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Cover photographs: Front: *Guzmania testudinis* var. *splendida*, in habitat in the pluvial forests west of Lita, Ecuador. The description by Harry Luther is on page 243. Photo by A. Hirtz. Back: *Guzmania globosa*, from Ecuador as well as Colombia and Peru, is described by Mr. Luther on page 247. Photo by Sandra Williamson for Selby Gardens.

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THE FIRST CALL FOR 1993 NOMINATIONS FOR THE OFFICE OF DIRECTOR, 1994–1996 TERM, IS ON PAGE 277. PLEASE READ IT TO DETERMINE IF YOUR REGION IS LISTED AND HOW MANY NOMINATIONS ARE DUE. YOU ARE RESPONSIBLE AS A MEMBER TO TAKE PART IN THE NOMINATING AND VOTING PROCESS.

Two New Ornamental Bromeliads from Western Ecuador

Harry E. Luther

Ongoing field work and herbarium study for the Bromeliaceae treatment for the Flora of Ecuador have led to the discovery of two new, very ornamental bromeliads.

Guzmania testudinis L.B. Smith & R.W. Read var. *splendida* Luther, var. nov. (front cover)

A var. *testudinis*, cui affinis, ramis inflorentiae longior bractae primariae excendibus, et sepalis petalisque albis differt.

Plant flowering 0.6–1 m tall. *Leaves* ligulate, broadly acute, pungent, to 1 m long, 25–40 mm wide, usually tinged red or purple or purple-striate. *Inflorescence* laxly bipinnate. *Primary bracts* red, much shorter than the lower branches. *Branches* 4–15 cm long, 8–30-flowered. *Floral bracts* 10–14 mm long, red. *Sepals* white with green tips. *Corolla* white.

Type. Ecuador: Esmeraldas, road Lita to Alto Tambo, elev. ca. 850 m, 22 Feb. 1988, Luther, Kress, and Roessel 1228 (SEL, holotype; QCNE, isotype).

Paratypes. Ecuador: type locality, 18 Jan. 1987, C.H. Dodson et al. 16851 (MO), 8 Dec. 1988. B. Girko 88-081 (SEL); Pichincha, San Miquel de los Bancos, elev. 1000 m, 18 Jan. 1983, A. Hirtz 1447 (SEL, MO).

This new variety differs from var. *testudinis* from further north in Ecuador to Colombia by having longer inflorescence branches that much exceed the primary bracts and white (not yellow) sepals and petals. The variety name refers to the brilliantly colored inflorescence.

Pitcairnia simulans Luther var. *ornata* Luther var. nov. (figure 1)

A var. *simulans*, cui affinis, bracteis florigeris dimorphis roseisque et petalis luteolis differt.

Plant long caulescent, hemiepiphytic, flowering 1–3 m tall. *Leaves* polymorphic, the larger leaves fasciculate, pseudopetiolate, 0.4–0.8 m long. *Inflorescence* simple, cylindric, 0.8–1.2 m tall. *Floral bracts* dimorphic, the lowest erect, straight, brown or reddish, the uppermost with spreading or recurring apices, rose to red. *Petals* pale yellow.

Type. Ecuador: Carchi, El Pailon ca. 45 km below Maldonado, 800 m elev., 26 Nov. 1979, M. Madison & L. Besse 7012 (SEL, holotype; QCA, isotype).



Figure 1
Pitcairnia simulans var. *ornata*,
apical portion of the
inflorescence, in habitat,
vicinity of Lita, Ecuador.

G.K. Brown



Figure 2
Cut inflorescence of the
holotype collection of
Pitcairnia stevensonii.

M. Whitten

Paratypes. Ecuador: Carchi, between Chical and Pinas Blancas, 1100–1250 m elev., 24 Sept. 1979, A. Gentry & G. Shupp 26492 (SEL, MO); Esmeraldas, road Lita to Alto Tambo, elev. ca. 850 m, 22 Feb. 1988, Luther, Kress, & Roessel 1225 (SEL)

This new variety differs from var. *simulans* by having dimorphic and spreading, red or rose apical floral bracts and pale yellow petals. The type variety, now known only from a small, relict patch of forest in southern Pichincha Province has floral bracts that are straight and monomorphic with orange-red petals. The variety name refers to the colorful, ornamental qualities of the inflorescence.

A New *Pitcairnia* from Western Ecuador

Harry E. Luther¹ and Mark Whitten²

The genus *Pitcairnia* is widespread and especially diverse in Andean South America with nearly 50 species now recorded from Ecuador. The recent discovery of the large and spectacular novelty described below quite clearly illustrates the incompleteness of floristic knowledge of the region and the need for continued intensive field collections in the remaining forests. The name honors one of the co-collectors, F L Stevenson for his support of this important endeavor.

***Pitcairnia stevensonii* Luther & Whitten, sp. nov.** (figures 2 and 3)

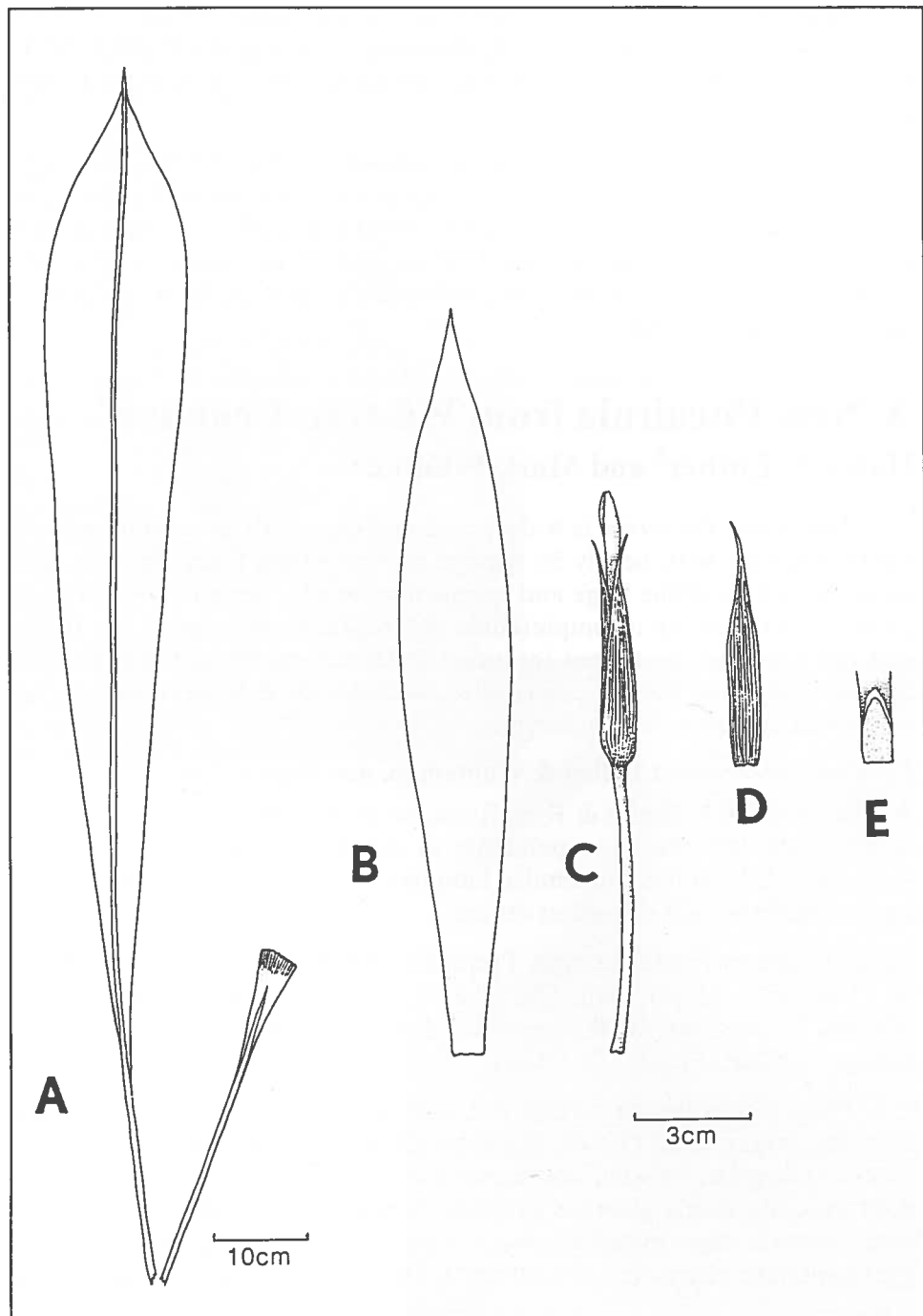
A *P. ancushii* L.B. Smith & R.W. Read, cui affinis similisque, laminis foliorum exiguis, inflorescentia pendente et sepalis perlongioribus differt; a *P. elongata* L.B. Smith, cui similis, laminis foliorum exiguis, pedicellis perlongioribus et sepalis minoribus differt.

Type. Ecuador: Pichincha; near Pachical, 2.5 km N. on sideroad at km 104 on Quito–Pto. Quito road, 750 m elev., along stream. 5 July 1991. M. Whitten, N. Williams, M. Williams, & F L Stevenson 91273 (Holotype: SEL; isotypes: QCNE, FLAS, US, QCA).

Plant a massive hemiepiphytic vine. **Leaves** probably polymorphic; only the larger ones known, these to 1.6 m long, laxly spreading. **Leaf sheaths** triangular, 7 x 4 cm, castaneous toward the base, densely brown lepidote abaxially, nearly glabrous adaxially, nerved, entire or laxly antrorse serrate toward the pseudopetiole. **Leaf blades** pseudopetiolate; the pseudopetiole channeled, 40–60 cm x 10–12 mm, laxly antrorse serrate

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Stig Dalstrom

Figure 3

Pitcairnia stevensonii. A, leaf; B, floral bract; C, flower, preanthesis; D, sepal; E, base of petal.

toward the base, brown lepidote abaxially; the blade oblanceolate, the apex rounded and abruptly acute to acuminate, 11–14 cm wide, entire, channeled, dark green, slightly paler abaxially. *Scape* erect to declinate, 18–35 x 1 cm, brown floccose, red. *Scape bracts* erect, densely imbricate, 20–45 x 2–4 cm, thin coriaceous, nerved, red or brown. *Inflorescence* pendent, densely polystichously many-flowered, 60–100 x 20–30 cm. *Floral bracts* erect, densely imbricate, narrowly elliptic, acute to acuminate, 5–22 x 1–3 cm, thin coriaceous, nerved, red. *Flowers* with a 5–70 (mostly 20–60) x 2–3 mm brown lepidote, red pedicel, spreading at 90 degrees from the main axis and not at all concealed by the floral bracts at anthesis. *Sepals* narrowly lanceolate, long acuminate, 63–65 mm long, coriaceous, nerved, glabrous, yellow or yellow-green. *Corolla* incompletely known, probably curved and zygomorphic. *Petals* ligulate, at least 65 x 7 mm, each with a single appendage 11 mm long at ca. 6 mm above the base, probably yellow or yellow-green. *Ovary* $\frac{3}{4}$ superior. *Fruit* a capsule, dark brown.

Pitcairnia stevensonii closely resembles the Peruvian *P. ancushii* L.B. Smith & R.W. Read but may be distinguished by its entire, broader (11–14 vs. 8 cm) leaf blades, pendent inflorescence and longer (63–65 vs. 40 mm) sepals. From *P. elongata* L.B. Smith, this new species may be easily separated by its entire leaf blades and much longer (5–65 vs. 2–10 mm) pedicels. *Pitcairnia arcuata* (André) André with an arching to pendent narrowly cylindric inflorescence has broadly elliptic floral bracts that conceal the flowers except for the petals at anthesis.

Guzmania globosa, An Additional Collection

Harry E. Luther

This somewhat different guzmania previously known from Colombia and Peru, is a recent addition to the Ecuadorian flora. It was first collected by M.B. Foster in southwestern Colombia in 1946. It has not been cultivated previously, to my knowledge, and there is no real consensus that it should be now.

Guzmania globosa L.B. Smith (please see back cover) demands very wet conditions and, when established, flowers several times a year. As one can see in the photo, the corolla is not completely concealed within the calyx as was stated in the original description. The clear mucilage surrounding the inflorescence is rather solid and does not adhere to probing fingers.

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



G. Samyn



Figures 4 and 5
Examples of recent intergeneric
crosses: (left) (*Vriesea* x *mariae*)
x (*Tillandsia cyanea*); (below)
(*Vriesea* x *vigeri*) x (*T. flabellata*).

Intergeneric Crosses between *Vriesea* and *Tillandsia*; Possibly Something New in Bromeliad Cultivation?

G. Samyn

Bromeliad breeders are very inquisitive people. Having dared to try to cross two genera (figures 4 and 5), and having succeeded in doing so, one is naturally anxious to see the result as soon as possible. There are quite a few collectors who own some of the results of these crosses, and names such as *Canmea*, *Billmea*, *Neomea*, *Guzvriesea*, etc. can also be found in commercial catalogues. Some of the parents of these crosses can be traced back to the International Checklist of Bromeliad Hybrids.

Yet, of the many crosses that have been obtained by violating the laws of nature, so to speak, few if any have made any headway in the trade. The reason for this is that the present quality of these cultivars is not sufficiently high for commercial cultivation and that there may even be abnormalities. Leaving aside the creation of curiosities, intergeneric crosses could still offer interesting prospects when it comes to isolating certain properties and transferring them to another genus where better use could be made of them. Information on the hereditariness of various characteristics in bromeliads is scarce and is still based on the experience of a few specialists or growers who have made bromeliad breeding their lifework.

For a long time, breeders concentrated on obtaining plants with characteristics that could be assessed subjectively, particularly as regards the flowers, but which were difficult to fit into heredity research. Thus, a simple flower is a specific characteristic, but the shape of the inflorescence in cultivars with branched inflorescences may differ quite a lot, depending on the parents or previous history of the plant concerned. One often finds unbranched inflorescences on *Vriesea* x *Poelmanii*,¹ for example.

For some years now, we have had *Vriesea* x *Tillandsia*, which form part of a wider breeding programme aimed at studying the hereditariness of various characteristics.

Crossing *Tillandsia* and *Vriesea* species with one another is not really a problem, and it is an interesting thing to do because many of the characteristics in both genera may vary. A large number of *Tillandsia*

¹ The Preliminary Listing of All Known Cultivar and Grex Names for the Bromeliaceae, compiled by D.A. Beadle, 1991, is used as the authority for the hybrid names listed here.

species are total epiphytes, without any distinct root formation. Moreover, tank formation is very often absent and growth speed is significantly slower than in other members of the Tillandsioideae subfamily such as *Vriesea* and *Guzmania*. In addition, certain shades of flower and bract colour, such as blue or lilac, are often present in the *Tillandsia* genus.

Certain species of both genera can differ greatly from one another in physiological terms. Both the CAM and the C₃ photosynthesis pathway occur in the *Tillandsia* genus, while the *Vriesea* genus consists primarily of C₃ plants.

We are convinced that it must be possible to extend the *vriesea* and *tillandsia* ranges by crosses between the two genera. It must be clear, however, that such a programme will require a great deal of work on crossing in that it will be a long-term programme and will also, in all probability, have to cope with sterility problems.

External characteristics: Is it a *Vriesea* or a *Tillandsia*?

Many commercial *Tillandsia* species such as *T. cyanea*, *T. lindenii*, *T. wagneriana*, and *T. flabellata* grow very well as epiphytes but are treated as pot plants in exactly the same way as *Vriesea* species. Anyone who is familiar with bromeliads can distinguish quite clearly at first sight between *tillandsias* and *vrieseas*, amongst other things because of the tank formation in *Vriesea* species and the absence of tank and the grey leaf colouring of *Tillandsia* species.

Of course, these characteristics are not conclusive when it comes to distinguishing between the two genera. Plants such as *Vriesea espinosae* or even *V. drepanocarpa* would be more reminiscent of *Tillandsia* species. Although it was originally the intention to select plants according to their usefulness as commercial cultivars, it was also useful for research purposes, when assessing the products of crossing, to take full account of various visible—and also not directly visible—characteristics of the parent plants concerned, to enable tracing dominant or intermediary properties.

It is normal to pay attention to those characteristics that are concerned with systematics, for example, whether the ligula is present or absent. This is an important characteristic when deciding whether to classify a plant a *vriesea* or a *tillandsia*. In *Tillandsia* species the ligula is missing. The information first available showed that when a *Vriesea* is crossed with a *Tillandsia* this ligula may or may not be present in the next generation (Table 1). If absent, then other *Tillandsia* characteristics also remain visible. In one case, the presence of the ligula occurred together with the original *Tillandsia* plant shape, i.e. without the presence of the tank. This is not a specific datum, however, given that certain *vriesea* plants may also exhibit this kind of outward form. Plants without a tank, with an external appear-

ance characteristic of *tillandsia*, may also, in addition to the ligula, show the typical yellow flower colour of many varieties of *vriesea*. The fact that, in the case of *T. cyanea*, plants are obtained both with and without a tank but always with a ligula, indicates that *vriesea* parent plants should be studied in more detail. There is no doubt that systematic crossings with the various subgenera are indicated.

Physiological properties

If it is interesting to observe the external characteristics of the plant, then it is also important to study the heredity of certain physiological characteristics since plant breeding, in the future, will increasingly take such characteristics into account. Two properties on which a *Vriesea* x *Tillandsia* hybrid can be assessed are: internal water management and the photosynthesis pathway. In the *Tillandsia* genus, a great deal of variation can be found. Some species, such as *T. cyanea* or *T. lucida* lean closely toward the *Vriesea* genus, whereas others clearly show the familiar characteristics, such as being completely covered with trichomes or having a true CAM pathway, as *T. flabellata*.

A hybrid between *Vriesea* x *vigeri* and *Tillandsia flabellata* (fig. 5) has given us the opportunity for some interesting research. Here, the resulting properties lie between the two genera; for example, the water-loss pattern. If leaves are cut off and kept in a dry atmosphere over silica gel, after one week the leaves of *V. x vigeri* retain 53% of their original weight, those of *T. flabellata* retain 77%, and those of the hybrid 68%. This result can be explained easily if one examines the leaf surfaces. The trichomes are much larger than those of the *Vriesea* parent plant and very similar to those of the *tillandsia*, but the stomata are no longer covered. On the other hand, the CAM pathway, which is very highly pronounced in *T. flabellata*, is still present in the hybrid but daily acid accumulation is very low. Further research is, of course, hampered by the problem of sterility, which in intergeneric hybrids occurs more often than normal. Nevertheless, sterility is apparently not absolute so that it may still be possible to produce further crosses in the future.

Practical results.

The comment has already been made that heredity research involving bromeliads is a long-term project. Yet, we have already had the good fortune to be about to obtain from such research a hybrid that may amount to more than merely its theoretical significance as a subject of study.

This hybrid has been bred from the cross, already mentioned, between *Vriesea* x *vigeri* and *Tillandsia flabellata*, two very different parent plants. As far as outward appearance is concerned, the new hybrid should be classified as

(continued on page 276)

Editorial: On the Importance of Being Watchful

CITES (pronounced SIGH-TEES, as we have been instructed) actions during the early months of 1992 should have been of great interest to bromeliad people all over the world: researchers, collectors, growers, dealers, and hobbyists. A major proposal was to regulate international trade in all tillandsias, but few of us knew about that. Even the outcome was not published in the United States until some 90 days after the decision was made. After it was all over, we learned that trade in seven *Tillandsia* species had been restricted. Why complain when it could have been the entire genus?

There was warning of the proposed regulation from superheated allegations in prestigious magazines, from the reports of important conferences, and from individuals. We, collectively, were not prepared to counter well-intentioned but extreme proposals.

Let's back up. CITES, as we remind ourselves, means the Convention on International Trade in Endangered Species of Wild Fauna and Flora, an organization of over 100 Party Nations. The purpose of CITES is to regulate international trade in certain animals and plants. Species for which trade is controlled are listed in Appendices I, II, or III depending on the degree of control exercised. In the January 3, 1992, issue of the *Federal Register* (the publication for regulations and decisions of the executive branch of the United States government), the Fish and Wildlife Service announced that amendments to CITES appendices had been proposed, that it would consider comments on the proposals received by January 31, 1992, that it planned to publish a notice of its final negotiating positions before the meeting of the Parties, and called a meeting to receive public comments on January 8, 1992.

In this case, Austria and Germany proposed adding all *Tillandsia* species to Appendix II. Being listed in Appendix II means: "Species are not presently threatened with extinction but may become so unless their trade is regulated. Import permits are not needed; however, an export permit or reexport certificate from the exporting country must accompany each shipment." There is more to the statement, but you can grasp the meaning. These regulations govern the movement of one plant, not just large commercial quantities.

Here in January was the first call to action. The proposal concerning tillandsias was to be addressed at the 8th meeting of the Conference of

Parties to CITES, which would take place in Kyoto on March 2–13, 1992. Bromeliad people other than commercial collectors and growers may have been aware of the developing problem but not BSI. The officers, directors, and committee chairmen did not know about or did not respond to the proposal. Instead, the United States representative to CITES called on three BSI members for help simply because he was acquainted with them and not with our organization. Our three members were not even members of the Conservation Committee. It was only through their intense activity of gathering information and forwarding it to the United States representative and foreign officials before and during the conference that the proposals were limited to seven species when the vote was taken.

We are not writing about how wild-plant collecting is being or should be controlled, how nurserymen are growing tillandsias and other bromeliads in great quantities from offsets, seed, and tissue culture, or even about the terrible destruction of habitat.

We are writing about the obvious work that we need to do. Bromeliad societies and individuals in the many countries can find out who their CITES representatives are, how they publish information about meetings to be held, and the results of those meetings. They can supply accurate information to those people. After all, how can the representatives to CITES know all about controlling trade in everything from Anacardiaceae to Zygophyllaceae? Do you suppose that orchid people lack effective advocates?

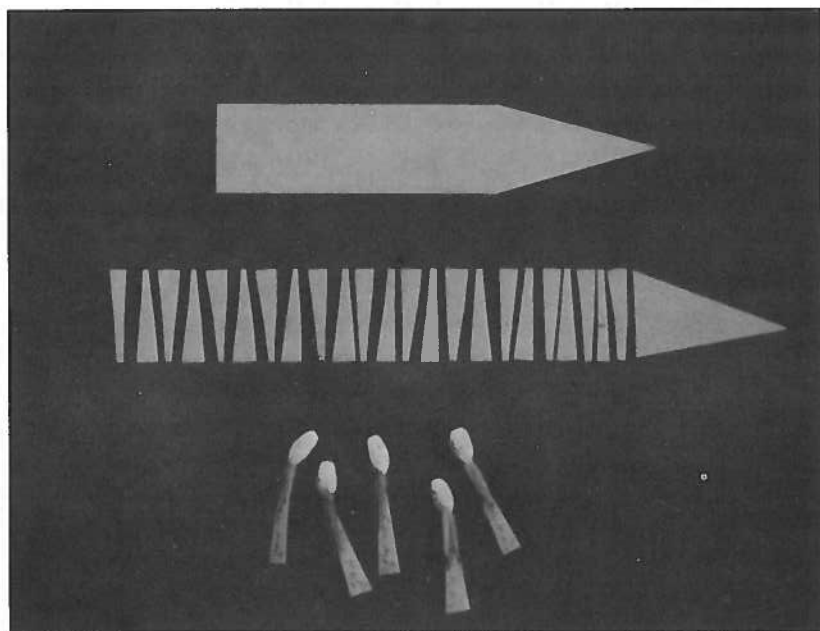
There is no central office that we can use. Each member nation has one vote and its representative will vote according to his or her instructions in the interest of national prestige, commercial pressures, and scientific knowledge. We must make sure that our work to keep those representatives informed is timely and accurate; that the representatives of our societies become well informed and responsive; that we know how to find our way through governmental channels.

We can all be ever-so-clever after the fact. The problem is to apply the lessons that we should have learned from experience.—TUL

James K. Irvin of Cape Coral, Florida, has provided a very welcome unrestricted gift to the society. We are grateful for this gesture of support and friendship. Mr. Irvin wrote that he has become interested in hybridizing and by reading back issues of the *Journal* has discovered Joseph A. Carrone, Jr.'s method of tagging neoregelias (reprinted on pages 254–257) and how pleased he is with that information. In addition to extra-generous members we need an encyclopedist to gather these useful items from 42 years of *Bulletin* and *Journal*. Failing that, with the 50th year approaching, we need an indexer to begin work on a new cumulative index.—TUL

A Fool-Proof Method of Labeling Neoregelia Crosses

Joseph A. Carrone, Jr.



Many bromeliad enthusiasts I have spoken with attach little importance to record keeping; others, and I am one of these, feel that records, are essential and indispensable to progress. Without records in permanent form, evidence, knowledge, and information could hardly be passed on from generation to generation without much of value being lost. Except in a very few instances where I have used as a parent a hybrid made by someone else, my records can reveal the genealogy of my hybrids all the way back to the species—or, at least, back to plants that were collected in the wild whether they are species or otherwise. With such records, it is possible to repeat any crosses that have turned out to be exceptional.

Well, record keeping has its beginning in an appropriate method of labeling the flowers of an inflorescence at the time of pollination. In those bromeliads whose inflorescences are in the arrangement of a raceme, a spike, a panicle, or the like, where a tag of some kind can be hung onto or over the individual flowers as they are pollinated, a tagging method presents itself with

little effort. However, among those genera such as *Neoregelia*, *Nidularium*, *Canistrum*, etc., whose inflorescences are arranged in a many-flowered, compactly-clustered group or head, conventional labeling methods are of little or no value. I would venture to guess that the reason there are so many neoregelia hybrids in existence today whose parentage is unknown stems from the fact that a suitable method of tagging such inflorescences may not have occurred to any of the various hybridizers as they began to work with this genus. This is not to be construed as a criticism of them or of their work, I feel, as I have said, that a method of tagging simply may not have occurred to them. Therefore, they had no way of identifying the crosses they made. But, perhaps as some say, they were satisfied not to be concerned about tagging—I hope not!

Well, for the most part, my work has been confined to the genus *Neoregelia*, and when I began to hybridize with this genus back in the 1960s, I felt that tagging was imperative if I was going to conduct a comprehensive breeding program, not just to produce and register acceptable new Neo. hybrids, but also to learn, record, and pass on to all future hybridizers the knowledge that I gained. Heretofore, those hybridizers who were meticulous about keeping records of the crosses they would make, were limited by the small number of crosses—one, and in some cases, two—that they could put on a single plant, unless they become confused for lack of proper tagging of the individual flowers. When many different crosses were desired from any single, superior plant, much time was necessarily involved in building up the number of ramets, or vegetative propagations, of that clone. There was no easy way to differentiate among the many berries in a cup, which flowers had been pollinated by which pollen parent. There was no fool-proof method of tagging the individual blooms as they were pollinated.

Well, I have developed a fine method of tagging neoregelias, and it is absolutely fool-proof. In fact, it is now being used successfully throughout the bromeliad world by all those with whom I have shared it. Basically, it involves a small, wedge-shaped, plastic tag which may be cut from a plastic pot label. I use labels that are 6 inches long and 1¼ inch wide. From each large label I cut twenty or so of the small, wedge-shaped tags to measure 1¼ inch long by ¼ inch wide at the top, tapering to ⅛ inch or less at the bottom. Several hundreds are cut at a time and stored in a small, screw-top jar for use as I need them.

To understand why these tags are so important, as well as how they work, perhaps it would be best if I start where I approach a flower to pollinate it. The three petals of a neoregelia flower are forceably spread apart to gain access to the pistil. The three stamens that are attached to the lower part of the petals will usually follow. The remaining three stamens that are attached to the top of the ovary will have to be spread or removed, also.

Otherwise, they could possibly rub against the stigma and leave some of their pollen on it. This pollen could prevent proper contact of the foreign pollen that you want to apply to the stigma. I might add at this point that, with only very few exceptions, all neoregelia plants are self-sterile. This means that pollen from any given plant is incapable of setting seed on that same plant or on any ramet of it. However, pollen from any Neo. may be and usually is capable of setting seed on any other neoregelia plant. (There are exceptions for various reasons, but they have no point in this present article.)

When pollination of a flower is accomplished, the narrow end of one of the wedge-shaped tags is inserted into the flower alongside the style, until it gently touches the apex of the ovary. A very light tap on the top of the tag will set it in place. Be careful not to pierce the ovary! Of course, you have noted all relevant data on the tag before it was inserted into the flower. The name of the pollen parent, either abbreviated or coded if it is lengthy, is essential. You may desire to record the date. The name of the seed parent on this tag is optional and depends on your procedure when removing the ripe berries from the cup a month or more later. Surely, this is a small tag but all of this information can be put on it if you use a sharp pencil and write small.

You may want to know just what holds these tags in place until the seed is ripe. Well, this is what must be done by you: After pollination, the stamens and petals are brought back to an upright position again with the instrument you used as a pollinating tool. Now, be sure that the sepals too are returned to their proper position because they play a most-important role later. This will hold the tag in position for the time being. Now proceed in a like manner with the other flowers that are open. Be sure that you insert a tag into each flower as you finish pollinating it. You may use as many different pollen parents as you have flowers open that day, but be sure to tag each flower with the name of the appropriate pollen parent used. **NEVER USE MORE THAN ONE POLLEN SOURCE ON ONE STIGMA!**

By mid or late afternoon, the petals of each flower will have begun to fold inwardly or twist somewhat around the little plastic tag. By another day they will have dried, sticking to the tag and holding it firmly in place. And, if this were not enough already to secure the tag, the sepals, too, will tend to close together as the ovary becomes plump due to the fact they they are hinged at the apex of the ovary. The more the ovary expands, the tighter the sepals grip the tag. Many times I have inverted a plant to remove all water from within the tank of a Neo. without losing any of the tags therein.

By the way, before I commence pollinating, I make sure that the water in the cup is emptied, the cup well cleaned, and the inner leaves and bracts shortened if they can injure me while I pollinate. A small amount of water is allowed in the cup so that it barely covers the broad base of the flower head.

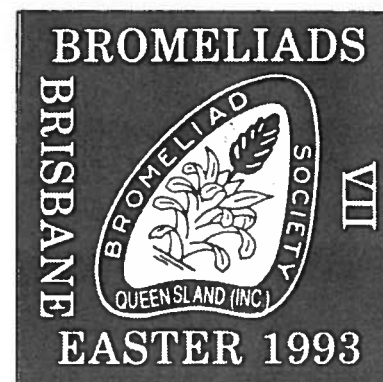
Thereby, throughout the blooming period, the sepals and petals are always above the water level in the cup. The petals can dry against the tags. They do not become putrid because they are never under water.

On maturity, and with a pair of tweezers, the berries are removed individually so that no tags become knocked over by my fingers. Then the berries are sorted into little piles as per the pollen parent indicated on the little tags. At this point a large pot label is prepared with the information from the small tags, the berries are processed to gather the seeds, and the small tags are discarded. They have served their purpose very well. It is wise to harvest berries from only one plant at a time, particularly if the name of the seed-bearing plant is not recorded on the little tags at the time of pollination.

With the use of my method of tagging neoregelia blooms, there is no longer any reason, nor any excuse, for the proliferation of new hybrids of unknown parentage! Surely, it can make registration of all new neoregelia hybrids a much less-complicated matter; it can put an end to further confusion in this genus where hybrids are concerned. I hope everyone will take the time and trouble (?) to use it.

Metairie, Louisiana

Reprinted from Journal, volume 29 (1979), pp. 252-255.



BROMELIADS VII, The Australian National Conference will be held April 9-12, 1993. We are pleased to announce that the key speakers will be Sr. Elton M.C. Leme, Rio de Janeiro, and Mr. Dennis Cathcart of Sarasota, Florida. Activities of this conference will include a Friday evening social, Saturday night banquet, our guest speakers, a display, and a bus trip to selected gardens (extra cost).

For registration, motel reservations, and banquet bookings send cheques not later than 15 March 1993 to: Bromeliad Society of Queensland, Inc., P.O. Box 565, Fortitude Valley, QLD 4006, Australia.

Venue:	Robertson Gardens Motel	Registration:	Single	\$ 85 (Aust)
Location:	Robertson, Brisbane		Double	\$160 (Aust)
	(15 min. Brisbane city	Banquet:	per person	\$35 (Aust)
	20 min. Eagle Farm Airport)	Motel:	Single	\$72 (Aust) per night
			Double	\$82 (Aust) per night

The True Identity of *Cryptanthus glaziovii*

Elton M.C. Leme

Since described by Carl Mez in 1891,¹ the true identity of *Cryptanthus glaziovii* has been veiled in deep mystery. The description was based on a specimen collected by A. Glaziou and the holotype was deposited in the Berlin Herbarium, apparently without any precise information about the place of collection: "*Habitat in Brasilia orientali, loco ignoto.*" However, there is an isotype preserved in the herbarium of Paris, which states the type locality: Caraça, Minas Gerais State; the date of collection: February 18, 1884 (fig. 8).

Because of its distinctly caulescent habit, this cryptanthus was misinterpreted for many years. Related or misidentified taxa are *C. bahianus* L.B. Smith,² *C. pseudoglaziovii* Leme,³ *C. odoratissimus* Leme,⁴ *C. exaltatus* Luther,⁵ to name a few. In the same way, the lack of any data about petal morphology contributed to the general state of confusion and provided speculation concerning the possibility of fitting it in the genus *Orthophytum* because it looked like *O. vagans*.

In 1988, a *Cryptanthus* specimen, very delicate in size and texture, found in Roberto Kautsky's collection (probably native to his property at Domingos Martins, Espírito Santo, was presented as a good candidate for Glaziou's species.

After making considerations on a so-called "imposter of glaziovii" often found in cultivation, Harry Luther stated⁶ that the new, delicate plant could be the much-desired *C. glaziovii*, but prudently asked for blooming, collected specimens for comparison and further clarification. On the other hand, commenting on the same tiny specimen (which is typical of the Atlantic rain forest) Warren Loose⁷ suggested that the xerophytic abilities reported for *C. glaziovii* could be erroneous data from Glaziou's collection notes.

In 1990, during an excursion to the state of Minas Gerais,⁸ all the mystery was solved by the collection of the true *Cryptanthus glaziovii* at the type locality, the natural park of Caraça, where it had been found originally by A. Glaziou over a century ago. It is, without question, a typical xerophytic species, growing amidst rock outcroppings in the domain of the rocky fields, about 1,000 to 1,500 meters above sea level. There, the very effective drainage provided by a rocky soil in combination with an



E.M.C. Leme

Figures 6 and 7

The true *Cryptanthus glaziovii*. A cultivated specimen is shown on the left. The lower picture shows the plants in their habitat in the natural park of Caraça, Minas Gerais, where it was found by A. Glaziou over a century ago.



open, predominantly herbaceous or bushy vegetation explains the somewhat leathery (subcoriaceous) texture of *C. glaziovii*.

On that occasion, a few small groups were observed. Just recently, however, we returned to Caraça for supplementary observations and were successful in finding a large population with hundreds of specimens, some of them in fruit stage. On the basis of that fruiting material, as well as considering a flowering specimen obtained in cultivation, we elaborate the following description:

Cryptanthus glaziovii Mez

Plant with a large, erect stem of 20–40 cm length covered by leaf-sheaths, propagating usually by a single, elongate, erect pup produced around the inflorescence. *Leaves* 30–40, spreading-recurved, equally and subdensely distributed along the stem, 10–15 cm long; *sheaths* suborbiculate, submembranaceous toward base and margins, glabrous, pale green, and lustrous inside, densely white lepidote, dark red, and strongly rugose outside, about 1.5 cm long, coarse spinose toward apex; *blades* very narrowly triangulate-lanceolate, not contracted at base, apex long acuminate-caudate, 8–12 mm wide at base, subcoriaceous, neither undulate nor canaliculate but channeled, green, lustrous, and glabrous above, completely covered beneath by white scales, subdensely serrate with subspreading reddish spines 1–2.5 mm long. *Inflorescence* rather few-flowered, 2–3 cm long, with about 10 fascicles, the basal ones with 2 flowers; *primary bracts* foliaceous; *floral bracts* triangulate-ovate, acuminate, near equaling the sepals, entire or the upper ones remotely spinulose, membranaceous, sparsely floccose-tomentellous outside; *flowers* about 3 cm long, fragrant, *sepals* oblong-lanceolate, subsymmetric, apex broadly acute and apiculate, 8–1.5 mm long, about 3 mm wide, connate at base for 3–4 mm, slightly carinate; *petals* about 22 mm long, white, slightly exceeding the stamens but nearly spreading and exposing them, connate for 2–3 mm in a very narrow common tube with the filaments and the style, the blades broadly obovate, subrounded, 8–9 mm wide; *anthers* sub-linear, about 3.5 mm long, fixed at $\frac{1}{3}$ of its length about the base, base sagittate, apex apiculate; *ovary* subellipsoid, trigonous, 5–6 mm long, 3–4 mm in diameter, sparsely floccose-tomentellous; *ovules* 20–30 in each locule, obtuse; *fruit* green; *seeds* subovate, 1.5 mm long, yellowish brown in life, notable sulcate-rugulose.

Material examined: Brazil. Minas Gerais, County of Santa Bárbara, Natural Park of Caraça. Coll. Elton M.C. Leme 1545, T.U. Lineham, S. Smith & L.C. Marigo, April 24, 1990 (HB). Ibid. E.M.C. Leme 1856 & Pedro Nahoum, February 22, 1992 (HB).

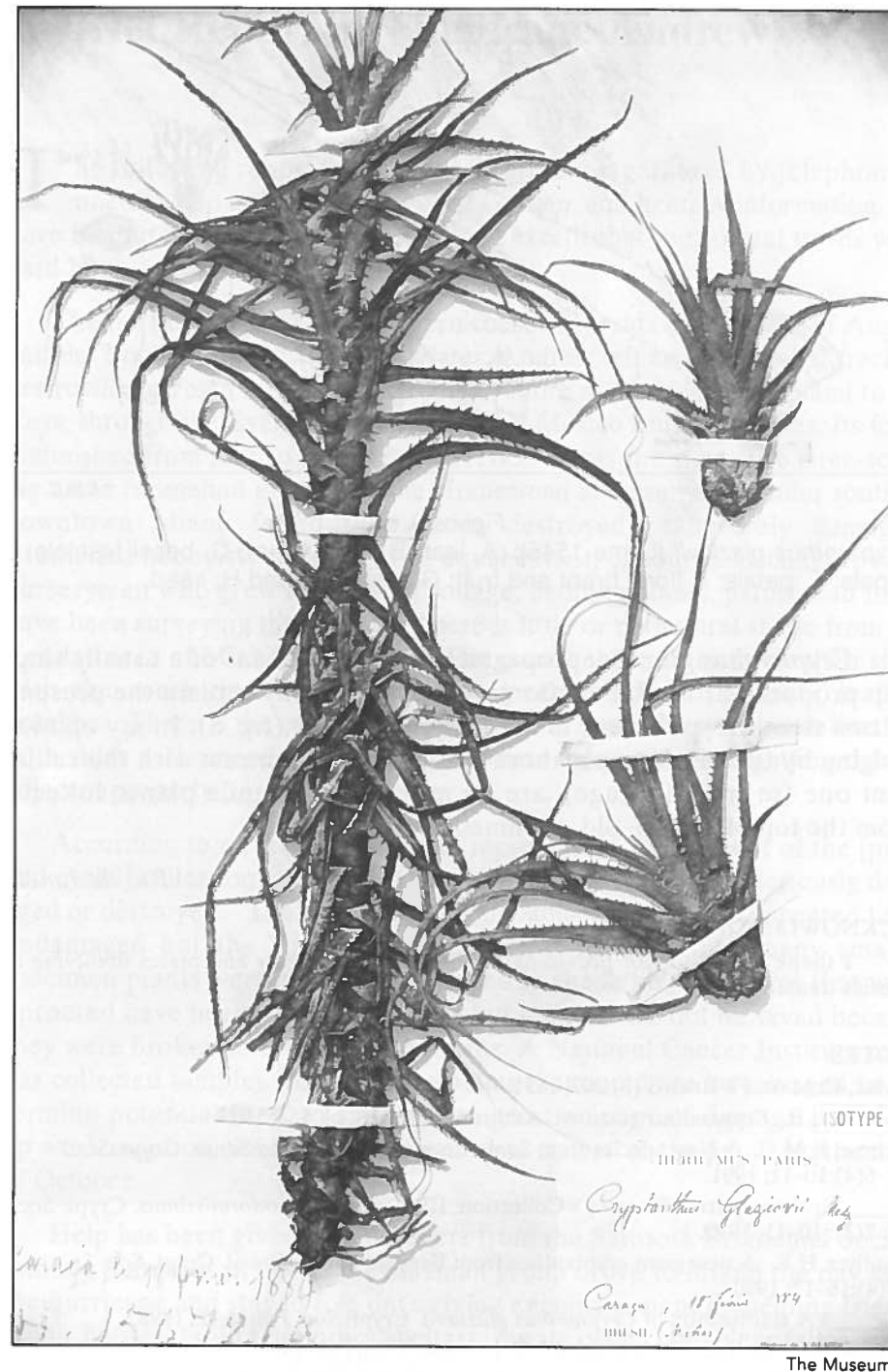
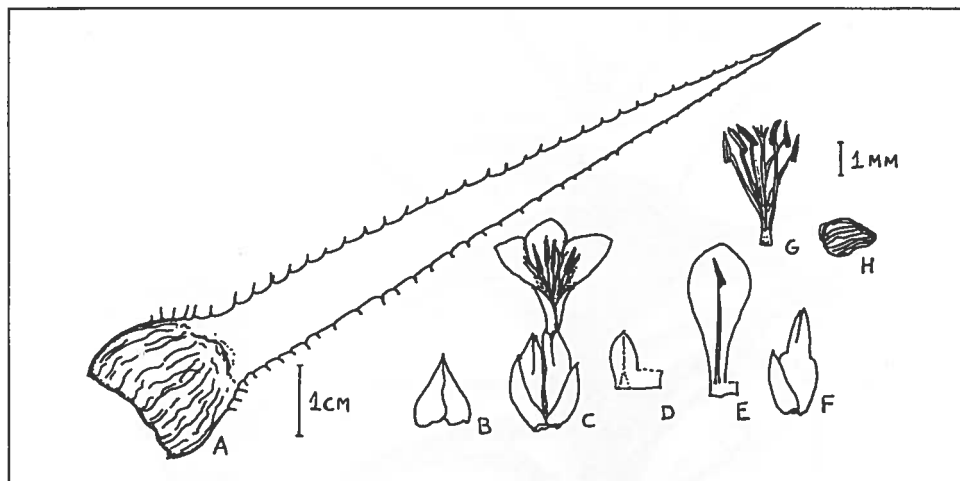


Figure 8
Cryptanthus glaziovii (isotype) from the herbarium, Muséum national d'Histoire naturelle, Paris, with label showing the date of collection, 1884.



E.M.C. Leme

Figure 9.

Cryptanthus glaziovii (Leme 1545): A, leaf; B, floral bract; C, basal fascicle; D, sepal; E, petals; F, floral bract and fruit; G, stamens; and H, seed.

Cryptanthus glaziovii propagates mainly by means of a usually single pup produced around the inflorescence, which may explain the presence of two stemless specimens in the isotype of Paris (fig. 8). In my opinion, judging by the photograph, those two plants, in contrast with the caulescent one (in fruiting stage), are no more than juvenile plants collected from the top of typical, old, stemmed specimens.

Rio de Janeiro

ACKNOWLEDGEMENT:

I thank the editor for providing important bibliography and plates involving the species treated here.

NOTES:

¹ Mez, C. Mart. Fl. Bras. 3 (3):202; 1891.

² Smith, L.B. *Cryptanthus glaziovii*. Addisonia 20:9-10, pl. 654; 1937.

³ Leme, E.M.C. A New species from Santa Leopoldina, Espírito Santo. Crypt. Soc. J. 6(4):10-11; 1991.

⁴ _____. Novelty from Kautsky's Collection, III: *Cryptanthus odoratissimus*. Crypt. Soc. J. 7(2): 10-11; 1992.

⁵ Luther, H.E. A new giant cryptanthus from Espírito Santo, Brazil. Crypt. Soc. J. 5(4):16-17; 1990.

⁶ _____. A clarification of *Cryptanthus glaziovii*. Crypt. Soc. J. 3(1):12; 1988.

⁷ Loose, W. Another mystery solved. Crypt. Soc. J. 3(1):13-14; 1988.

⁸ Lineham, T.U. Brazil; a trip report. J. Brom. Soc. 42 (4):160-167; (5):206-213.

A Brief Report on Hurricane Andrew

The following report is based on information gathered by telephone, a one-day trip to Fairchild Tropical Garden, and hearsay information. We have had no information from Louisiana except that the coastal towns were hard hit.

The hurricane struck the southern coast of Florida on the 24th of August and the Louisiana coast three days later. Andrew left an east-to-west track of destruction across Florida some twenty or more miles wide from Miami to the Keys, through the Everglades to the Gulf of Mexico south of Naples. Its force diminished from four to one as it progressed across the state. The large-scale, big name bromeliad growers in the Homestead area, some ten miles south of downtown Miami found their crops destroyed or severely damaged. Bromeliad hobbyists suffered to an equal extent, of course. Orchid growers, nurserymen who grew all kinds of foliage, bedding plants, palms, and limes have been surveying the damage. There is little or no natural shade from the Kendall area of Miami to the Keys. The giant banyan trees lie on their sides with the roots ripped up, mahogany trees stand with stumpy, leafless branches. There is the constant whine of chain saws. Every street is lined on both sides with unending stacks of tree branches and leaves gathered from adjacent property.

According to an Associated Press report, "60 to 70 percent of the [palm and cycad] collection" at Fairchild Tropical Garden "has been seriously damaged or destroyed." The garden center, and adjacent buildings appeared to be undamaged but the Rare Plant House lost its roof. The many smaller specimen plants were rescued and placed in shade houses. Palms that were uprooted have been propped back up but many could not be saved because they were broken or torn off at the roots. A National Cancer Institute team has collected samples from the rare palms that could not be salvaged to determine potential uses. In spite of the great amount of damage and clean up work required, the Garden is planning to reopen to the public on the third of October.

Help has been given by volunteers from the Sarasota Bromeliad Society (among hundreds of others). That small group drove to Miami the day after the hurricane and stayed five days giving encouragement by helping friends repair houses, build temporary shelters, rescue plants, and clear fallen trees. They shared problems of not having regular meals, a place to bathe and wash clothes. One couple with no roof over their bedroom but with running water offered the use of a shower. Selby Gardens donated a truck load of shade cloth

(continued on page 274)

Objectives of the BSI Odean Head



Cantú Studio

Figure 10

Dennis Odean Head

I am proud of the Bromeliad Society, Inc. as an organization including some 1900 voting members and their related affiliates. I look forward to serving as president for the next three years..

This is an appropriate time for us to review how well we are accomplishing our purposes and to set objectives for possible improvements. Our stated purposes are, "to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world, and to promote fellowship." Committee reports received at our Board of Directors meeting in Tampa reflect that several good efforts were made in the past year in relation to these purposes.

I am amazed at the large volume of bromeliad-related publications distributed each year by Sally Thompson, who is in charge of our Publication Sales. This is only one of a multitude of services and sales advertised in each *Journal*. If you are not reading these ads, you could be missing out on things that would add enjoyment to your hobby. The *Journal* text material continues to be high quality providing descriptions of new species, cultural information, results of research projects, and other bromeliad-related technical and general subjects. Our editor welcomes material worthy of publication.

Space will not permit me to relate all the good things that we are doing. The following, however, deserve special mention.

- A new cultural handbook was published with more and better quality photographs and more up-to-date cultural information utilizing many more years of experience than the original handbook. Our thanks to Dr. Mark Dimmitt for a job well done.

- A *Preliminary Listing of All Known Cultivar and Grex Names for the Bromeliaceae* was published. This listing includes the names of over 5,000 assembled from every list, catalog, and other source available up to the time of publication. It is preliminary and was published only as a starting place to build an accurate and complete register. Don Beadle is to be commended for the countless hours he has spent compiling the data and publishing it. He hopes to publish an updated list in about two more years. In the meantime, he would appreciate any information you may have to make the list more accurate and complete.

- We are becoming more aware of the need to preserve and protect endangered species. It is also more obvious that we need to keep the powers-that-be properly informed before they place limitations and restrictions on bromeliad species.

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Our society must assume this ongoing responsibility. That task was performed admirably in recent months by Pamela Koide, Wayne Schuster, and Harry Luther in preparation for the CITES conference held in Kyoto, Japan in March 1992 (see article in the July-August 1992 *Journal*).

• Our latest World Bromeliad Conference in Tampa was just great. These world conferences are the best means we have for promoting fellowship within our membership on a wide scale. Tampa excelled in this area with approximately 550 registrations. This could well be a record attendance and certainly indicates a growing interest in world conferences. When you add the outstanding displays, the beautiful plants, the informative seminars, the wonderful sales, and the food and facilities, we enjoyed one of the best conferences ever.

• Harry Luther continues to render our society a great service as director of the Mulford B. Foster Bromeliad Identification Center at The Marie Selby Botanical Gardens. His most recent achievement is the third edition of his *Alphabetical List of Bromeliad Binomials* compiled with Edna Sieff's help.

I could remain proud of the BSI if we just continued our normal efforts in the areas mentioned. Of course, there is nothing automatic about the continuance of these efforts. New ideas and continued motivation are required to maintain our quality level. On the other hand, I am sure that there are better ways to do a lot of the things we do. I want you, as a member, to be proud of our organization also and am receptive to your ideas and your help.

One concern I have is the future of our world conferences. No problem with the next one. San Diego has things well underway and I am looking forward to a great conference there in 1994. Where we will go after San Diego? We should already have some affiliates seriously considering being host in 1996. Site selection should be made in the next six months or so and it would be nice to have several optional sites to consider. If your affiliate is in or near a city with adequate facilities and you have been holding your own shows, think about hosting the world conference. Remember that this is a BSI-supported function and that experience can be provided in many areas from outside your society. If you have any questions, Tom Wolfe would be glad to hear from you. He is chairman of the World Conference Committee and the person who receives the applications to host the conference.

I would also like to see all differences or misunderstandings resolved so that all affiliates can hold standard bromeliad shows. The *Handbook for Judges* provides us with a great guide for conducting and judging our shows. It also contains many good suggestions as well as some basic requirements. It was intended that these rules be modified when warranted. Shows are too important to our organization for any confusion to continue.

Let's enjoy our plants and our friendships with other growers. Bromeliads propagate themselves making them the perfect plant for sharing with friends and encouraging new growers. Get your new grower friend to join the BSI and your local society.

The Florida Bromeliads: *Guzmania monostachia*

Bradley C. Bennett

For the bromeliad lover, a guzmania-filled swamp is a splendid sight. Although restricted to a few plant communities in southern Florida, *Guzmania monostachia* (L.) Rusby ex Mez when found may occur in abundance. More than 500 individuals may grow in an area of one hundred square meters. A hundred plants may occur on one tree.

Guzmania monostachia is found only in the southern-most counties of Florida, throughout Central America, through the Caribbean to northern Peru and Brazil (Smith & Downs 1977). It has weedy tendencies through much of its range. In Florida, the species grows only in Collier, Dade, and Monroe counties. It occurs in various tropical hammocks and oak hammocks of those counties but is most abundant in the Fakahatchee Strand State Preserve (FSSP). There, it grows on pop ash (*Fraxinus caroliniana*) and pond apple (*Annona glabra*) swamps. Other bromeliads growing in the same plant communities include *Catopsis berteroniana* (Schultes f.) Mez, *C. floribunda* L.B. Smith, *C. nutans* (Swartz) Grisebach, *Tillandsia balbisiana* Schultes f., *T. fasciculata* Swartz, *T. pruinosa* Swartz, *T. setacea* Swartz, *T. utriculata* L., and *T. variabilis* Schlect.

The name *Guzmania* honors Anastasio Guzman, a Spanish naturalist.¹ The specific epithet, *monostachia*, means "one spike," in reference to the inflorescence. The stemless tank epiphyte has strap-shaped leaves 2–3 cm wide and up to 50 cm long. The glabrous, bright green leaves form a broad, open rosette that captures water and detritus. Tree frogs, in the genus *Hyla*, the same shade of green as the leaves, live within the rosette. The floral spike is up to 40 cm long, composed of spirally arranged flowers. In Florida the apical floral bracts are salmon-colored. The white flowers are about 3 cm long. The fruits are cylindric capsules, 3–4 cm long.

This strap-leaved bromeliad grows lower in the canopy than other Fakahatchee Strand bromeliads (Bennett 1986). The 855 plants that I measured averaged 2.5 m in height above ground. The microclimate of the lower trunk of a swamp tree may buffer this species from low temperatures and moisture deficits found in the upper canopy.

¹ Bromeliad Society Bulletin 5:71; 1955.



Author

Figure 11
Guzmania monostachia g
in a pop ash and pond
swamp in the Fakahatchee
State Preserve, Florida, dur
dry season. The vertical d
tion of this species is evide
ing the pop ash deciduous,



Figure 12
Variegated
variety of
*Guzmania
monostachia*.
Note the
highwater
mark on the
tree trunk.

Author

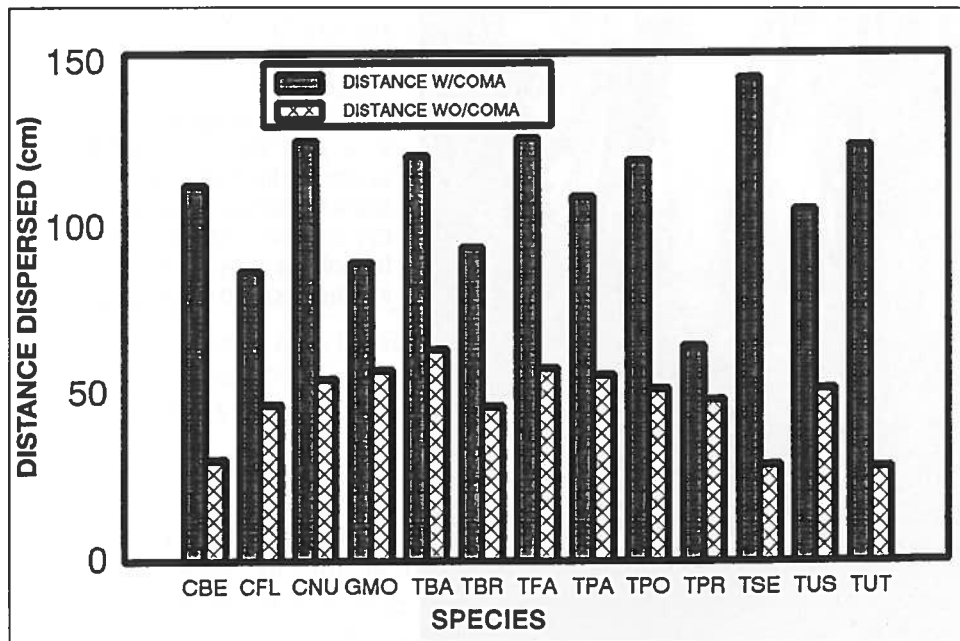


Figure 13.

Average distance dispersed in a wind tunnel with and without seed coma attached. CBE=*Catopsis berteroniana*, CFL=*C. floribunda*, CNU=*C. nutans*, GMO=*Guzmania monostachia*, TBA=*T. fasciculata*, TPA=*T. paucifolia*, TPO=*T. polystachia* (*T. x smalliana*), TPR=*T. pruinosa*, TSE=*T. setacea*, TUS=*T. usneoides*, TUT=*T. utriculata*.

Some *Guzmania monostachia* individuals can switch between the C_3 and CAM photosynthetic pathways (Medina et al. 1977). CAM is common in desert plants such as members of the cactus family and many epiphytes that occupy high-light and moisture-stressed sites. In Florida, *G. monostachia* probably does not switch to CAM. Its growth in moist, low-light sites is typical of C_3 epiphytes.

In Florida, *Guzmania monostachia* sets seeds without the aid of pollinators. The seeds are not as well adapted to wind dispersal as those of other bromeliads. In a wind tunnel with a maximum wind speed of 6m/sec, I released seeds from a height of 65 cm. *G. monostachia* seeds dispersed an average of 90 cm before touching the sides or bottom of the tunnel. Of the 13 Florida bromeliads examined, only *Catopsis floribunda* and *Tillandsia pruinosa* traveled shorter distances (Bennett 1988). It may not be coincidence that all three have restricted distributions in Florida. *C. nutans*, however, the rarest of Florida bromeliads, dispersed the second farthest of any of the species tested.

With the plume removed, *Guzmania monostachia* travelled about 55 cm. As important as it is to dispersal, the bromeliad seed hair also

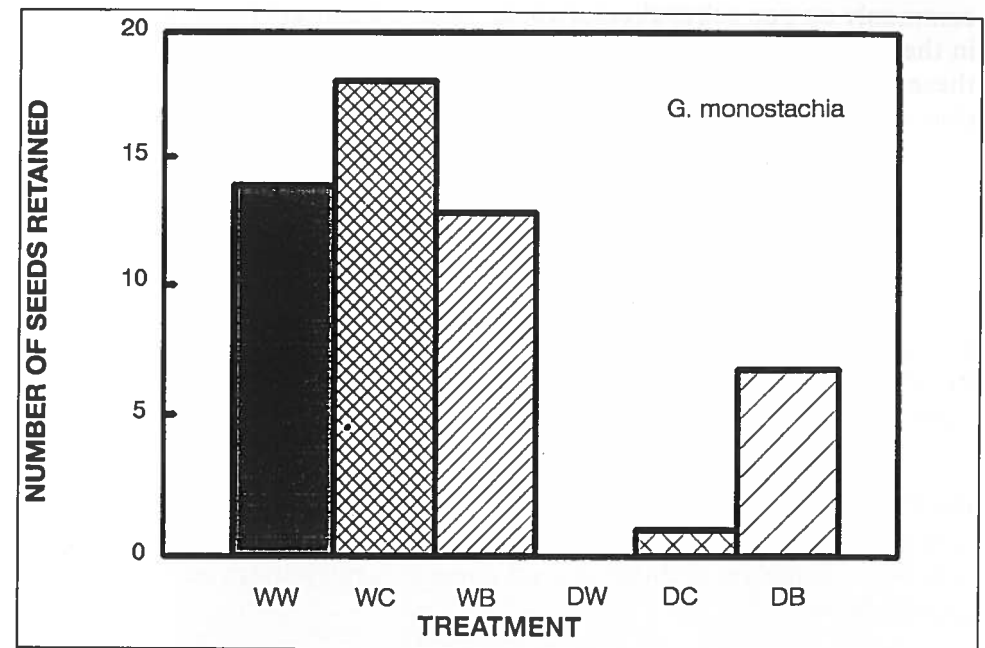


Figure 14.

Seed retention on artificial substrates after 10 days. WW=wet wood, WC=wet cork, WB=wet concrete block, DW=dry wood, DC=dry cork, DB=dry concrete block.

anchors the seed to its host. I examined this role in a simple experiment by attaching seeds to substrates of concrete block, wood, and cork. One set of substrates was wet when I applied the seeds, the others were dry. After 10 days, 65–90% of the *G. monostachia* seeds remained attached to dry surfaces (Bennett 1988).

Unlike some Florida bromeliads such as *Tillandsia flexuosa* and *Catopsis nutans*, *G. monostachia* orients without respect to compass direction (Bennett 1987). This does not mean that all sides of its host offer equally hospitable microclimates. South- and west-facing exposures, for example, may be hotter and drier.

Guzmania monostachia produces many vegetative offshoots. More than 15 individuals grew on a single stem. Even if seedlings establish preferentially on one side of a host, vigorous vegetative growth could obscure that pattern.

What factors determine the abundance of *Guzmania monostachia*? Unlike some bromeliads, the host species may account for up to 63% of the variation in abundance (Bennett 1986, 1987). Like *Catopsis nutans* and many other epiphytes in the FSSP, the strap-leafed bromeliad grows most

commonly on pop ash and pond apple, as noted earlier. These species grow in the deepest part of the central slough of the preserve. The suitability of these two species may be more the result of their location than their bark characteristics.

Although *Guzmania monostachia* is very abundant in parts of the FSSP it is ranked as one of the endangered species of Florida (Austin et al. 1990; Ward 1979). Natural mortality is high. Twenty-six of 196 individuals died during the five months that I monitored two populations (a decrease of 13%). Nonetheless, the vegetative propagation and large seed production of this species probably offset this mortality rate since it is the most abundant bromeliad in the FSSP. Elsewhere in Florida, *G. monostachia* is nearly extinct (Ward 1979).

Several populations of *Guzmania monostachia* in accessible parts of the FSSP have suffered from illegal collecting, especially individuals with variegated leaves. These were described as variety *variegata* but the description was incomplete and the varietal name was ruled illegitimate (Smith & Downs 1977).

Guzmania seeds germinate easily on wet cypress bark. Readers interested in propagating this attractive species should purchase plants from nurseries or grow them from seed collected in the wild. If the swamp habitats of the FSSP are protected to keep collectors from removing wild plants, *G. monostachia* should persist in at least one of its Florida localities.

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Editor's notes: 1) M.B. Foster validated the var. *variegata* in his description published in *Brom. Soc. Bulletin* 3:30; 1953; H.E. Luther's *Alphabetical List of Bromeliad Binomials*, Mar. 1991 includes: "var. *variegata hortus ex Nash*." 2) Mr. Luther recorded *G. monostachia* var. *variegata* in Panama in *Journal* 37:166-167; 1987.

Tillandsia palmasolana, a synonym for *T. concolor*

Renate Ehlers



Author

Figures 15 and 16 *Tillandsia palmasolana* (above), Veracruz, according to the author's findings must now be treated as a synonym of *T. concolor* (right). There is a fine color picture of *T. concolor* on the cover of *Journal*, November-December, 1981.



Smith & Downs Fig. 302

For many years we intended to collect *Tillandsia palmasolana* but time was always short. We decided in 1989 to go to the type locality at Palma Sola, Veracruz, on the first day of our visit to Mexico. The next morning we went to the type locality, Punta Limon, Cerro de Oro. We found *T. schiedeana*, *T. ionantha*, and a small, very hard-leaved tillandsia resembling *T. concolor*.

Since Matuda has compared *T. palmasolana* with *T. tricolor* Schlechtendal & Chamisso,¹ we looked for a plant resembling that description. Although we spent many hours in the area, we found no plants other than the three already mentioned. When we compared the small *T. concolor* with Matuda's photo,² we found it to be very similar.

Some of the plants had a simple spike like the type but other plants had two or three spikes. The plants were in very poor condition because the area was very dry. Our collected plants did not develop flowers because they had to stay four weeks in our suitcase.

In July 1991, the first plant flowered in our collection. It is evidently *T. concolor* because all the details fit the description: spike is linear-lanceolate, acute, 7–9 cm long and 2 cm wide; floral bracts are 3.6 cm long, carinate and 1 cm connate; petals are 6 cm long, purple.

Conclusion. *Tillandsia palmasolana* Matuda must be treated as a synonym of *T. concolor* L.B. Smith.

Stuttgart, Federal Republic of Germany

¹ Smith & Downs, page 1394

² Cact. & Sucul. Mex. 18:51, fig. 25; 1973.

Bromeliad Society, Inc. Grant for Weevil Research

Acting on a recommendation by W.A. Frazel, immediate past vice-president, the Board of Directors at its June 1992 meeting approved a supplement to the Bromeliad Research Grant Committee budget for weevil research. During July and August, the committee approved a grant proposal submitted by Dr. J. Howard Frank, who is directing the research activities, and the BSI treasurer issued him a check for \$3,000.

We have been reporting on the pest potential of the weevil *Metamasius callizona*, a native of Mexico and Central America, for the past two years. It seems all too clear now that this pest, which destroys native bromeliads, has moved from southern Florida to the west coast of Florida with possible sightings in Texas. It is no longer the concern of a few importers, growers, and hobbyists. Research in a parasite or predator to help eradicate this weevil was started early by Dr. Frank and other members of the Institute of Food & Agricultural Sciences of the University of Florida. The Florida Council of Bromeliad Societies has been active in supporting Dr. Frank's research.

We urge growers, local and regional societies to help generously with this support, which must be considered basically selfish. How would you like one day to find the floor of your greenhouses littered with weevil-destroyed plants, or to open newly received boxes and find the plants infested? It has been happening.

Please send your checks to BSI Treasurer, Clyde P. Jackson, 3705 Shadycrest, Pearland, TX 77581 USA, marked "for weevil research." Your contributions will be acknowledged in the *Journal*.—D.O.H.

Fragrant Tillandsias: Two Examples

Mulford Foster wrote about fragrant tillandsias in the *Bulletin* for January–February 1956 and mentioned half a dozen species but gave special praise to Spanish moss. Dr. Richard Oeser followed in 1967 with another such article and mentioned the same species but added *Tillandsia myosura* "group" and noted that *T. crocata* has "almost orange colored flowers." Mr. Foster called them "yellow." It would be useful to have a more recent list and discussion of these pleasant plants and we are working on one.

World Bromeliad Conferences are interesting events for many reasons. There are opportunities offered and opportunities taken. The observer who is not dashing around gets to see and compare people, speakers, events, and particularly to observe how the commercial dealers present their plants. One of the unexpected displays at the recent conference was a table full of fragrant *Tillandsia* species, an almost irresistible collection. The problem was to remember what one already had or which of several had survived. We bought five species with Jerry's smiling advice, have mounted some on cork and have others standing in clay pots waiting for the spirit to move. Other conferees seemed to have no difficulty in selecting plants. They bought anything and everything: high altitude, low altitude, desert, tropic, they all went. Back to the fragrance.

In the May 1992 Bromeliad Newsletter of the Bromeliad Society of New South Wales there are two short items about fragrant tillandsias: *T. diaguitensis* and *T. reichenbachii*. Paul Isley's book *Tillandsia* includes both photographs and discussions of these species. Now, is the time to review the home conditions of these plants and to consider their preferences. The following material is somewhat condensed from the original and where there are differences the Isley notes are preferred especially when one opinion says dry and the other says humid. They may both be right.

***Tillandsia diaguitensis*.** Alberto Castellanos, one of our honorary trustees, described this plant in 1929. This somewhat slow-growing species is named for the pueblo Diaguitas, Argentina. It is a rock-grower found at 200–1600 meters above sea level in a temperate climate. It is a hardy plant with long, stiff stems of 12–25 cm (you must get acquainted with metric). When mounted, no matter in what direction, the plant will grow toward the light source. It likes bright light. Isley says that the white and fragrant flowers will develop only when given substantial humidity.

***Tillandsia reichenbachii*.** J.G. Baker described this species and named it for the German botanist Reichenbach, a prolific 19th century orchid taxonomist

who is not otherwise identified. This is another native of northern Argentina, and also of Bolivia. It is an epiphyte found at 200–2,000 meters growing on acacias or other bushes in company with *T. myosura* in wooded areas. It is like *T. duratii*, but smaller, in that its leaves grasp the branches of the host. The flower consists of three, pale violet petals with white centers. The inflorescence is upright and after flowering an offset forms beside the inflorescence gradually pushing it aside and taking over. The offset appears difficult to divide from the parent and Vic Prezetoeki (who wrote the culture note) says he hasn't tried for fear of damaging the plant. This is a hardy plant that grows well under average conditions of bright light, frequent watering and consistent fertilization during the growing season. Vic says that it should be allowed to dry out between watering.

We acknowledge with gratitude this information from the Bromeliad Society of West Australia, the Bromeliad Society of New South Wales, and P.T. Isley's book cited above.—TUL

A Brief Report on Hurricane Andrew *(continued from page 263)*

to the Fairchild Garden. Two central Florida growers helped to rescue seedlings by bringing them to their own greenhouses. The Sarasota team was unable to help in the case of one grower. Even with shade cloth lying over his plants scattered in the wreckage of two large shelters, he located a bulldozer working on nearby property and talked the operator into clearing his land. He now has his house and three large piles of neatly stacked debris: plants, shade house supports, shade cloth, bench supports, and his air conditioner (the last item was just standing in the way).

The good news is that the Everglades National Park had relatively little damage, the Fakahatchee Strand State Preserve (see pages 266–270) was untouched. While some trees around Naples were blown over or broken, royal palms sailed through with fronds intact.

The long-range results are greatly in doubt particularly in the cases of bromeliad growers who were developing new plants and raising stock in their own nurseries. Others who have imported stock will be able, gradually, to get back into business. There may be a period when the supply lines from southern Florida will be dried up. When that happens the demand for bromeliads that has been developed so slowly may be affected. At this point it is hard to know what kind of help to offer our bromeliad friends, but you will remember plants that you bought or were given and may want to return the favors. The addresses of three affiliated societies in the hurricane path are listed on the back cover.—TUL

Decisions Made at the June 1992 BSI Meetings

These notes constitute a reasonably accurate report of decisions made during the annual general and the Board of Directors meetings held in Tampa on 10 June 1992. The minutes will be published later.—TUL

1. The annual general meeting was convened on 10 June 1992 and then adjourned for lack of business items.

2. The annual Board of Directors' meeting was convened immediately following the general meeting. All members were present except Enrique Graf and Maurice Kellett, two of the International Regional directors, and Thomas W. Wolfe.

3. Decisions:

a) Exceptional matters.

1) To thank Mr. Harry E. Luther for his diligence in preparing the third edition of his *Alphabetical list of Bromeliad Binomials* and for his generosity in allowing the society to be the publishing agency.

2) To reimburse Ms. Pamela Koide in the amount of \$1,012.00 for communications and printing charges incurred in her direct support of the United States representative to CITES before and during the 1992 conference in Kyoto.

3) To appropriate \$3,000 in supplementary funds to the Research Grant Committee for research on the weevil *Metamasius callizona*. Please see page 272 for further information about weevil research.

b) Editor. To authorize the editor to proceed, with the assistance of Dr. R.W. Read to have a revised, illustrated glossary ready for publication in the next 24 months with an initial quantity of 2,000 copies and at an estimated cost not to exceed \$8,000; with the preliminary costs to be added to the editor's budget.

c) Membership.

1) To open a VISA account on a two-year trial basis for membership purposes.

2) To announce the policy that membership fees are not refundable. The secretary was requested to prepare an appropriate change concerning this decision in the Standing Rules.

d) Publication Sales.

1) To authorize the chairman to assign prices to the 3rd edition of Mr. Luther's alphabetical list including reasonable charges for postage and handling, and to authorize her to print the new edition on demand.

2) To assign special prices for BSI publications for the duration of the 1992 World Bromeliad Conference.

e) Treasurer.

1) To rescind the decision made at the 1991 meeting: "that money donated *in memoriam* should be placed in a newly created general endowment fund, if not otherwise stated." The treasurer was requested to propose new language for a fund to receive unrestricted gifts and those made in memory of individuals.

2) To approve the financial report for 1991 and budgets for 1992 and 1993,

as amended. The report and budgets were published in the September–October 1992 issue of the *Journal*.

f) Victoria Padilla Memorial Bromeliad Research Fund. To amend Standing Rule 10 to clarify the purpose, scope, and administration of this fund.

g) World Bromeliad Conference. To amend Standing Rule 6 governing world bromeliad conference matters to add:

1) It shall be the policy of the society with respect to proposed world conference sponsors to:

(a) encourage affiliated societies and members to take part in the conference and to provide newsletter advertising space.

(b) encourage the sponsoring society to hold a plant auction for the benefit of the Bromeliad Identification Center with the provision that donations for the benefit of BSI shall accepted also.

(c) Provide up to \$1,000 as a noninterest loan to the sponsoring society on request, with repayment due not more than six months after the closing date of the conference.

(d) Provide up to six pages of the *Journal* for text and specific advertising during the 12 months preceding the conference and to require payment for other advertising space at the prescribed rate.

2) Encourage the sponsoring society to display the BSI insignia and give prominence to the BSI sponsorship as well as the purposes and goals of BSI on advertising matter, programs, show schedules, and related publications.

h) Elections.

1) Officers: president, Dennis Odean Head; vice-president, Thomas W. Wolfe; secretary, Don A. Beadle. No further changes were made.

2) Committee chairmen: Publications Sales, Sally Thompson; World Conference, Thomas W. Wolfe. No further changes were made.

Intergeneric Crosses between *Vriesea* and *Tillandsia*; Possibly Something New in Bromeliad Cultivation? (continued from page 251)

a *Tillandsia*, but it has a much more vivid flower colour than *T. flabellata*. One advantage is that, on fully grown plants, very well-developed inflorescences can be obtained, and even on young plants one can still obtain an inflorescence that shows up well. Now that trade prices have been forced down, it is difficult to grow *Tillandsia* species profitably. The alternative, quicker growing crops are, therefore, a promising prospect for the future. Indeed, young planting material is currently being multiplied with a view to limited trials on certain interesting holdings.

It is not unrealistic to expect that, in the next decade, a number of different kinds of intergeneric hybrids, produced not only from *vrieseas* and *tillandsias* but also from *guzmanias* will be able to contribute towards the introduction of modern innovations into the bromeliad range.

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Regions having openings

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Central	–	1 director
Florida	–	1 director
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Northeast	–	1 director
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Who may nominate? Any voting member of the society who resides in a region for which there is an opening may nominate a candidate for an opening in that region.

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

Procedure for nominating: (1) obtain the consent of the prospective nominee and verify compliance with the qualification criteria; (2) airmail nominations to the chairman of the Nominations Committee between 1 January and 18 March 1993 inclusive. Nominations by telephone will be accepted through 15 March but must be confirmed in writing; (3) supply with each nomination the full name, address and telephone number of the nominee, the position for which the nomination is being made, local society affiliation (if any), and a brief autobiography of the nominee.

Mail nominations to:

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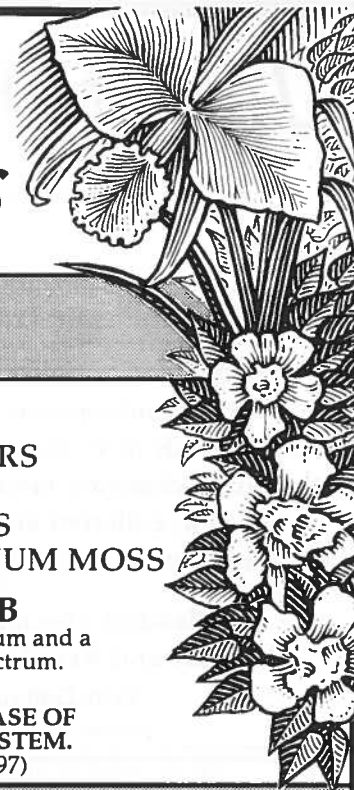
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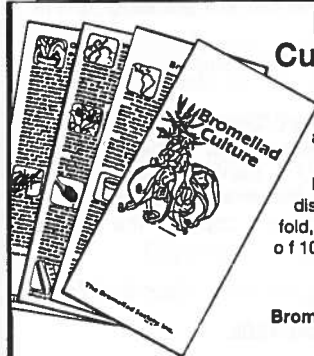


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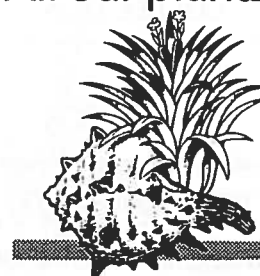
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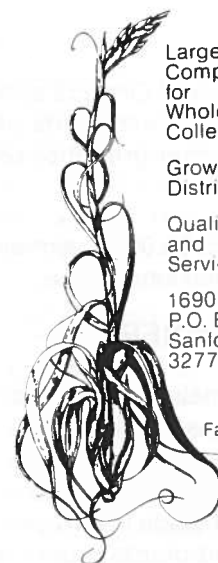
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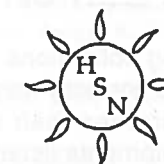
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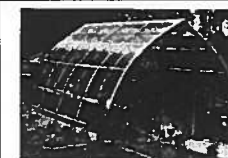


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Guzmania globosa, from the pluvial forests west of Lita in northern Ecuador. First collected by M.B. Foster in southwestern Colombia in 1946. It is described on page 247.

Calendar of Shows

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