Journal of The Bromeliad Society

VOLUME 45 • MAY–JUNE 1995 • NUMBER 3

Journal of the Bromeliad Society

Vol. 45, No. 3 May–June, 1995

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

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

Cover photographs. Front: *Vriesea* x poelmanii, a present-day form of a Duval hybrid of 1896. The discussion by Dr. Gilbert Samyn begins on page 99. Photograph provided by Dr. Samyn. Back: *Dyckia marnier-lapostollei* var. *marnier-lapostollei* L.B. Smith. Text is on page 117. Photograph by T.U. Lineham.

CONTENTS

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

Subscription price (in U.S. $) is included in the 12-month membership dues: single–$20.00, dual (two members at one address receiving one *Journal)*–$25.00, fellowship–$35.00, life–$750.00. Please add $5.00 for international mail, except for life members. For first class or airmail add $7.50.

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

Back Issues: All single copies $4.50 1st class postpaid to ZIP addresses, other countries $5.50 airmail postpaid; per volume $20.00 to ZIP addresses, $25.00 to other addresses, 3rd class or surface postpaid. Order back issues from the editor; make checks drawn on U.S. banks, bank drafts, or money orders payable to B.S.I.

Printed by Fidelity Press, Orlando, Florida.

Vriesea Hybrids of Today and Yesteryear

Gilbert Samyn[1] **Photographs provided by the author**

This article was prepared for the Eighth Bromeliad Conference held in Adelaide, South Australia, at Easter 1995. We thank the author and conference chairman for permission to print it here.—Ed.

INTRODUCTION

The genus *Vriesea* forms in the bromeliad family a group of mostly small- to medium-sized plants that are ornamental in habit. Their colourful inflorescences and their faint or dark green, elegant leaves make them desirable as houseplants for weeks or even months. Since the latter part of the 19th century, many species have been imported into Europe as novelties for horticulture. Some of them such as *Vriesea splendens, V. fenestralis,* and *V. zamorensis* retain a certain importance. Vrieseas have been, however, most successful as hybrids.

After the first hybridization was performed in 1879, an important number of new cultivars appeared at an increasing rate during the following forty years. Later on, the tempo of new forms became slower and slower because the general enthusiasm present before World War I was lost. Nevertheless, the keenness of some enthusiasts remained.

Today, bromeliad culture has returned to its important position in the international plant trade. A number of very beautiful, but also efficiently propagated, hybrids has emerged. Thanks to in vitro culture and the production of seed-stable cultivars, millions of young plants are exported every year. Except for the more expensive variegated varieties, especially among neoregelias, the age of production by offsets has passed. I shall try to give here an outline of the history of Vriesea hybrids over the last hundred years. It could be done just by listing hybrids of the past and present and their relationships, but I prefer to do it together in combination with the history of plant breeding. Reference to individuals will enable us to bring life to this centennial adventure.

We will describe the most important sources of the genes from which actual hybrids originated. Pictures of 19th century hybrids compared with those of today show the effects of the care of several generations of bromeliad breeders. I confess that this review will be presented with a certain amount of prejudice. Belgian bromeliad growers have been at the forefront of this culture for more than a century, both in the introduction of novelties from native habitats as well

[1] Research Station for Ornamental Plant Growing, Centre Agricultural Research–CLO Ghent.

as in obtaining new hybrids. Their work has always been done with the prospect of increasing commercial value.

In the 1950s, the United States became a nation of bromeliad hobbyists, enthusiasts, and some well-known growers who were not afraid to wield the fertilization brush. Their work resulted in many beautiful hybrids, but of only local importance, mostly small lots and, therefore, of less importance for international trade. The same limitations applied to a lesser extent to Australia and New Zealand. Those activities would merit a separate examination.

THE PERIOD OF THE GLORIOUS *VRIESEA*, 1880–1920

Historical context. The introduction of bromeliads into Europe was undeniably instigated by Eduard Morren (1833–1886), the curator of the Botanical Garden of Liège. He described numerous species and introduced many of them to the public. This public was not the same as the public of today because it was more interested in unusual plants than in well-known items. He made his first crossing in 1879 with *Vriesea psittacina* × *V. carinata* resulting in *V.* × morreniana.[1] Other known Morren hybrids are scarce. I found only *V.* × retroflexa (*V. psittacina* × *V. scalaris*), 1884, and *V.* × elegans (*V.* × morreno-barilletii) × (*V.* × fulgida), mentioned in 1892 six years after he died, but different from the *V.* × elegans of Duval. He started, however, a period in which growers redirected their interest from importing new species to producing their own hybrids. They were happy to discover that they could manipulate nature.

In Table 1, we mention the names of the first European breeders. Several countries were involved but Belgium and France were engaged at the start. Jos. Maréchal, chief gardener at the Botanical Garden of Liége and Léon Duval of France brought many important vriesea hybrids to the attention of the public. Charles Chevalier continued this work in Belgium until the 1920s. Other hybridists were Truffaut, Kittel, and Witte.

Table 1. Vriesea breeders at the end 19th and beginning 20th century.

MORREN, Eduard	Liège (Bot. Garden)	Belgium
CHEVALIER, Ch.	Liège (Bot. Garden)	Belgium
MARÉCHAL, Jos.	Liège (Bot. Garden)	Belgium
DUVAL, Léon	Paris	France
CLOSON, J.M.	Liège (Jacob-Makoy)	Belgium
TRUFFAUT, M.A.	Versailles	France
KITTEL		Germany
WITTE, E. Th.	Leyden	Netherlands

[1] EDITOR'S NOTE: Cultivar and hybrid names have been changed to agree with A PRELIMINARY LISTING OF ALL KNOWN CULTIVAR AND GREX NAMES for the Bromeliaceae as amended. Others remain as stated by author.

Figure 1.
Vriesea × morreno-barilletii.
The seed parent of Léon Duval's *V.* × elegans.
From ILLUSTRATION HORTICOLE 36:103; 1889.

Figure 2.
Vriesea × poelmanii.
One of the best-known of the Duval hybrids. Compare this copy of an 1897 lithograph with the cover photograph of the present-day version as produced by Reginald Deroose.
From REVUE HORTICOLE 69:307; 1897.

Plant characters. Let's now consider how these first *Vriesea* hybrids looked. Nearly all of them had a simple inflorescence; only *V.* × kitteliana was branched. Even *V.* × poelmanii (*V.* Van Geertii × *V.* × gloriosa), obtained by Duval in 1896 had at that time a simple inflorescence. We will come back to this later. Only a few species were preferred: those with typical characters that could be followed through several generations, especially *V. barilletii,* which was an important parent, but also *V. carinata.*

I refer to Table 2 with Duval's first hybrids. We can see that only seven species were used:

V. psittacina var. *psittacina*	*V. duvaliana*
V. psittacina var. *rubrobracteata* (syn. V. Krameri)	*V. fenestralis*
	V. incurvata
	V. barilletii
	V. splendens

These species provided three essential characters: robustness and form of the spike, a distinct form of elegance and fineness of the inflorescence, and a better coloration.

Table 2. The first Duval hybrids and their parentage (WITTE H. 1895)

Hybrid	Parents
Vriesea × cardinalis	*V. psittacina* var. *rubrobracteata*[2] × *V. carinata*[3]
V. × elegans	*V. barilletii* × (*V. carinata* × *V. psittacina*) × *V. duvaliana*
V. × fenestralo-fulgida	*V. fenestralis* × (*V.* × fulgida)
V. × fulgida	*V. duvaliana* × *V. incurvata*
V. Gemma	*V. barilletii* × (*V. carinata* × *V. psittacina*) × (*V. duvaliana* × *V. incurvata*)
V. Kramero-fulgida	(*V.* × fulgida) × (*V.* Krameri)
V. × minima	(*V.* × morreniana) × V. *duvaliana*
V. × morreno-barilletii	*V. barilletii* × (*V.* × morreniana)
V. × psittacino-fulgida	(*V.* × fulgida) × *V. psittacina*
V. Rex	*V. barilletii* × (*V.* × morreniana) × (*V. carinata* × *V. psittacina* var. *rubrobracteata*)
V. Sphinx	*V. fenestralis* × *V. splendens* var. *formosa*
V. × splendida	*V. carinata* × (*V.* × fulgida)

[2] Synonym *V. Krameri*

[3] Syn. *V. psittacina* var. *brachystachis*

Chevalier (1930) discerns three major groups: 1. *barilletii-carinata*; 2. *Vriesea* hybrids obtained from *V. incurvata, V. duvaliana* (syn. *V.* × duvalii) and *V.* Van Geertii; 3. Other hybrids of species such as *V. splendens, V. malzinei* that produced the first branched inflorescences.

It seems that *Vriesea incurvata* dominates *V. barilletii* when hybridized. Both groups were, however, crossed and gave many contemporary, popular hybrids such as *V.* × wallonia and *V.* Baron de Selys. Most hybrids had simple spikes. Some attempts were made, however, to encourage naturally branched inflorescences. One of the first was *V.* × kitteliana (*V. barilletii* × *V. saundersii*). Another was Duval's *V.* × vigeri [*V. rodigasiana* × (*V.* × *cardinalis*)] or Maréchal's *V.* De Wildemaniana × (*V. saundersii* × *V. ensiformis*). With these crosses, a new list of branched hybrids was started. None of them has survived in commerce even though some are still grown in collections.

A remake could be done on *V.* × viminalis-rex. Neither Chevalier nor Dutrie could agree on the origin of this branched hybrid. It survived the first world war and was surely used in crosses just before, during, and after World War II.

PERIOD OF LESSENED ENTHUSIASM

It is regrettable that there was a decline in vriesea breeding enthusiasm after 1918. It can be correlated with the general situation in bromeliad growing. We can see that in the quinquennial Floralies of Ghent the presentation of new bromeliads during the 20 years between the wars lacked the previous lustre. Collections of species and hybrids were still preserved but more as items of prestige for those growers. We know that breeding was closely correlated with commercial prospects.

In that period, we have Louis Dutrie whose reports were printed in translation in this JOURNAL a few years ago (Dutrie, 1989). During a period of 10 years, he produced hybrids of which many were presented at the monthly plant meetings in Ghent. More than a few of them received awards but lacked the commercial value accorded later presentations.

We must consider that the general situation was not really ideal for hybridising. The economic crises of the thirties followed by World War II could have stopped Belgian bromeliad breeding irreversibly.

During Dutrie's professional activity there was some interest in Ghent for hybridising plants with decorative foliage. Two examples are worth mentioning:

Vriesea Papa Chevalier (*V. pastuchoffiana* × V. Mephisto) by Chevalier.

Figure 3.
Vriesea × vigeri.
Another Duval hybrid with branched inflorescence.
Rev. de l'Horticulture Belge et étrangère T. 24:281.

Figure 4.
Vriesea rodigasiana.
The seed parent of *V.* × vigeri.
Illus. Hort. 29:171 (plate 281); 1882.

V. × intermedia (V. × viminalis-rex × V. *hieroglyphica*) by M.R. Morobe who is still well known for his results in breeding neoregelias and nidulariums.

Other crossings were done with *V. fenestralis, V. splendens*, and *V. tessellata* but without reliable results. Even from the beginning of bromeliad breeding, the difficulties of developing hybrid material might have been interesting had it survived World War II. We shall see that modern breeders started with very little material to obtain our recent cultivars.

PRESENT DAY HYBRIDIZING ACTIVITY

Belgium. After World War II, bromeliad breeding, especially with vrieseas, was started again but by new people. Dutrie died in 1948 and most of his hybrids were lost. Much of his collection material was saved from complete loss and it formed the basis of new trials. Older bromeliad growers, however, still mention the difficulties they had in obtaining bromeliad species or hybrids to make their first crosses. For their work with vrieseas, we must mention four people: Carlos Broeckaert, Hendrik De Meyer, Albert Deroose and his son Reginald. The Morobe family continued essentially with neoregelias.

Carlos Broeckaert is remembered for his discovery of a variegated type of *Vriesea* × poelmanii called "Madame Carlos Broeckaert." That chimaeric type was not very stable. It produced many worthless offsets. It was afterwards obtained by Deroose, senior, who selected a stable offset over a period of many years that became one of the first protected *Vriesea* cultivars in Europe. It is now cultivated in the Netherlands by Henny Bos as *Vriesea* 'White Line'.

Hendrik De Meyer began his crossings in the late fifties. Now his fame as a *Guzmania* breeder is based on his early and rapid successes with that genus. At first, he also worked with vrieseas and neoregelias. Two of his successful *Vriesea* cultivars were *V.* 'Meyer's Favorite' and *V.* 'Splendide', both available since the sixties. The former was a selection of *V. splendens* found in Venezuela. Two plants were distributed. The first came into the possession of Nat DeLeon, of Florida, who called it *V.* 'Juno'. De Meyer's plant was commercialized as *V.* 'Meyer's Favorite', a cultivar still greatly in demand. His *V.* 'Splendide' is a cross between *V. splendens* and *V. glutinosa*. It is a large plant with a branched inflorescence. The plants have been sold as F_1 seedlings, the product of regularly repeated crosses with selected parent plants.

Albert Deroose made his first vriesea crosses in the fifties also. Some of them were done with hybrids that had survived the world war but many lacked full identification. His work gave rise to a series of young lady names such as Leentje, Rose-Marie and Lucille, both (*V.* × viminalis-rex) × *V. carinata*, Katrien, Marjolein, and others such as Coral or Deroose. They are relatively small hybrids, some branched, others not. These hybrids had occasional success

but sometimes the name of the breeder was forgotten. For that reason, we read in 1976 in the DEUTSCHER GARTENBAU about a "Lucyll" selected by Karl Seidel (Turban, 1976). Surely it was a selection from the senior Deroose's hybrids.

Reginald Deroose underwent a training period at our Research Institute for Ornamental Plant Growing and finally took over the family nursery. It was the beginning of a new series of successful *Vriesea* hybrids sometimes more voluminous and nearly all branched: *V.* Tiffany, Margot, Marjan, Charlotte, and Ella. Details of their parentage are now hard to obtain since they are considered a commercial secret. Bromeliad enthusiasts may have problems with that condition but it is the situation in most bromeliad commercial nurseries nowadays. Amateurs may exchange their information but commercial people defend their final results with the hope of still better selections or hybrids to be made.

The hybrids of Deroose are now the result of such an important series of hybrid crosses and continual selection that they are all propagated in vitro.

Some years ago, Caroline De Meyer, a daughter of Hendrik De Meyer, and her husband started a new bromeliad young plant nursery, "Exotic Plants," with their own hybridizing program. Their first vriesea products are now coming on the market with the names *V.* 'Apollo', and 'Condor'.

Let us conclude with the results of our own Institute. We consider it to some extent a continuation of the old Belgian bromeliad breeders' work. It is proof of the one hundred years of official Belgian interest in bromeliad culture. Starting more than 40 years ago, we have studied various topics of commercial bromeliad culture. Our work has included also hybridisations of different genera. We are proud of the success with *Aechmea* Romero (*A. fendleri* × *A.* 'Perumazon').[4] We have also developed *Vriesea* hybrids, some of which are mentioned in the BSI checklist (1979):

Vriesea Elfi	(*V.* × viminalis-rex) × *V. gigantea*
V. Mira	*V. malzinei* × *V. heliconioides* var. *polysticha*
V. Natascha	*V. fenestralis* × (*V.* × poelmanii)
V. 'Ingrid'	A chimaerical and variegated selection of *V.* Natascha.

A more recent hybrid is *V.* Fernanda [(*V.* × vigeri) × *V. malzinei*], commercialized recently by Deroose.

Making crosses is not our primary purpose. Hybrids must have commercial value in the first place and be able to compete with others in the marketplace. We are more interested in scientific targets such as inheritance in bigeneric crosses or physiological characters of species and hybrids such as cold tolerance

[4] A cultivar of *Aechmea tillandsioides*.

(Lauwers and Samyn, 1989). We are now studying a cross between *V. zamorensis* and *V.* Marjan, the one a cold-tolerant species and the other a hybrid.

In other parts of the world. Up to this point, I have treated the subject as a Belgian. It is undeniable that this country has contributed greatly to the success that bromeliad growers have reached today. During the same time, France lost a leading role in bromeliads following the work of Duval, André, and Truffaut. I should mention, however, Julien Marnier-Lapostolle, one of the last French bromeliad experts, who founded an exquisite botanical garden in the French Riviera. Some of his hybrids are mentioned in the BSI checklist (1991).

Germany, represented in the beginning of bromeliad culture, has continued its contribution at a moderate pace. I must surely mention Walter Richter and Heinz Pinckert, two breeders of interesting plants. Richter obtained at the end of the fifties the cultivar Komet (*V. corcovadensis* × *V.* Sceptre d'Or). That hybrid is still propagated for the German market by the Pinckert firm. It usually has a single spike but has the advantage of lasting several months. Sometimes branched inflorescences may occur on very mature plants. That cross has been repeated several times and other selections have become available with the result that closely related forms of Komet can be found.

Pinckert is a very enthusiastic breeder. His very beautiful collection of self-obtained hybrids lacks only in economic importance considering the small production volume of most of his products. An exception is his *Vriesea* 'Fire'. This very popular, small plant was patented by the Dutch grower Van De Velde, but is commercialized in mass by Cornelius Bak, the Dutch bromeliad giant.

So now let's come to the Dutch growers. It is a fact that the Netherlands has obtained a world-famous name in bromeliads during the last 20 years. That country has decided to transform a part of its agricultural area into horticulture. The economic advantages offered by its own production of natural gas have made possible glasshouse production of ornamentals at competitive prices. With that advantage, bromeliad production has also become important. The market has been essentially captured by hybrids propagated in vitro by Deroose, junior, and those of Cornelius Bak, mostly propagated by seed. Well-known Bak cultivars are *Vriesea* 'Vulkana' (parentage unknown), *V.* 'Splenriet' (*V. splendens*), and *V.* 'Elan' (*V. rubrobracteata*).

Last, but not least, let us come to America, especially the United States, the birthplace of the explosion of bromeliad enthusiasm. The climate offers many advantages in growing bromeliads. The area from Florida to California is a bromeliad paradise. It provides the biennial meeting place of all world-famous bromeliad breeders, traders, and hobbyists.

The bromeliad checklist of hybrids mentions several American names including DeLeon, Kent, and others who have participated in the production of

many hybrids. It is difficult for me to judge the importance of their activity lacking information about recent developments. Hybridizers in the United States are evidently as reluctant to publish the parentage of their successes as are Europeans. The result is, of course, that the BSI checklist is not a completely reliable indicator of current work. For that reason, it is equally difficult to estimate if the direction in which American *Vriesea* hybridization is evolving differs from the European situation except that the products tend, as with other genera, to be much larger. Some breeder names are available:

DeLeon—A well-known name in the hybrid checklist. I mentioned earlier his cultivar 'Juno'. *V.* Blaze (*V. erythrodactylon* × *V. incurvata*) is a hybrid of his that has come to my attention.

Herb Hill—His Bonfire seems to be of exceptional quality.

John Arden—An exception among hybridizers because he makes known the parentage of his named hybrids. Some of his hybrids are:

Elvira	*V. bleheri* × *V. hieroglyphica*
Jeanie	(*V.* Van Ackeri) × (*V.* Brentwood)
Inferno	*V. ensiformis* × *V. regina*
Jungle Jade	*V. platynema* × *V. hieroglyphica*
Maroon Delight	(*V.* Maroon Feather) × *V. simplex*
Tropical Princess	(*V.* Van Ackeri) × *V. bleheri*

His 'Golden Tips' is a cultivar of Maroon Delight.

CONCLUSION

We have tried to illustrate the evolution of vriesea breeding and the resulting hybrids during the past century. The plants have changed from those without branched inflorescences, and those closely related to a few species, to very balanced plants. A modern, commercial *Vriesea* hybrid is middle-sized with a good, erect, and branched inflorescence. The spike of the stem may not be too long because of transport difficulties. Complete, vertical stems are preferred to those with a tendency toward bending. Because they have to be fast growing, the leaves of the well-fed plants may not show any spotting by mineral nutrition.

The parentage of most commercial hybrids is very complex and difficult to track. Duval's hybrid × poelmanii has played a not-too-negligible role ever since 1897, even though it is no longer the plant that was first described. Selections of × poelmanii with very compact and branched inflorescences have become available. Even the coloration varies from red over orange to yellow.

While the number of annual hybridizations is very high, only a few will be seen by the public because the requirements are very high. A small negative

deviation renders a new type worthless. The time has past when every cross can be named.

Tomorrow, we can be sure that bromeliads will be genetic-engineered and influenced by biotechniques but even if the new "perfect" hybrid is the most beautiful on the outside and the best on the inside, I think that the pleasure given will only equal that of the first breeders of the earlier and more simple hybrids.

REFERENCES

Beadle, D.A., editor. 1991. A preliminary listing of all known cultivar and grex names for the Bromeliaceae. The Bromeliad Society, Inc.

Chevalier, Ch. 1930. Monographie des broméliacées-tillandsiées. Extrait du Bulletin de la Société Nationale d'Horticulture de France, 5. ser., T. III:337–367.

Dutrie, L. 1989. The bromeliads: genera, species, hybrids. J. Bromeliad Soc. 39:28–32; 62–64.

Lauwers, L.; Samyn, G. 1989. Evaluatie van de koudetolerantie in funktie van de veredeling naar verminderde energiebehoefte bij *Vriesea.* Revue de l'Agriculture - Landbouwtijdschrift. 42:1373–1378.

Morren, E. 1884. Notice sur le × *Vriesea retroflexa* (hybr.). *Vriesea scalaris* var. *retroflexa*. La Belgique Horticole 34:185–187.

Turban, R. 1976. Wertvolle sortimentserweiterung bei *Vriesea.* Deutscher Gartenbau 18:632.

Witte, H. 1894. *Vriesea* Rex Duval. Revue Horticulture Belge:217–221.

Recent Gifts to the Society

We are happy to acknowledge gifts from the following named members and friends who have contributed to the Color Fund, to the BSI general fund, or to the Bromeliad Identification Center, some to all three:

Ursula and Ulrich Baensch	John Oliver
Doris Bundy	Allyn Pearlman
Belinda Chase	Jack Percival
Anne and Gilbert Collings	Jürg Rutschmann
Robert Griffith	Janet Schaeffer
Frances La Mar	Atsushi Shirai
Todd Miller	Joseph Todd

Checks should be made payable to The Bromeliad Society, Inc. They may be mailed to Membership Secretary Linda Harbert, 2488 E. 49th St., Tulsa, OK 74105 or to Editor T.U. Lineham, 1508 Lake Shore Drive, Orlando, FL 32803-1305.

Consider Growing Vrieseas

Ervin Wurthmann

Vrieseas have enjoyed popularity in Europe for over 100 years. Demand for these plants has fostered many hybrids of which many are still in the trade today. Vrieseas vary in size from less than six inches in diameter to a size with a spread and height of over five feet. The smooth-edged leaves may be spotted, blotched, or barred with eccentric markings. The inflorescence usually bears a flattened or distichous spike with yellow, red, green, or purple bracts while remaining in color for several months.

CULTURE

Light. Vrieseas are not hard to grow. They do not require as much light as the neoregelias but will thrive under higher light conditions than once supposed. Some of the vrieseas with thin, green leaves will take on a rose or dark purple hue at the base if the plant is grown as bright as 65% shade on an all-day basis.

Soil mix. Soil mix should be well drained to permit frequent watering, which vrieseas prefer.

Potting. I am not an advocate of over-potting having flowered *Vriesea hieroglyphica* in a 5-inch pot. It is well to add turkey grit or fly ash if you wish to grow *V. fosteriana, gigantea, gigantea* cv. Nova, *hieroglyphica, imperialis* in a situation where ample watering occurs.

Feeding. Most vrieseas require a higher level of feeding to grow a top quality plant than do neoregelias. It can be accomplished by top feeding on the medium with Osmocote, Sure Gro, or Nutra Coat, all slow-release fertilizers that provide long-time feeding. Soluble fertilizers may be used when watering.

Pests. Pests are few. Soft brown scale can be controlled with Diazinon, Cygon, or Orthene. Occasional fungus can be handled with Dithan M-45, Captan, or Banrot. Read labels thoroughly as dosages will vary according to the material used.

Applications. Small vrieseas are ideal house plants because they will endure relatively low light conditions and are not demanding in terms of temperature and humidity. The more closely the grower can meet ideal light and humidity the more attractive will be the plants. Most are rewarding with their inflorescences that retain their bright colors for many weeks. Many vrieseas are satisfactory bedding plants where the winters are mild and moderate shade can be provided. Some of the larger varieties such as *Vriesea altodaserrae, atra, edmundoi, imperialis, neoglutinosa, philippo-coburgii, tuerckheimii,* and *vinicolor* would do well with almost full sun in frost-free areas.

SELECTION

After reading price lists and visiting collections you may want to make a list of the plants that you would like to have. Aside from the matter of size, which may be the main consideration, there are other things to think about such as special requirements for air circulation and protection from cold. In some cases there may not be enough information about which plants are cold hardy and which ones are not. In such cases you may have to guess or resort to learning where plants come from and how high, how dry or wet the original growing conditions.

The easiest test is cold hardiness so we will begin there.

Cold Hardy. Nearly all of the Brazilian species and their hybrids possess considerable cold tolerance. Many of them are as tough as neoregelias and can be grown outdoors in the Tampa Bay, Florida, area.

The most cold tolerant are those with green leaves. They include

Vriesea altodaserrae, atra, bituminosa, bituminosa var. *minor, carinata, ensiformis, erythrodactylon, flammea, friburgensis, incurvata, philippo-coburgii, platynema, psittacina, rodigasiana, schwackeana, simplex,* and *vagans.*

Species somewhat less tolerant of cold include those with more decorative foliage such as *Vriesea fenestralis, fosteriana, gigantea, gigantea* cv. Nova, *hieroglyphica, imperialis, saundersii, tuerchheimii* (from the Dominican Republic was collected by the author in an area where frost occurred).

Vriesea heterostachys, racinae, 'Red Chestnut', and *sucrei* are reasonably cold hardy, but should be protected from frost and subfreezing temperatures.

Not cold hardy. Central American and northern South American vrieseas are for the most part not cold hardy. These varieties will require greenhouse protection during the colder months. They include: *Vriesea chrystostachys, glutinosa, heliconioides, malzinei, rubra* and *splendens*

The really challenging group. Another group for which, unfortunately, there is no record of hardiness in this area [Tampa, Florida] are those of the gray-leafed types, which somewhat resemble tillandsias. These vrieseas are frequently xerophytic in their native habitat and for that reason require a different method of culture. *Vriesea appenii, barclayana, chontalensis, cylindrica, espinosae, heterandra, hitchcockiana* and *rauhii* are best mounted on cork bark, tree fern plaques, or some kinds of wood. Occasional spraying with a dilute, soluble fertilizer is beneficial. Since some members of this group are from high altitudes it is possible that they may be somewhat cold hardy.

A real challenge to vriesea culture is the group sometimes known as the thecophylloid vrieseas. These occur in the higher rain belt area of Costa Rica,

Guatemala, Honduras, Panama, and the Caribbean islands. Species such as *V. leucophylla, ororiensis,* and *sintenisii* have spectacular inflorescences while *V. montana* has sensationally colored foliage.

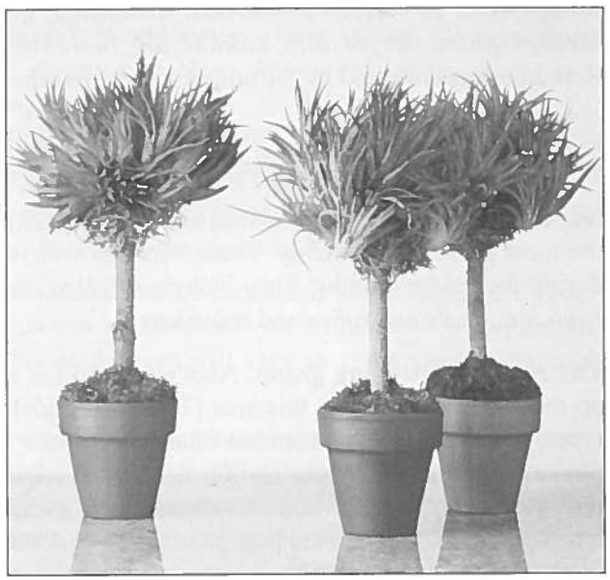
Cultivation of this last group is difficult and almost impossible in warm, humid areas. I have seen very presentable specimens in California. These plants prefer to be mounted on wood so that there is ample air drainage around the roots. A greenhouse with fan and wet wall cooling can enhance your chance of getting them to survive. They should be watered only enough to keep them from dehydrating. It is not likely that they will tolerate any degree of cold.

Seffner, Florida

First printed in the Newsletter *of the Bromeliad Guild of Tampa Bay, August 1980, but recently revised by the author. Mr. Wurthmann has specialized in growing and hybridizing vrieseas for many years.*—Ed.

Tillandsia Topiaries

Have you seen tillandsia topiaries? A friend sent a clipping from an unidentified catalog showing "topiaries" consisting of six to eight *Tillandsia ionantha* "secured on plum wood trunks and 'planted' in moss-filled, hand-finished, terra cotta pots . . . washed in flirtatious shades of lipstick red, party pink and passionate purple . . . Each is 8"–9" high." Unless this is a patented idea you might find amusement in growing your own topiaries.—Ed.



The Aalsmeer Flower Auction

José Manuel Manzanares **Photographs by the author**

During November 1994, the 32nd annual edition of the International Flower Trade Show was held in Aalsmeer, the flower city of Holland. That show has become increasingly international in scope.

To give an idea of the volume of bromeliads sold in that auction (the biggest in the world) during the 44th week of 1994 the plant totals were:

Aechmea	26,000
Ananas	4,000
Guzmania	125,000
Neoregelia	17,000
Tillandsia	59,000
Vriesea	56,000[1]

The total of those sales was 287,000 flowering plants sold in just one week. Making a quick calculation, we can estimate the potential sales during one year of 15 million plants. Obviously many people love bromeliads as houseplants. In comparison with the sales during the same week in 1993 the totals were:

Aechmea	–2,000
Ananas	–45,000
Guzmania	–11,000
Neoregelia	–4,000
Tillandsia	+9,000
Vriesea	–8,000[1]

It is clear that with the exception of tillandsias, all sales decreased during that week in 1994. The market is always looking for new forms of bromeliads and that is what the buyers and bromeliad lovers like to see.

An exhibition and competition offering gold medals was held in conjunction with the auction and bromeliads, of course, were included. The most important displays were those of Corn. Bak, B.V. of Holland, Reginald Deroose, H. De Meyer-De Rouck, and Exotic Plants of Belgium. All are working to obtain new varieties and all limit their sales to young plants.

---

[1] Bloemisterij, no. 45; 11 November 1994.

Figure 5.
Guzmania 'Pax'.
A new cultivar introduced at the 1994 Aalsmeer Auction by the Corn. Bak firm.

Figure 6.
A column of vrieseas presented by Reginald Deroose included *Vriesea* Margot.

Figure 7.
Vriesea 'White Line' grown by Henny Bos was first among the six best entries in individual displays.

Medals are awarded according to the following scale:

Bronze	7–7.9 points
Silver	8–8.9 points
Gold	9–10 points

The criteria include quality of the plants and decoration of the individual displays.

This last year Corn. Bak, B.V. won the gold medal with 9.95 points and also received first prize for the Best Bromeliaceae Group and a gold medal with nine points for their display, which was covered with many of the new varieties including *Guzmania* 'Pax' (figure 5), *G.* 'Samba', *G.* 'Limbo', and *G.* 'Torch', and the more traditional ones like *Aechmea* 'Morgana', *Guzmania wittmackii* (Red), *G. lingulata* 'Ultra', *G.* Morado, *G.* Marlebeca, *Tillandsia wagneriana, Vriesea* × poelmanii, and *V. splendens.* Of these and other products Bak sells about 20 million young plants annually and is the biggest bromeliad grower in the world. A look inside his greenhouse is a glimpse of paradise for bromeliad lovers.

The Reginald Deroose stand received a gold medal in the category Group of Bromeliaceae with 918 points and a silver medal for Presentation of Product with 8.1 points. That display consisted of beautiful columns of *Guzmania dissitiflora, G.* Fleur d'Anjou, *G. lingulata* 'Fortuna', *G.* 'Lipstick', *G.* 'Papilio'; *Vriesea* 'Evita', *V.* Margot (figure 6), *V.* Tiffany, *V.* 'White Line' (figure 7).

Deroose specialized in vrieseas with more than thirteen varieties. Including *Vriesea, Guzmania,* and other genera such as *Aechmea* and *Billbergia,* they sell about 2.5 million young plants every year.

H. De Meyer-De Rouck with 8.1 points won the silver medal in the category Group of Bromeliaceae. On that stand you could see *Guzmania* 'Carine', *G.* 'Cherry', *G.* Denise, *G.* 'Orangeade', *G. scherzeriana, G.* 'Triumph', *G.* 'Tutti-Frutti', *G. wittmackii* Red F_1 hybrid. To that list we need to include *Vriesea* Splendide and *Guzmania* 'Indiana', and mention also that they sell *Neoregelia* and *Aechmea.* Every year 2 million young plants are shipped from his nursery.

Exotic Plants got one bronze medal with 7.9 points in the Group of Bromeliaceae. With the splendid *Guzmania* 'Loja' you began to see many new cultivars in their exhibit such as *G.* 'Clementina', *G.* 'Eloy,' *G.* 'Limones', *G. lingulata* var. *minor* 'Oton', *G.* 'Mignaflora', and *G.* 'Red Star'. They also exhibited *Tillandsia wagneriana, Vriesea* 'Apollo', *V. carinata, V.* 'Condor', *V. dubia* (syn. *V. alborubrobracteata*), *V.* 'Favoriet', and *V. splendens.* That organization delivers about one million young plants to growers specializing in bromeliads.

In the competition area there were some 42 groups of bromeliads consisting of three to five plants each. Because of the very high quality of plants, 34 growers received gold medals and eight silver medals. We will mention only the six best:

Variety	Points	Grower	Owner
V. 'White Line'	9.8	Henny Bos	Henny Bos
Guzmania 'Claret'	9.7	Henny Bos	Corn. Bak
Aechmea Fireball	9.6	Andre Alderden	
A. Romero	9.5	Toom Kuiper	Deroose
Guzmania 'Rana'	9.5	Henny Bos	Corn. Bak
G. Denise	9.5	J.A. Lans & Zn.	De Meyer-De Rouck

We must add that *Vriesea* 'White Line' won not only a gold medal but also first prize in the Best Group of Bromeliads. Because of the high quality of the entries in the Best Bromeliad Group, *Guzmania* 'Claret' was also awarded first prize (the first time that two plants have been so recognized). As if this were not enough, the judges gave a second Extra Prize for the Best Group of Bromeliaceae to *Neoregelia* Fireball.

My congratulations to all.

ACKNOWLEDGMENT:

I owe special thanks to Mr. Hans Maarschalk and Dr. Enrique Teran of Florinsa Farms, Ecuador, for sponsoring my trip to Holland.

Quito, Ecuador

[1] EDITOR'S NOTE: Cultivar and hybrid names have been changed to agree with A PRELIMINARY LISTING OF ALL KNOWN CULTIVAR AND GREX NAMES for the Bromeliaceae as amended. Others remain as stated by author.

When Can A Picture Be Trusted?

Harry E. Luther

A recent comparison of *Dyckia marnier-lapostollei* with *Dyckia cinerea* made me think at first that it was a valid attempt based on the published work of authorities, but then I did a little research that I shall describe.

The problems associated with cultivated *Dyckia marnier-lapostollei* and *D. cinerea* result from the condition that they are probably the same thing. Note that I say "cultivated." This is a horticultural identification problem and not a taxonomic problem in the strict sense.

Real *Dyckia cinerea* is probably not in cultivation, at least in the United States, unless it has very recently come in as wild collections from Caraça or vicinity. I have not seen any. I have a photograph of the type specimen of *D. cinerea* (Glaziou 18570 at Berlin) that portrays a plant very different from *D. marnier-lapostollei.* The leaves are much longer, relatively narrower with much more laxly arranged, generally shorter spines. The scape is very much more robust; the inflorescence appears more densely flowered than any *D. marnier-lapostollei.* The specimen is only a fragment but I suspect that the overall appearance of this species is quite different from *D. marnier-lapostollei* as well.

So what's the problem? Why any confusion? To find out, look at the black and white photo in Dr. Werner Rauh's BROMELIADS, the 1979 English edition, or in the later, reprinted edition BROMELIAD LEXIKON, between pages 290–291, illustration 252. See the *Dyckia cinerea*? Get our your pencil. It's really a *Dyckia marnier-lapostollei.* The identification was corrected in the later German edition of BROMELIEN but not brought to the attention of English-only readers.

If there are any questions about "big" *Dyckia marnier-lapostollei,* consider the culture involved. The type specimen, which can be seen in the photos in the protologue,[1] appears to be in a very small, perhaps four-inch pot. Most of us now grow these things with much more root room. Was the type specimen "bonsaied"? Are our robust specimens normal? Eight or so years ago, I saw a few freshly collected plants that were at least 50% larger than what was reported in the literature. I'm sure that size can vary somewhat so this characteristic should not be cause for undue suspicion.

If any one has living material that he or she is sure is *Dyckia cinerea* let me know. I will be glad to try to verify it.

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

[1] Bromeliad Society BULLETIN 16 (5):102–103; 1966.

An Unusual New *Guzmania* from Northwestern Ecuador

Harry E. Luther[1] and Ron O. Determann[2]

The genus *Guzmania* Ruiz & Pavon as presently accepted contains over 170 species. The majority of the species are epiphytes and have a center of distribution in northern Andean South America in wet forest or cloud forest.

***Guzmania fuquae* Luther & Determann,** sp. nov. (figures 8 and 10)

A *G. calamifolia* André ex Mez, cui affinis similisque, planta lithophytica rheophyticaque non epiphytica, ramis inflorescentiae plus minusve erectis non effusis, sepalis majoribus differt.

TYPE. Ecuador: Esmeraldas, km 4 on Lita-Alto Tambo road, on rocks along the Río Negro, elev. ca 700 m, Jan. 1990, *R. Determann & Atlanta Botanical Gardens s.n. legit;* flowered in cultivation at the Marie Selby Botanical Gardens SEL 91–89, 20 Feb. 1992, *H.E. Luther s.n.* (holotype: SEL; isotypes: QCA, QCNE).

Plant a lithophyte and rheophyte, densely clustering, flowering 30–45 cm tall. **Leaves** rosulate, erect to spreading, 5 to 12 in number, 40–65 cm long, thin coriaceous. **Leaf sheaths** broadly elliptic, 18–25 × 20–28 mm, nerved, castaneous abaxially, rather pale adaxially, appressed pale punctate lepidote. **Leaf blades** very narrowly triangular to linear, acute to long attenuate, 8–16 mm wide, rather stiff, plicate with 3 to 6 obtuse ribs, light green. **Scape** erect, 25–35 cm × 5–7 mm, sparsely brown punctate lepidote. **Scape bracts** erect, densely imbricate, much exceeding and concealing the internodes, subfoliaceous, green. **Inflorescence** compound, densely bipinnate, 6–8 × 3–5 cm. **Primary bracts** narrowly triangular to elliptic to ovate, acute to attenuate, shorter than to equaling the branches, thin coriaceous, somewhat nerved, sparsely pale punctate lepidote, pale green. **Branches** with a 2–5-mm sterile base, 2–6-cm long, 6- to 12-flowered, erect to very slightly spreading at anthesis, becoming more spreading and laxly arranged in fruit. **Floral bracts** broadly elliptic to obovate, rounded and apiculate, 12–20 mm long, thin, nerved, marinate or ecarinate, sparsely pale punctate lepidote, yellow to yellow-green. **Flowers** subsessile, erect, opening during the day. **Sepals** elliptic, acute, 14–18 mm long, connate for 2–5 mm, the adaxial pair carinate, pale green, mostly covered by the floral bracts at anthesis but becoming exposed in fruit. **Corolla** with slightly spreading lobes. **Petals** ligulate, obtuse, 23–25 mm long, conglutinated for 12–15 mm, bright orange-yellow. **Fruit** a dry capsule 16–17 mm long. **Seed coma** brown.

Figure 8.
Guzmania fuquae
Luther & Determann.
Flowering at the Marie Selby Botanical Gardens.

Both photographs by Vern Sawyer for Marie Selby Botanical Gardens

Figure 9.
Guzmania calamifolia
André ex Mez.
Flowering at the Marie Selby Botanical Gardens.

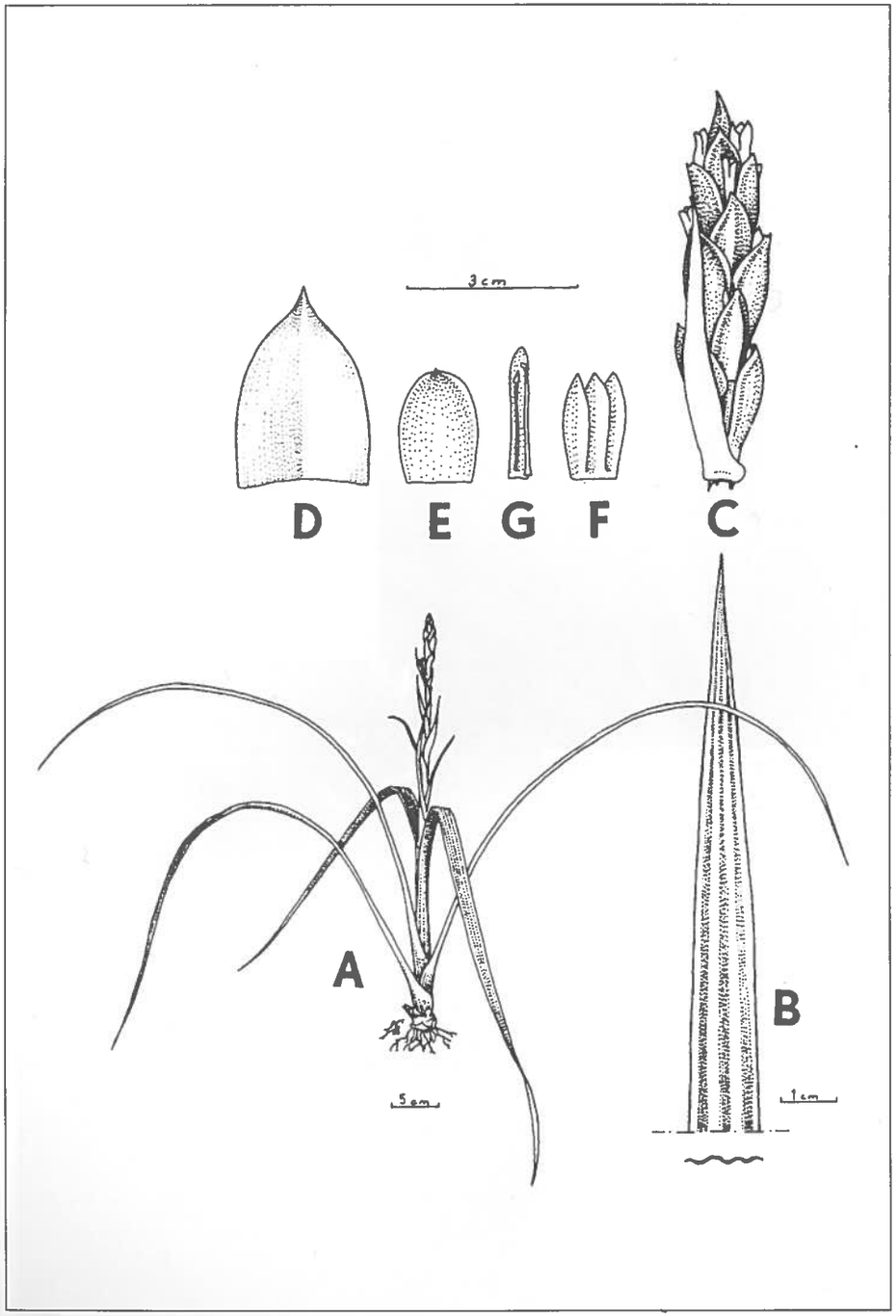


Figure 10. Guzmania fuquae.
A, habit; B, leaf apex and cross-section; C, lower branch with primary bract; D, upper primary bract; E, floral bract; F, calyx; G, petal, stamen and pistil.

From BROMELIACEAE ANDREANAE, plate XVI.

Figure 11. Caraguata acorifolia (left) = *Guzmania calamifolia.*
1, floral bract; 2, sepal; 3, corolla; 4, style and ovary; 5, capsule.

PARATYPE. Ecuador: Esmeraldas, Lita to Alto Tambo, elev. ca 800 m, 1991, *A. Hirtz 5364* (SEL).

This new species differs from the closely related *G. calamifolia* (figures 9 and 11) of Panama and Colombia by being a lithophyte and rheophyte (not an epiphyte)[3], by having the branches of the inflorescence more or less erect and appressed to the main axis at anthesis (not widely spreading) and by having longer sepals (14–18 mm vs 12–16 mm long). In addition, the coloration of the inflorescence is very different: green and yellow in *G. fuquae,* bright red and yellow in *G. calamifolia.* Both share the rather unusual character of plicate leaf blades although the individual rosettes of the *G. calamifolia* are fuller and leafier.

Specimens of *G. fuquae* growing on rocks along and in mountain streams are difficult to distinguish from clumps of grasses and clusters of the sympatric orchid *Phragmipedium hirtzii* Dodson. The only other known bromeliad rheophytes are two species of the Pitcairnioid genus *Pepinia: P. punicea* (Scheidweiler) Brongniart ex André, native from Mexico to Guatemala; and *P. aphelandriflora* (Lemaire) André, from Panama to Peru.

The specific epithet honors Mrs. Dorothy Chapman Fuqua of Atlanta, Georgia for her support of botany and horticulture.

LITERATURE CITED:

André, E. 1889. Déscription et histoire des broméliacées récoltées dans la Colombie, l'Ecuador et le Venezuela. Paris: Librairie Agricole, de la Maison rustique; G. Masson de l'Académie de médecine.

NOTES:

[1] The Marie Selby Botanical Gardens, 811 S. Palm Ave., Sarasota, FL 34236.

[2] Atlanta Botanical Garden, P.O. Box 77246, Atlanta, GA 30357.

[3] Although André (1889) described his *Caraguata acorifolia* (=*G. calamifolia* André ex Mez, not *G. acorifolia* (Grisebach) Mez) as a terrestrial growing among the rocks of the Río Nembi, this habitat preference is evidently not the norm. The plants of *G. calamifolia* that I encountered in Panama do not grow as rheophytes. In addition, none of the numerous specimens in herbaria that I have examined was labeled as such; if the life form was specified at all on the label, it was "epiphyte."

BROMELIANA 96
Twelfth World Bromeliad Conference • Orlando Florida
July 1–8, 1996

B.C. McKinney

Once a small, rural town known for its sunshine and acres of surrounding citrus groves, Orlando today is recognized around the world as a sophisticated center for meetings and conventions, for its unequaled collection of attractions, and for its impressive array of water sports including boating, swimming, and skiing. Too, Orlando is fast becoming a legend among golfers and racquet sports enthusiasts. So plan to arrive early and stay late.

What's the weather like? Well, in July the temperature varies from lows around 70 to highs in the 90s. Be prepared for some rain because July is the wettest month of the year with an average of nearly 10 inches. Yes, the humidity is high, varying from the low 60s to the mid-90s. But, heck, everything here is air conditioned to keep you cool and comfortable.

Known internationally, Walt Disney World is at the top of the list of attractions, a vast complex sprawled over some 27,000 acres. There are the Magic Kingdom of fantasy and adventure, Epcot '96 with its high-tech Future World and World Showcase of Pavilions, each with the ambience of a different country; Disney-MGM Studios featuring Hollywood-type entertainment and production facilities, River Country and Fort Wilderness with country and western entertainment and RV camping; Discovery Island, a very special zoological park; Typhoon Lagoon with water slides and pools; Pleasure Island, a group of night-club-like establishments; Walt Disney World Village, a place for shopping and dining; and numerous golf courses.

Now, fathom Sea World where you may make contact with another world. There you will meet Shamu the killer whale who knows how to make a splashy impression. There you will encounter sharks, porpoises, and even penguins in an Antarctic environment. Sea lions and walruses will entertain you, and you may enjoy numerous shows with sea-related themes.

Then, there's Universal Studios, an entertainment complex based on Hollywood movies. It has production studios where visitors may watch shows being taped. See King Kong, survive an earthquake, experience a ride "Back to

the Future," duck when "Jaws" attacks your boat, travel though space with E.T., and shiver at "Ghostbusters," There you will find Orlando's Hard Rock Cafe, which you may visit without entering the park.

In Downtown Orlando, there's Church Street Station featuring Rosie O'Grady's Good Times Emporium, Cheyenne Saloon, Lili Marlene's, and The Exchange, offering dining, entertainment, and shopping in a restored, historic section of the city.

An hour's drive to the east is Spaceport USA at Kennedy Space Center. You will find endless exhibits of America's space program history, a thrilling I-max theater presentation, a park with full-sized space vehicles, and bus rides to the NASA space shuttle launch pads. If the timing is right, you might get to see a shuttle launch.

An hour's drive to the west is beautiful Cypress Gardens, with 8,000 plant varieties, 700 animals, a 100-passenger Island in the Sky that takes visitors up and over the park, a collection of living butterflies, and exciting water-ski shows.

Two hours to the west is the Busch Gardens Dark Continent where you may go on a safari and ride through the jungle to see live zebras, giraffes, lions, and more than 3,000 other animals in the natural habitats. There are thrill rides such as Kamba, the largest and fastest steel roller coaster in the southeast. You may also see the famous Budweiser Clydesdales.

Back in Orlando, just north of the hotel at 8445 International Drive is The Mercado, a Mediterranean-theme plaza where you may eat, shop, and party. There is a Visitors' Information Center where you can get brochures and tickets for many of the attractions as well as information. They can tell you about numerous restaurants, dinner shows and theaters, manufacturers' outlet stores, and about other, more conventional, shopping such as The Florida Mall (you'll love it). I have only one more thing to say, "Have fun!"

730 Springview Drive Orlando. FL 32803-6932

ERROR!

Credit for the weevil *(Metamasius callizona)* pictures on page 11 of the January-February issue should have been given to Jeffrey W. Lotz and not to J.L. Castner, whose photo of the larva on page 13 was credited correctly. While examining the credit error we noted with dismay the misspelling of *Metamasius* on page 11.

March–April 1995, page 51, line 3. The date of the annual meetings is 3 June 195.

Another Blooming Tale

Charles E. Dills

Bea Hanson wrote in the January–February 1994 issue of the JOURNAL urging patience when you are looking for blooms. I agree with her completely and have several proofs that I would like to tell you about.

I managed to get an *Encholirium magalhaesii* away from Kent's Bromeliad Nursery a long time ago. (Honestly, of course, I bought it!) It has the general appearance of a *Hechtia* and I set it on the shelf with the hechtias and deuterocohnias and waited. And waited. And waited. After fifteen years, I would look at it as I passed and shrug my shoulders. At least it wasn't dying. It just didn't seem to change at all. I didn't know what to do. So I did nothing. Sound familiar?

Lo and behold! All of a sudden I did a double take. It was nonchalantly throwing a spike. I watched and photographed, and watched and photographed, not knowing quite what to expect.

The inflorescence lengthened and bloomed from the bottom up (figure 12). It had rather nondescript green petals that were barely larger than the floral bracts. They were small and nestled into the scape bract (figure 13). The flowers turned into seed pods, which gradually darkened into shiny, almost black color. I sent seeds to the Seed Fund, as you may already know. I can't guarantee anything about them except the identity.

I can find no mention of *Encholirium magalhaesii* in the BULLETIN/JOURNAL so will add a brief description to attract your interest to this seemingly rare plant.

The **inflorescence** is about 50 cm tall. The **scape** is green and rather stout, ca 8 mm thick. The **scape bracts** are triangular and brown. The lowest one is 5 cm long, tapering to 2.5 cm at the base of the first flower. The ***flower*** has three light green petals about one-third shorter than the six gold anthers. The plant may be apetalous, which means it has three light green sepals. The flowers erupt from the bract axils without benefit of distinct stems. My specimen had about 40 flowers in three vertical ranks, twisting slightly clockwise. They were about 8 mm wide and 2 cm high. The flowers stayed open for several days with visible nectar and then closed without twisting.

As if this wasn't enough, I wrote an article some time ago about my *Deuterocohnia longipetala* and its multiple blooming every March from 1985 through 1993.[1] and August of '92 and '93. But this year, no bloom. Over a month

[1] "An Easter Tale," 42:75; 1992.

Figure 12.
Encholirium magalhaesii.
Habit.

Figure 13.
Encholirium magalhaesii.
Inflorescence detail.

ago I gently brushed the inflorescence as I passed by and it dropped on the ground. I said to myself, well that's the end of that story.

But, can you believe it? It is throwing another spike! Here we go again. Same plant! I don't understand this very unbromeliad behavior. Ten years again. I don't know if I am looking forward to this.

Next, I bought a *Fosterella* species from Tropiflora. They sent a very nice plant that was about to bloom. But somehow, the developing bloom spike became separated from the plant. Ah well! It had a pup so I was resigned to wait for the entire cycle. But then, I noticed that a number of the nodes below the break began to show bloom spikes. I finally wound up with an inflorescence that was several times as big as I expected. Instead of the pyramidal inflorescence I expected, I wound up with a large fan. I sent it to Harry Luther at the Bromeliad Identification Center and he came back with a provisional identification, *Fosterella* cf. *rusbyi.*

I don't recommend that you cut off the bloom to force a larger inflorescence, but if you have more than one and want to gamble, you might give it a try.

And then a *Deuterocohnia schreiteri* started to throw a spike. I was looking forward to a comparison with *longipetala.* But an unmentionable snail intervened and rasped off the spike. But I thought of the *Fosterella* and hoped it would throw some spikes from the nodes.

Incredible! It is throwing spikes from the upper two nodes. I don't know what it was supposed to look like, but this one appears much smaller than I expected.

And now, another? I had what looked to me like a neoregelia of some kind. When it was through blooming, I removed a couple of long leaves and scooped out the finished inflorescence with a spoon.

I sent the evidence to Luther at BIC and he came back with *Guzmania sanguinea.* I inserted a label and thought no more about it. Today I was looking at it and I have two pups coming out of the vase where the inflorescence had been.

I remember reading in the JOURNAL a long time ago that one could stimulate pupping by ramming a screwdriver down into the apical meristem (or miracle apistem as I like to call it) and twisting it.[2] That action kills the inflorescence and can stimulate the production of pups. Maybe these two things aren't related although they seem to be. Can someone supply an explanation?

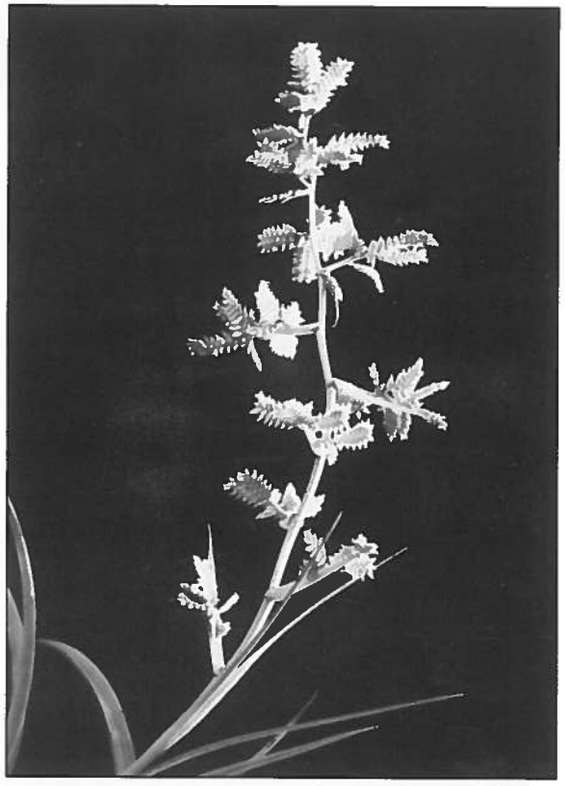
San Luis Obispo, California

[2] Morris W. Dexter, "Propagation of Poor Puppers, Revisited," 37:27; 1987.

Racinaea multiflora var. *multiflora*
(syn. *Tillandsia multiflora* var. *multiflora)*

Recently transferred from the genus *Tillandsia,* this native of Ecuador and Peru grows as an epiphyte in dry areas at elevations up to 1200 m. *Racinaea multiflora* var. *multiflora* (syn. *Tillandsia multiflora* var. *multiflora*) is sometimes listed with the invalid name *T.* "ebracteata" (figure 14). It is stemless, reaching a height of 50–70 cm including the inflorescence. The rosette is 30–40 cm in diameter. Both dimensions may be even more variable. The yellow-green leaves are long, narrowly triangular with long, tail-like (caudate) tips. The scape is upright and stout, the scape-bracts are longer than the internodes. The inflorescence is a multibranched panicle of green or gray-green spikes. The variety *multiflora* differs from variety *decipiens* by its narrowly lanceolate primary bracts that taper to a point, the lower ones exceeding the axillary branches at maturity. The petals are small and white. The variety *tomensis* has less tapering leaves and a red or orange inflorescence.

This species is worth cultivating for its pleasing appearance.



Courtesy of H.E. Luther

Figure14.
Racinaea multiflora var. *multiflora*

SOURCES:

Smith & Downs TILLANDSIOIDEAE (Flora Neotropica monograph no. 14, part 2; 1977) page 1044; W. Rauh, BROMELIADS FOR HOME, GARDEN AND GREENHOUSE, 1974, pages 121–122; informal communication with H.E. Luther.

ACKNOWLEDGMENT:

With the guidance of the master hand this sort of informal description is easy.—Ed.

Pollen Stretching
Andrew Flower

The goal is to obtain viable seed from bromel species—for me, this means primarily the grey-leaved[1] Tillandsioideae. The problem is, few species are self-fertile if you have only one clone and have to rely on human-made environments. In my area, sometimes even a batch of seedlings sharing the same mum will not interbreed.

My solution is a two-step process: first obtain plants of the same species from different populations, second, breed between them. Sounds easy if you say it quick, but nature has a few tricks yet. Take my two *Tillandsia kolbii* for example: #260 was imported from the U.S. in 1990, #261 was imported in 1992 from a different nursery. Each year, #260 flowers between mid-September and late October (southern hemisphere) and each year #261 flowers almost exactly three weeks after the last flower has finished on #260. The most straightforward method for breeding under these circumstances is to store pollen from the earlier flowering plant (one could presumably delay flowering of the earlier one, but I have not tried that). We are fortunate that the techniques for storing pollen are well tried, simple to effect, and work well for bromels. As a result, each year I am able to breed between #261 and #260 and have been successful with stored pollen on a number of other species. The longest storage period I can be reasonably sure of for a successful cross of mine was two months but longer storage should be possible.

The basic principle for storing pollen: keep it cool and dry.

The effective environmental ranges for storing pollen from most plants are 10% to 50% relative humidity and to 0° to 10° C.[2] The main difficulty is with the relative humidity (i.e. the amount of moisture in the air relative to the temperature) because it increases as the temperature falls. Just wrapping the pollen in a small piece of clean, hard paper and keeping it for a day or two in the refrigerator should be enough to keep the pollen alive—but under these conditions mould and mildew soon appear and destroy pollen.[3] If you want to keep the pollen for any longer period you need to take steps to keep it dry. The official method is to store it in a desiccator over a moisture-absorbent material such as calcium chloride or sulfuric acid.

---

[1] *This description is evidently a regional choice, cf. "gray-leafed."*

[2] Hartman and Kester, Plant Propagation: Principles and Practices, 3rd. ed. (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1975), p. 75.

[3] Don Beadle, Pollen Preservation; or, How to Build Your Own Bromeliad. J. Bromeliad Soc. 41:29; 1992.

The method I use is to scrape the pollen onto a small piece paper (I have used ordinary writing paper successfully) about 5 cm square, fold the paper around the pollen, place it in a small glass bottle with some absorbent material, then put the bottle in the dairy compartment of my refrigerator. The temperature in there ranges from a mean 5°C in summer to 3°C in winter. Don't use plastic containers, they may produce toxins deadly to pollen. So far as the absorbent material is concerned, calcium chloride would be fine. When I started storing pollen, the local pharmacy didn't have any so I bought some silica gel. That is good material because the crystals are blue when dry then turn pink as they become saturated with moisture. So I can keep an eye on the pollen jars, and replace the silica if they are starting to turn color. Saturated crystals can be dried out in the oven then reused. When using stored pollen to fertilise a plant, I use it straight from the refrigerator without letting it warm up first.

Pollen storage is effective when you follow the basics of keeping it cool and dry and can be a major tool for developing seed propagation in cultivation before adequate stocks of breeding plants have been built up for a given species.

Wellington, New Zealand

Mr. Flower is the editor of the Bromeliad Society of New Zealand, Inc. Newsletter.

Some Suggestions to Exhibitors: What! No Blue Ribbon?

Before the judges ever view the plant(s) exhibited in the show, every plant there has been judged by the plant's first and most critical judge—the exhibitor who selected it and deemed it worthy of competition. This section is written for you, the exhibitor to help you to evaluate wisely which plants constitute your best candidates and to show you how you can increase their chances of winning.

Judges begin their evaluation of a plant by assessing **condition.** Condition is considered under Cultural Perfection and simply means that the actual physical state or appearance of the plant at the time of judging is evaluated. Under condition, judges penalize artificial plant shine, mechanical injury, bruising, immaturity, age, weather damage, insect damage, soil and uncleanliness of foliage, bracts, or pot, torn or brown-tipped edges, dried or old florets, cracked, dirty, salt-stained or algae-stained pots, pine needles, oak and other leaves protruding from cups, over-grooming such as trimming of leaves with no finesse, and lack of trimming of brown tips on leaves when, and if, needed.

The expert exhibitor can do much to improve and refine the **appearance** of his plant in advance. Start at least two weeks before the show. Look at the plants

critically to find one that has symmetry, good sheen to its foliage, clear rich color and markings, and is of a size and appearance that conforms to the description of that particular species or hybrid. Is it centered in the pot? Does a pleasing proportion exist between the size of the plant and the size of the pot? If not, repot into something suitable or set the pot into a larger one and cover the rim of the old pot with mix. Is the pot clean and intact? Is there damaged foliage? If so, can it be trimmed carefully so that the conformation of the plant doesn't suffer? For example, if it's a plant with white margins and you have to trim so many leaves to such a degree that very little white margin remains, conformation obviously will suffer and you would do better to take another plant to the show. If leaf damage is relatively minor use small scissors to trim the leaf so that its new shape resembles the leaves of that variety. Do the trimming the day you enter the plant so that the trimmed portion does not appear brown for judging.

Be sure to wipe off the leaves, especially the dark, shiny, thin-leafed varieties. Hose them well to be sure that they are soil and dust free. Be sure that all spray residue is removed. Check for any agriculture aboard including scale, mealy bugs, fungus, caterpillars, grasshoppers, snails, slugs, and even the "friendlies," frogs and lizards. If your plant lives under trees, pick out needles or leaves. As the inflorescence opens and ages, remove the old florets and bracts that have become brown and shriveled.

Many a ribbon is lost on the road to the show by the exhibitor who doesn't take time to pack his plants properly to prevent mechanical injury from a sudden turn or bump on the way. Pack your bromeliads carefully and tightly to prevent overturning. Don't bend or crease leaves. Use plant sleeves of paper or plastic. Place like plants together—spiny-leafed with spiny-leafed; smooth-leafed with smooth-leafed.

Sometimes a problem arrives that perplexes the owner. Suppose you have a plant beautiful in every respect but on one of the inner leaves there is a big hole. What to do? Usually if plant form and symmetry will be important, it's better to leave the hole. The most points you could lose would be three but by taking it off you'd probably lose more. Another problem is deciding what bottom leaves should be trimmed and which should be removed in their entirety. Use your hand or a piece of paper and visually block out the leaf in question before removing it, for once gone it can never be replaced. A few trimmed and carefully reshaped leaves may cost you a point or so; a major gap will usually result in a 3–4 point loss. If several leaves at the base of a plant are removed and the caudex is exposed, repot the plant lower to hide the light or white area. Another concern is size. If all things are equal, the plant that is bigger will win. Exceptions include plants that have rank growth and those grossly, coarsely over-sized from over-fertilization.

Give yourself enough time to make out your entry tags completely and accurately. Be sure that all tank types have water in their cups, particularly the blooming neoregelias. They always score higher when the cup is filled. If you have an artistic arrangement, you are allowed to put it in its designated area yourself. Be sure to place the entry tag at exactly the angle from which you want the arrangement to be judged. Remember that the judge is required to stand three feet back from the arrangement to judge it so that some mechanics within the design will never be seen.

Be a good competitor and don't get distressed over an award. This is your hobby and there's always next year.

A somewhat condensed version of Section VIII of the HANDBOOK FOR JUDGES, EXHIBITORS. AND AFFILIATES, *2nd ed., The Bromeliad Society, Inc.; 1987.*

The (Very) Small Vrieseas

Carol Johnson

The many small vrieseas tend to get lost in the maze of their big, glamorous relatives, but to those who have a limited or very little space, or who specialize in small plants, there are real gems available. Most of the truly miniature vrieseas are native to eastern Brazil and, in my experience, all self seed and are easily grown. All seem to prefer low light but in all other ways should be treated like their bigger relatives. I list here only four, but they are my favorites of the really small plants. All are species.

• *Vriesea modesta.* To 12" high including inflorescence. Beautiful, simple bloom spike rising just above the recurved green leaves. Spike is wider than tall, red blending to yellow-orange and rose. Very long lasting. Best grown as a clump in a six-inch bulb pan.

• *Vriesea racinae.* Eight to ten inches tall, including inflorescence. Green leaves are numerous, heavily brown-spotted and tightly recurved. Blooms and bracts are insignificant, greenish yellow and reputed to smell like Ivory soap. It is rightly the most popular of the small vrieseas. It self seeds and is easily propagated. It is named for Racine Foster who discovered it in Espírito Santo, Brazil.

• *Vriesea poenulata.* To 12 inches tall, including the inflorescence. It has many, thin, recurved leaves growing from a modified-bulbous base. If kept fairly dry, the leaves develop dark speckles, which are very attractive. Flowers are yellow and fairly large for so small a plant. The plant blooms regularly and produces numerous offsets. It requires little care.

• *Vriesea correia-araujoi.* It is very similar to *V. poenulata* but without the speckled foliage. The blooms are white. The leaves are more erect than recurved.

There are many other small- to medium-sized vrieseas that are a joy to grow but all of those listed below can be force-fed and overpotted to increase their size. Grown normally, all are small enough to qualify as space savers:

Vriesea bleheri
V. carinata
V. flammea (stoloniferous)
V. guttata
V. lubbersii (stoloniferous)
V. rodigasiana
V. scalaris
V. simplex
V. sucrei

There are also gray-leafed tillandsias that are like vrieseas but they require different treatment and deserve separate discussion.

Reprinted from the Florida Council of Bromeliad Societies, Inc.
Newsletter, *November 1993, by permission.*

NOTICE. LATE RENEWALS.

The membership secretary mails membership renewal invoices well before your renewal date and follows up with a reminder. If you do not renew promptly you will not receive the next issue of the JOURNAL. This has been a matter of policy for a long time but we have been lenient in supplying back issues. We can no longer send back issues without asking you to pay the standard fee of $4.50 each. Please send your request for the most recent back issues with payment to Linda Harbert, 2488 E. 49th Street, Tulsa, OK 74105. Address any questions about the status of your membership to her. Send orders for 1976 through 1994 volumes to BSI Publication Sales, 29275 N.E. Putnam Road, Newberg, OR 97132.

NOTICE.

The annual general meetings of The Bromeliad Society, Inc. and of the Board of Directors will be held in St. Louis, MO, at the Frontenac Hotel on June the third, 1995, beginning at 9:00 in the morning.

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 _____

BROMELIAD SOCIETY, INC. PUBLICATIONS

Please address all orders for the JOURNAL volumes 1976 through 1989 to:
BSI Publications Sales
29275 N.E. Putnam Road, Newberg, OR 97132

Each volume of the JOURNAL includes six issues.

Volumes for 1976 through 1989:
U.S. addresses.....each $13.00
All other addresses .....each $14.00
Three or more volumes to any address.....each $10.00

Volumes for 1990 through 1993:
U.S. addresses .....each $20.00
All other addresses .....each $25.00

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

SELECTED PUBLICATIONS

Order from BSI Publication Sales,
29275 N.E. Putnam Rd., Newberg, OR 97132

BSI JOURNAL BINDERS

(each binder holds 2 years of the JOURNAL)

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

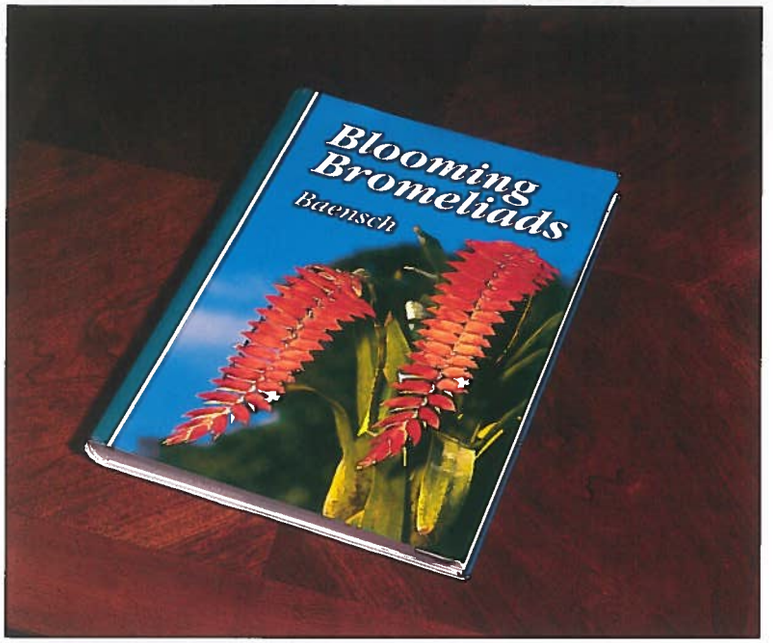
BROMELIADS, A CULTURAL MANUAL

44 pages, illustrated in color

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

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

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



BLOOMING BROMELIADS

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

Distributor:
Bodé Export Corp., 48 N.W. 29th Street, Miami, FL 33127
(English/Spanish spoken) Phone (305) 573-2525, Fax: (305) 573-0209

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

Postage, packaging and handling anywhere in the USA:
One book $6, every other copy an additional dollar.
Costs for shipping to foreign countries:
Ask us by fax or ask UPS. The book weight is 1.650 kg = 3.6 lbs.

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

BROMELIAD BOOKS

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

Sent surface mail anywhere in the world!

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

WANTED

Aechmea cymosopaniculata

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

Michael's Bromeliads

Providing an outstanding selection of quality Bromeliads for the collector. Send stamp for *free* catalogue of nearly **1,000** species and cultivars. Specializing in Neoregelias; from the early rarely seen hybrids, to the latest releases.

Mail order, or by appointment.

Michael H. Kiehl
1365 Canterbury Rd. N.
St. Petersburg, FL 33710
Phone: (813) 347-0349
Fax: (813) 347-4273

Shipping Worldwide since 1986

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

TREEBORNE GARDENS

GRAPEVINE
AND
MANZANITA
CRAFTWOOD

503-469-6539

99211 BLACKBERRY LANE
BROOKINGS, OR 97415

Fabulous Large Pink CRYPTANTHUS "ARLETY"

Pups available @ $7 each
Shipped via Priority Mail.
2 to 3 days delivery.
Postage Paid.
5 pups minimum order please.

Colin's Nursery
448 N. Lk. Pleasant Rd.
Apopka, FL 32712-3902
(407) 886-2982

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—

VIRGIN CORK BARK!

Super for all plaqued species

By the piece or by the bale.

Ask about CORK NUGGETS, too!

Call for the Dealer or the Distributor nearest you!

Maryland Cork Company, Inc.

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

P.O. Box 126, Elkton, MD 21921

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.

T.U. Lineham

Dyckia marnier-lapostollei. Photographed in the collection of Prof. Dr. Werner Rauh, Heidelberg. Harry Luther compares this species with *D. cinerea* on page 117.

Calendar

12–14 May	Bromeliad Society of Central Florida 19th Annual Show & Sale, Florida Mall, Orlando, Sand Lake Road (S.R. 482) and South Orange Blossom Trail (U.S. 17-92-441). Friday and Saturday 10 a.m. – 9 p.m., Sunday 12 noon – 6 p.m. The public is invited to enter plants for display or competition. Plant entries, Thursday, May 11, 9:30 – 11 p.m. to Mall north entrance. BSCF members only may bring plants for sale. Bud Martin, 1405 Pineway Drive, Sanford, FL 32773; 407-321-0838.
20–21 May	Bromeliad Society of South Florida Annual Show and Sale. Fairchild Tropical Garden, 10901 Old Cutler Road, Coral Gables, FL 33156. Exhibit entries: Thursday, 18 May, 10 a.m. – 4:30 p.m.; pick up, Sunday, 21 May after 4:30 p.m. Show hours: Saturday and Sunday, 9:30 a.m. – 4:30 p.m. Includes a judged show, educational demonstrations, and sales. Admission to Gardens, $7.00. Peniel Romanelli, 305-642-5597.
20–21 May	Houston Bromeliad Society 26th Annual Standard Show and Sale, "Bromeliads—Americas' Plant." The Garden Center, 1500 Hermann Drive, Houston, TX. Show hours: Saturday, 2 p.m. – 5 p.m. and Sunday, 11 a.m. – 4 p.m. Plant sales: Saturday, 9 a.m. – 5 p.m. and Sunday, 11 a.m. – 4 p.m.
17 June	Saddleback Valley Bromeliad Society of Orange County, California, presents a one-day Bromeliad Fiesta. Univ. of California Arboretum in Irvine, one mile west of the 405 freeway on Jamboree at Campus intersection. Standard show open to all amateur bromeliad growers; commercial and member plant sales; potting demonstrations. Friday, 16 June: plant entries, 12 noon – 5 p.m.; Saturday, 17 June: plant sales, 9 a.m. – 5 p.m.; plant show, 10 a.m. – 5 p.m. Free admission and parking. George Long, 714-858-3714; Dan Kinnard, 714-489-0766.
24 – 25 June	South Bay Bromeliad Associates 28th Annual Bromeliad Show & Plant Sale. South Coast Botanic Garden, 26300 S. Crenshaw Blvd., Palos Verdes, CA 92074. Saturday, noon – 4:30 p.m.; Sunday, 10 a.m. – 4:30 p.m. Judged show open to all amateur bromeliad growers; demonstrations; member and commercial sales. Admission $5, $3 for students and senior citizens over 61, children $1. Bryan Chan, 818-787-4265.
14–17 September	5th Annual International Cryptanthus Conference and Bromeliad Guild of Tampa Bay Annual Show. Wyndham Harbour Island Hotel, Tampa, Florida. Early registration $65 (until June 30), $85 after June 30. Registration includes auction, tours, banquet, seminars and more. Lyla Shepard, Registrar, 4703 S. Renelle Drive, Tampa, FL 33611. 813-839-4791.