UNIQUE...
Write for information about South American expeditions

Journal volumes for 1976 through 1989, postpaid cheapest rate

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 through 1989.

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

186

187

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

Tillandsias From Guatemala

(Retail & Wholesale)

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

Enclosed stamped, self-addressed envelope for flyer.

WANTED

Aechmea tayoensis

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

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

Quality *Tillandsia* Since 1974

Rainforest® Flora Inc.

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

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.

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 **Founder: Roberto Seidel, 1906**
Rua (Street) Roberto Seidel, 1981 **Telex 474 211 ORKI BR**

INT. FAX No. 55-473 75 1042
Since 1906 – One of the world's most complete nurseries

You are cordially invited to become a member of The Bromeliad Society, Inc.

The Bromeliad Society, Inc., a nonprofit, educational, horticultural organization was formed to promote interest and disseminate knowledge in this interesting family of plants. Membership is worldwide, and includes apartment and home gardeners, greenhouse hobbyists, nurserymen, teachers, scientists, and directors and personnel of botanic gardens. Everyone interested in bromeliads, in learning more about them, in growing them, and participating in the activities of The Bromeliad Society is welcome to become a member.

The activities of the Bromeliad Society consist of

- The publication of the *Journal*, a bimonthly magazine for both amateur and professional, well illustrated in color and black and white.
- The publication of information booklets on bromeliads such as Cultural Handbook, Glossary, and the Handbook for judges and Exhibitors, etc.
- The fostering of affiliated societies. There are many such groups throughout the world.
- The sale of bromeliad seeds through the Society Seed Fund.
- The encouragement of correspondence among growers of all countries in order that bromeliads may become better known and more widely appreciated.

Classes of Membership

- ANNUAL: A regular membership for an individual, society, or institution.
- DUAL: Two members at the same address to receive one *Journal*, each may vote, and have all benefits of membership.
- CONTRIBUTING: For an individual, society or institution. Additional funds are used to help underwrite cost of color plates in the *Journal*.
- FELLOWSHIP: Same as contributing, member will receive a copy of the Cultural Handbook.
- LIFE: No annual dues will again be paid for the lifetime of the member. Individual will receive a copy of the Cultural Handbook, a life membership certificate, card, and pin. Not available to societies or institutions.

All memberships commence upon receipt of dues and include the next bimonthly *Journal*. Current back issues are available. Memberships are tax deductible. To learn more, fill out the form below and send it in today.

Application for Membership to The Bromeliad Society, Inc.

Please fill in every line that applies to you and type print carefully. Your mailing label is made from this form. Every member should return this application to 2488 East 49th, Tulsa, Oklahoma 74105.

Please check type of membership. International memberships are increased by $5 to cover postage.

Choose one:	Choose one:	
❑ Individual	❑ Annual United States	20.00
❑ Society	❑ Annual International	25.00
❑ Institution	❑ Dual United States	25.00
	❑ Dual International	30.00
Choose one:	**Contributing Members:**	
❑ Renewal	❑ Fellowship United States	35.00
❑ New Member	❑ Fellowship International	40.00
	❑ Commercial	50.00
	❑ Life	750.00
☐	First Class handling add	7.50
	Amount Enclosed $ _____	

Name _____ Phone (____) _____

Second name on dual membership _____

Address _____

City _____ State_____ Zip _____

Name and location of affiliate to which you belong _____

_____

Name and address of affiliate president _____

_____

How did you find out the BSI? _____

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.A. 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.

#_____ Type of order _____

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.

OFFICE 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 – Continued in office since no replacements were elected for the 1993–1995 term: Mark A. Dimmitt, *Western;* Sharon Garcia, *Southern;* Enrique Graf, *International;* Al Hodes, *Northeast;* Thelma Mean, *Central;* Jacqui A. Watts, *International.*

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.*

1994–1996 – Lloyd Kiff, *California;* Roger Lane, *California;* Hattie Lou Smith, *Florida.*

HONORARY TRUSTEES

David H. Benzing, *United States;* Roberto Burle Marx, *Brazil;* Olwen Ferris, *Australia;* Grace M. Goode, *Australia;* A.B. Graf, *United States;* Roberto A. Kautsky, *Brazil;* Marcel Lecoufle, *France;* Elmer J. Lorenz, *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: Vacant.

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: Geoffrey Johnson, 3961 Markham Woods Rd., Longwood, FL 32779.

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: 813-366-9807.

Nominations: T.A. Calamari, 1061 Rosa Ave., Metairie, LA 70005.

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: Weston K. Furukawa, 3763 Monteith Dr., Los Angeles, CA 90043.

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

R. Ehlers

Tillandsia velutina.
A new species from Mexico and Guatemala is described on pages 153-155.

Calendar

16–17 July	Sacramento Bromeliad Society Annual Show and Sale. Shepard Garden and Arts Center, 3330 McKinley Blvd., Sacramento, CA. Both days 10 a.m. to 5 p.m. 1330 Millertown Rd., Auburn, CA 95603. Keith Smith, 916-823-0203.
6–7 August	South Bay Bromeliad Associates 27th Annual Show and Sale. South Coast Botanic Garden, 26300 S. Crenshaw Blvd., Palos Verdes, CA 90274. Saturday, noon–4:30 p.m.; Sunday, 10 a.m. to 4:30 p.m. Judged show open to all amateur bromeliad growers; demonstrations; member and commercial sales. Admission $5.00, $3.00 for students and senior citizens over 61, children $1.00. Philip A. Fetchko, 3918 W. 148th St., Hawthorne, CA 90250, 310-644-6164.
20 August	Seminole Bromeliad "Fantasy" at Earl Brown Park in DeLand, FL. Saturday, 9 a.m. to 5 p.m. Pat Carey, 904-734-7436; Charles Tait, 904-789-1052.
27–28 August	Bromeliad Society of Greater Chicago 10th Annual Accredited Show and Sale. Chicago Botanic Gardens, Lake-Cook Rd. and Eden Expressway at Glenco. Len Dolatowski, 708-526-3693.
3–4 September	Southwest Bromeliad Guild 23rd Annual Show and Fall Meeting. Barnwell Art and Garden Center, Clyde Fant Parkway, Shreveport, LA. Harvey C. Beltz 318-635-4980.
10 September	The Florida Council of Bromeliad Societies annual "Extravaganza." Sale, displays, seminars, dinner and auction at Las Fontanas, 15481 49th St., N. Clearwater, FL. Hosts Florida West Coast (the senior) Bromeliad Society. Fay O'Rourke, 813-531-9312 or Lois Duffey, 813-536-3682.

[continued on page 167]