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Cover photographs. Front: *Aechmea fulgens* identified by the author as "the real thing." Back: *Aechmea miniata.* Harry Luther compares and identifies these species on page 8. Photographs by John M. Anderson.

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The Florida Bromeliads: *Catopsis nutans*

Bradley C. Bennett

One of Florida's rarest bromeliads is *Catopsis nutans* (Swartz) Grisebach (fig. 1). The generic name comes from the Greek word for "view" (Benzing 1980) and the specific name means nodding. Both the specific epithet and the common name refer to the pendent inflorescence. This species ranges from southern Mexico through Central America to Venezuela and Ecuador (Smith and Downs 1977). In Florida, it exists only in the Fakahatchee Strand State Preserve (FSSP) in Collier County.

Catopsis nutans grows in pop ash *(Fraxinus caroliniana* Miller) and pond apple *(Annona glabra* L.) swamps in the middle of the FSSP. Several other bromeliads occur with *C. nutans* including *C. berteroniana* (Schultes f.) Mez, *C. floribunda* L.B. Smith, *Guzmania monostachia* (L.) Rusby ex Mez, *Tillandsia balbisiana,* Schultes f., *T. fasciculata* Swartz, *T. pruinosa* Swartz, *T. setacea* Swartz, *T. utriculata* L. and *T. variabilis* Schlect. Like other rare epiphytes, most *C. nutans* populations exist near small lakes within the swamp.

Catopsis nutans can be distinguished easily from other Florida bromeliads. Native tillandsias have a gray-green appearance because of the trichome covering. Those modified plant hairs absorb moisture and dissolved nutrients. *Catopsis* and *Guzmania* leaves are thinner and greener. *Catopsis* has leaves shaped like long, narrow triangles while *Guzmania monostachia* has strap-shaped leaves that narrow suddenly at the tip. A white, waxy substance covers the lower sides of both *C. nutans* and *C. berteroniana,* at least near the leaf base.

Other distinguishing characteristics include the arrangements of flowers. *Tillandsia* flowers are borne on opposite sides of the floral axis (distichous). *Catopsis* and *Guzmania* flowers are borne on all sides of the floral axis (polystichous). A basic identifying characteristic of *C. nutans* is its pendent inflorescence sparsely flowered and with green floral bracts. *G. monostachia* has densely congested flowers subtended by colored bracts. Another diagnostic characteristic of *Catopsis* is its folded seed hair. In *Tillandsia* and *Guzmania* the seed hairs are straight.

Catopsis nutans can be distinguished easily from its two relatives *C. berteroniana* and *C. floribunda,* which are larger. The leaves of *C. nutans* are usually less than 20 cm long and less than 2 cm wide. Its rosette is smaller and more open or urn-shaped. Flower color is also a distinguishing characteristic. The nodding catopsis has yellow petals while those of its relatives are white.

Each pendent inflorescence of *Catopsis nutans* bears 5–15 fruits. The flowers are small. The petals are about 1.5 cm long and flare outward at the tip,

Photos by Author

Figure 1
Catopsis nutans, showing the pendent inflorescence, growing in the Fakahatchee Strand State Preserve.

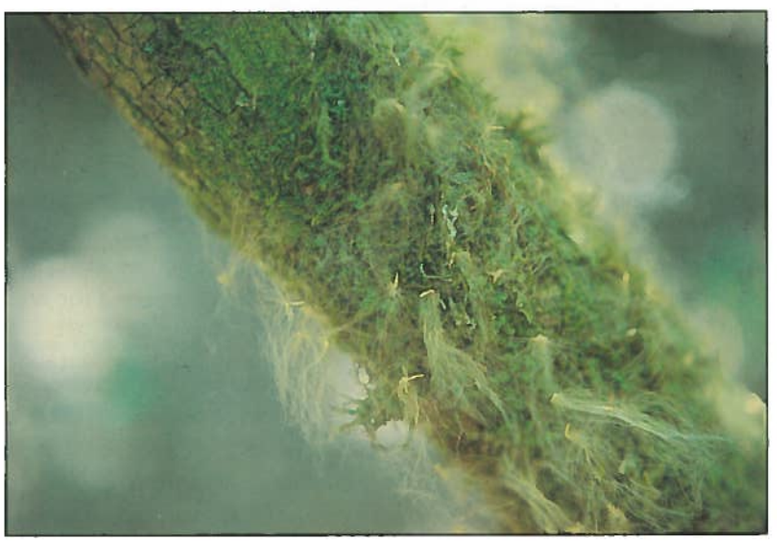

Figure 2
C. nutans, showing seeds attached to epiphytic moss on a pop ash.

unlike the narrow tubular flowers of most Florida tillandsias. In parts of its range, *C. nutans* has unisexual flowers. Pistillate (female) and staminate (male) flowers are borne on different plants. Such separation of the sexes forces outcrossing. In Florida, *C. nutans* bears perfect flowers that can self-pollinate. The football-shaped capsular fruits are 1.5–2 cm long.

Wind readily disperses *Catopsis nutans* seeds. In a wind tunnel with a maximum wind speed of 6 m/sec, I released seeds from a height of 65 cm. The seeds travelled an average of 130 cm before touching the bottom of the wind tunnel (fig. 3). Of the 13 Florida bromeliads examined, only *Tillandsia setacea* travelled farther (145 cm). The seed hairs of *C. nutans* serve not only as dispersal agents, they also anchor seeds and seedlings to their substrates until roots develop. These seeds often attached to epiphytic moss instead of directly to bark (fig. 2). The moss substrate may offer improved germination conditions.

The nodding catopsis is not abundant even in its preferred habitats. In a study of *Catopsis* and *Guzmania,* I found an average of 3.3 *C. nutans* individuals per stem. *G. monostachia* (15.2 per stem) and *C. floribunda* (3.4) were more abundant; *C. berteroniana* (0.7) less so (Bennett 1987). The latter three species occur, however, in more sites within FSSP and they all occur outside the FSSP.

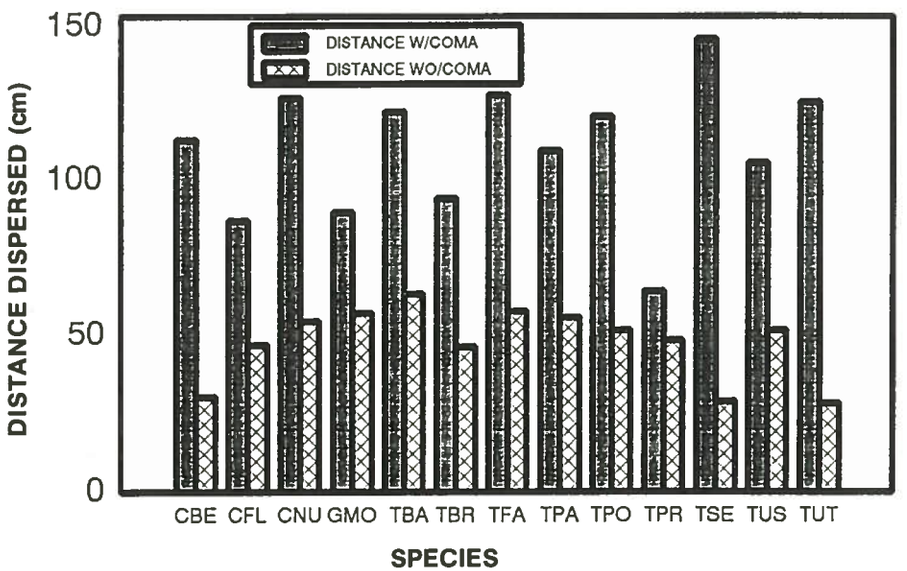

Figure 3
Average distance dispersed in a wind tunnel with and without seed coma attached. CBE=*Catopsis berteroniana;* CFL=*C. floribunda;* CNU=*C. nutans;* GMA=*Guzmania monostachia;* TBA=*Tillandsia balbisiana;* TBR=*T. bartramii;* TFA=*T. fasciculata;* TPO=*T.pruinosa;* TSE=*T.setacea;* TUS=*T.usneoides;* TUT=*T.utriculata.*

In the densest population, there were 97 individuals in a 10 x 210 m plot (Bennett 1986, 1987). In contrast, more than five times as many *G. monostachia* can grow in a plot of the same size.

Does *Catopsis nutans* prefer some host trees to others? Apparently not. I found no differences in abundance on different host species (Bennett 1987). Most of the supporting trees growing in the swamp communities produce several erect stems instead of a single main trunk. Trees that produced more stems supported more epiphytes. This variable accounted for 24% of the variation in the number of epiphytic *C. nutans* found on a tree. Larger stems also supported slightly more epiphytes than small trees. Why then is *C. nutans* so common on pond apple and pop ash? One reason is that these are the dominant trees in the deepest part of the slough. Water in the slough may buffer temperature extremes and diminish the effects of drought.

Many researchers have noted the vertical distribution of epiphytes. *C. nutans* does not occur on all parts of its hosts. I seldom found individuals in the upper canopy (Bennett 1987). Instead, the average height was 2.7 m lower than other *Catopsis* species. There were more individuals of them on the east side of trees than on other sides. I don't know why. *C. nutans* grows in low and medium light levels in FSSP (Bennett 1986), *C. floribunda* is more common in areas with medium light, and *C. berteroniana* prefers the exposed crowns of its host.

Catopsis nutans is on the Florida endangered plant list (Austin et al. 1990; Ward 1979). It warrants this status for four reasons:

1) It is found only in Fakahatchee Strand State Preserve.

2) It grows in only a few places in FSSP and is not abundant even there.

3) It experiences high rates of mortality. During one five-month period (May–October 1984) 16% of one such population failed to survive.

4) Horticultural collection, although illegal, is a danger. It is fortunate that most populations of *C. nutans* are in remote parts of the FSSP. Deep swamps and the creatures that inhabit them offer some protection.

What is the fate of *Catopsis nutans* in the United States? Considering these several threats, it is precarious. Random fluctuations in the size of small populations inevitably lead to extinction (fig. 4). Without increased protection and reintroduction of artificially propagated individuals, this species will soon become a former member of the flora of Florida.

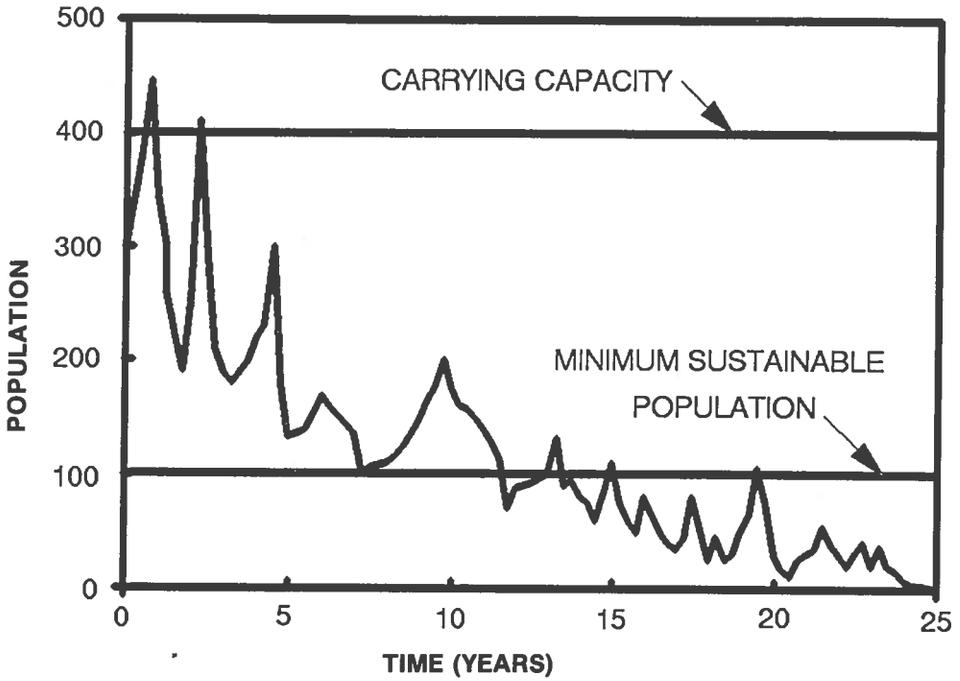

Figure 4

Population growth curve for a hypothetical species. The population is not supported for long above the carrying capacity of its environment. Below a certain level, 100 individuals in this example, random fluctuations in population size eventually lead to extinction.

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Misnamed Bromeliads, No. 10
Aechmea fulgens and *A. miniata*

Harry E. Luther

Two often misnamed aechmeas are *Aechmea fulgens* Brogn. (shown on the front cover) and *Aechmea miniata* (Beer) Hort. ex Baker (back cover). Central to the problem is that the species seem to be rather uncommon compared to their hybrids. For example, **ALL** of the variegated, marginated and variously striped cultivars proported to belong to *Aechmea fulgens* appear to be hybrids. Two named hybrids descending exclusively from the species in question are *Aechmea* Compacta and *A.* Maginalii[1] produced in Germany and Florida respectively and others with less well-documented origins doubtlessly exist. The hybrids are generally intermediate between the species, often more vigorous, and may be keyed to either *Aechmea fulgens* or *A. miniata* (usually the latter) depending on the time of day or mood of the observer. They are troublesome.

True *Aechmea miniata* and *A. fulgens,* if you can find them, may be distinguished by a suite of characters:

Aechmea miniata

1 Inflorescence 6–16 cm long, branched nearly to its apex, globose.
2 Flowers 14–15 mm long.
3 Sepals to 4 mm long.
4 Petals to 10 mm long.
5 Ovary globose, 5 mm long.

Aechmea fulgens

1 Inflorescence 12–20 cm long, branched only in its lower half, conical.
2 Flowers 20–22 mm long.
3 Sepals 5 mm long.
4 Petals to 12 mm long.
5 Ovary ellipsoid, 8–10 mm long.

In my experience, the postanthesis color of the inflorescence becomes coppery in *Aechmea miniata* but remains more of an orange-cerise in *A. fulgens.*

As both species are native to north-central Brazil, near the Equator, they are somewhat cold sensitive. The hybrids seem more hardy.

[1] I treat these as grexes not cultivars.

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Tillandsias; The Nicaraguan Experience

Carlos Schmidt

Nicaragua has had little experience with offering tillandsias for sale. Before the Sandinista revolution, some orchids, tropical fish, and various tropical animals were exported. Those were the days before CITES when few permits were needed to export live flora and fauna taken from the wilds. Tillandsias had not become very well known and there is no record of their being exported before 1979.

In 1988, I began to survey Nicaragua looking for varieties of tillandsias with commercial value. I soon discovered that *Tillandsia ionantha, T. balbisiana, T. schiedeana, T. paucifolia,* and *T. caput-medusae* abounded in the western portion with its dry, deciduous forest and much xerophytic vegetation. Perhaps the most numerous plant was *T. ionantha,* which extended over 300 km from north to south and inland for perhaps 60 km. It could be found in clumps perhaps three km in diameter where all trees, usually Jicaro *(Crescentia alata),* were literally covered with all of these tillandsias except *T. caput-medusae.* One could then travel another 20 km and not see a plant. In other areas, every tree might have 100–200 plants and such concentrations would run for many kilometers. The entire north shore of Lake Managua had this sort of concentration. All along the Pan-American Highway[1] in that region and north into Honduras one could see long stretches of Jicaro trees covered with *T. ionantha* and *T.* schiedeana.

In transitional regions and cloud forest of the west coast I found kilometer after kilometer of *Tillandsia fasciculata, T. butzii, T. bulbosa, T. caput-medusae,* and some *T. fuchsii.* On the eastern slopes of the mountains draining into the Caribbean, I found a few *T. pruinosa* plants but no *T. streptophylla* (that means only that I may not have travelled enough to find them). On the east coast I found a surprising amount of *T. xerographica* but in places where it was completely impossible to transport them anywhere since I was traveling by dugout canoe perhaps 100 km from the nearest road.

The point of this description is that I was able without much trouble to locate relatively large populations of commercially valuable tillandsias. In terms of collection for export, the economics of such activities demand finding large numbers of plants in a small area. Gathering a few here and there makes no sense. Central American labor is cheap but most other costs equal or exceed those in the United States. The solution, at least in terms of bromeliads, is to look for large concentrations of common plants, not small populations of rare plants.

[1] *Shown as Routes 1 and 2 on the accompanying sketch map. Also known as the Inter-American Highway between Texas and Panama.*

In contrast with the high populations of various tillandsias in Nicaragua and Honduras, there seem to be few in neighboring Costa Rica. The difference has to do with land use since the northern province of Costa Rica is ecologically identical with western Nicaragua. As soon as one crosses the border between Nicaragua and Costa Rica there is a marked difference in the manner of cattle production. In Nicaragua, for example, most of the pasture grass dries up during the dry season leaving the Jicaro tree as the main source of cattle food. The Jicaro produces a gourd-like fruit full of pulp and seeds that are rich in vegetable oil. It is also the favored anchor for all local tillandsias and many orchids. The more Jicaro trees the rancher has, the more cattle he can feed.

The neighboring province of Guanacasta, in Costa Rica, on the other hand, has hybrid strains of grass, irrigated pasture, and improved blood lines of cattle. There may be an occasional Guanacaste tree *(Enterolobrium ciclocarpum)* for shade but few Jicaros. The pastures are more efficient but there is no home for wild-growing bromeliads.

This same condition is true with coffee plantations. The Nicaraguan coffee finca is cool, shady, colorful with bromeliads and orchids, and it produces less than one-third the amount of coffee per unit of land area than Costa Rica does. In that country, the land is cleared of all but the desired growth, the coffee trees are densely planted. Sugar, cotton, intensive vegetable and fruit production have the same effect on habitat. It may be one of the unanticipated results of the Sandinista Revolution and 10 years of Sandinista control that by destroying the economy and agricultural production, they saved the habitats of bromeliads, orchids, and other tropical life.

One other aspect of land use is the effect of woodcutters. Their work is inexorable and probably the most destructive activity, next to cotton production,

that can happen to dry, deciduous, tropical forest. Much of the wood is used only for fuel for cooking. As the land is cleared, it is used for pasture and for crops but as the large trees are cut the forest growth is destroyed. Visitors who are unable or unwilling to travel into the rural areas have no way of gaining an accurate picture of habitat in Central America and the effects of national policies.

To return to the matter of my experience and direct knowledge of bromeliad exports, it is obvious to me that the obvious answer to the conflicting problems of habitat destruction, the actual or impending controls over exports, national interests, is to cultivate plants. My experience has been that when collecting wild plants, one must take many more than are intended to be exported. Depending on the species and the season, about seven percent only are of export quality. There are many variables, not the least of which is the skill of the native pickers. Every time plants are handled, leaves will be broken. It is also the case that many wild plants will have imperfections, including insect damage, and will be of no export value. Thus, if an export operation is processing 100,000 plants annually, not a large operation at all, one may assume with some accuracy that the producer bought a million plants from his pickers.

In Nicaragua, it was relatively easy to obtain the CITES permit while the Sandinistas were in power. There was no idea in IRENA, the Nicaraguan Department of Natural Resources, that Nicaragua contained more species of *Tillandsia* than *T. usneoides.* As long as the taxes were paid and all other legal requirements were met, the CITES was issued. As the February 1990 election approached, IRENA changed its attitude and became more protective of bromeliads. The change was probably the result of receiving advice from the World Wildlife Federation, among other international conservation organizations.

At that time, IRENA ruled that plants could no longer be collected from the wild but had to be produced in greenhouses or nurseries. They also took the position that they wanted the producers to survey for them the kinds and quantities of the various species and their locations. These restrictions may not be absolute but the policy is in place.

My view is that importers in the United States and other countries should refuse plants that are not grown in licensed nurseries. They can determine better than any governmental agency simply by their experience the difference between collected plants and cultivated plants. It is clear to me that such policing is the only practical approach to conservation because the countries concerned have priorities higher than those of rigid enforcement of plant agreements. It might be possible to make large-scale surveys to prove that bromeliads are not endangered but the true conservation will come only when producers state honestly where they get their plants for export.

Managua, Nicaragua

Editorial: It's Up To You

Did you know that you as a voting member have the direct and final say on who gets elected to the office of director? That's because directors must reside in the region from which elected. Their number is determined by the number of members in each region. They may serve for up to six consecutive years. There are other requirements stated in the bylaws and every affiliated society has a copy. Directors should represent your thinking about how the society should operate. John Anderson, chairman of the Nomination Committee, has already called for nominations for the 1993–1995 term to fill vacancies in the Australia, California, Florida, Louisiana, and Texas regions. Nominations will remain open through the 18th of March.

The Nominations Committee chairman also prepares and presents the slate of all officers and committee heads to the Board of Directors. There is no limit on the number of nominees for each job. The directors, in turn, elect the president and vice-president, who may serve no more than two terms of three years each. They elect the other officers and committee heads annually.

Do you sometimes wonder why you see the same names in the directory year after year? At most board meetings nominees are elected by acclamation. It is a compliment to the individuals but it also means there has been no competition. If you like that arrangement and are satisfied with the way the society is managed, tell John to nominate those people again. If not, send him new names: John M. Anderson, Chairman, Nominations Committee, P.O. Box 5202, Corpus Christi, TX 78465-5202.

It is up to you.—TUL

NOTES TO CONTRIBUTORS

The *Journal* is published six times a year. The 1992 schedule is as follows:

March–April — February 21	July–August — June 26
July–August — June 26	September–October — August 28
	November–December — October 23

Material including calendar items and ads proposed for a specific issue must be received at least 60 days before publication date. This same schedule applies to address changes.

Pictures for articles should be 35 mm color slides (Kodachrome preferred), black and white glossy prints, or black and white drawings. We cannot use color prints because of the extra cost involved and the possibility of poor color reproduction. A release to copy all illustrative material for BSI purposes must accompany each article. Any copyrighted material must include a dated release signed by the author.

All copy should be typewritten and double spaced to reduce the chance of error. Material in 5½" or 3½" diskettes prepared with WordPerfect 4.2 or 5- series software is encouraged.

Address questions concerning material to the editor. There is a continuing need for contributions, especially for personal experience with all aspects of bromeliad culture. All material will be acknowledged and proposed substantive revisions will be discussed with the author. All original illustrative material will be returned unless permanently released.—TUL

New Books

Heliconia: an Identification Guide, by Fred Berry and W. John Kress. Smithsonian Institution Press, 470 L'Enfant Plaza, Suite 7100, Washington, D.C. 20560. 1991. 334 pp. fully illustrated with color photos, index; 20 cm. Cloth: $35.00; paper $16.95.

We usually limit mention of new books to those about bromeliads but this is an exception because it is a model plant reference book and because John Kress served on our editorial advisory board.

Two hundred heliconias are described and illustrated. There are short chapters on heliconia description, habitats and distribution, breeding, hybridizing, and culture. There are also chapters on names and taxonomy, identification of relatives, information about collecting and conservation. The authors have presented the entire range of information about this plant family.

Heliconia fanciers undoubtedly already know about this guide. Others, including society librarians will want a copy for reference and enjoyment.—TUL

The Bromeliads, Léon Duval; edited by Robert W. Read and Michael Rothenberg. Big Bridge Press, Pacifica, California. 1990 (originally published Paris, 1896). 181 pages, 46 black and white illustrations; $60.00.

From the same people who brought you the re-publication and translation of Edouard André's *Bromeliaceae Andreanae,* we now have available another gem of early French bromeliad literature.

León Duval was a French nurseryman who specialized in such greenhouse crops as bromeliads and orchids around the turn of the century. Not only was he an excellent grower, as evidenced by his horticultural awards, but he was also extremely knowledgeable about the propagation and culture of the plants he loved. Much of his instruction in thse matters is still applicable. Numerous species in 24 genera are described both botanically and horticulturally. As usual, nomenclature has changed for many of the described plants, but Dr. Read has provided notes that bring all of the names up to date. Some of the genera recommended for decorative use in the home may surprise you.

A biographical introduction tells us about Duval and something of his interests and abilities. This book has been beautifully produced on acid-free paper and, while it is a modern publication, the general appearance and effect reproduce very closely the feel of the original. If you are interested in bromeliads, there is certainly a great deal to be learned from this book and, if you are a collector of bromeliad literature, this is a work that must be added to your library.—Gilbert S. Daniels, Ph.D.

A New Combination in *Vriesea* from Costa Rica

Jason R. Grant

Abstract

Tillandsia castaneo-bulbosa Mez & Wercklé endemic of Costa Rica, is removed from synonomy with *Vriesea incurva* (Grisebach) R.W.Read, and *V. castaneo-bulbosa* (Mez & Wercklé) J.R. Grant is proposed as a new combination.

Tillandsia castaneo-bulbosa Mez & Wercklé (1903), was reduced to synonomy with *T. incurva* by Smith (1938). Read (1968) subsequently transferred the latter species to *Vriesea*. Recent collections from Costa Rica as well as the discovery of several misidentified specimens have shown this taxon to be distinct from *V. incurva.*

229.1 *Vriesea castaneo-bulbosa* (Mez & Wercklé) J.R Grant comb. nov.

Tillandsia castaneo-bulbosa Mez & Wercklé *in* Mez, Bull. Herb. Boiss. II. 3:140. 1903. Type. Cartago, Costa Rica, *Wercklé 16189* (B, B photo 1192–21), 1901.

Plant epiphytic, acaulescent. *Leaves* 19–33 cm long in spreading pseudobulbous rosette; *sheaths* distinct, ovate, 4–6 cm long, 5–7 cm wide at base, umber-chestnut colored, faintly densely and finely appressed ferruginous-lepidote, with distinct line at sheath/blade junction; *blades* narrowly triangular, long-attenuate, erect, not recurved, entire, fistular-involute towards apex, 15–27 cm long, 2.5–5.0 cm wide at base, sea green above, light silvery sea green below, densely and finely appressed cinereous lepidote below, much less so above. *Scape* robust, arching, 17–21 cm long, ferruginous-lepidote, the indument flaying at maturity; *lower scape bracts* foliaceous, long-acuminate, fistular-involute towards apex, clasping, finely nerved, imbricate, 9–13 cm long; *upper scape bracts* acutely obtuse, clasping, imbricate, 5–9 cm long, distinctly densely ferruginous-lepidote in sharp contrast with the cinereous scales of the leaves. *Inflorescence* robust, pendent, 24–30 cm long, internodes 2–4 cm long, digitate, extending below the base of the plant; *primary bracts* acutely obtuse, densely ferruginous-lepidote, 4.6–4.9 cm long; *lateral branches* not spreading, slightly flexuose, with 3–5 sterile bracts at base, 10–13 cm long from base of branch to tip of apical flower, 15–25 mm wide from outer edge of floral bracts on each side. *Flowers* sessile, 12–18 per lateral branch, erect along the rachis but pointing downward with the pendent branch; *floral bracts* ovate, acute, entire, finely nerved, pink-rose, navicular, 30–37 mm long, 13–17 mm wide, basal 15–18 mm bicarinate, upper 15–18 mm unicarinate, glabrous except for a cluster of ferruginous scales at the abaxial apex 1.5–2.5 mm long, 1.0–1.5 mm wide, imbricate although rachis sometimes becomes exposed on mature and dried specimens;

sepals acuminate, membranaceous, glabrous, free, finely veined, carinate, 20–23 mm long, 3–4 mm wide, faint cream to whitish light green or faint peach-pink; *petals* 4.0–5.0 cm long, bright spring-fluorescent green, raphides appearing in regularly spaced pattern between venation, +/–0.12–0.20 mm long, resin deposits dotted on the petal lobes, +/–0.25 mm in diameter, tan to maize (in dried specimens); *appendages* basal, two per petal, 10 mm long, 1 mm wide, the basal 8 mm adnate to the petal, the apical 1.5–2.0 mm free, colorless; *stamens* included; filaments 32–38 mm long, anthers 2 mm long, 1 mm wide; *ovary* superior; *style* exserted, extending 2–4 mm beyond the corolla. *Capsules* glabrous, dehiscent, carinate, 22–27 mm long, maize to light brown outside, shiny dark brown inside; *seeds* many, twisted, 2–3 mm long, 0.5 mm wide; awn 16–20 mm long, 0.25 mm wide.

Phenology. This species flowers from late January through February and produces fruit in July.

Distribution. *Vriesea castaneo-bulbosa* is endemic to the southern slopes of the far western end of the Cordillera da Talamanca in south-central Costa Rica. It occurs from 1200–2100 m in elevation.

Habitat. This species is epiphytic, growing on large trees in open meadows of cleared forest or in wet forests.

Discussion. Following the numbering system of Smith and Downs (1977), *Vriesea castaneo-bulbosa* should be placed directly after *V. incurva* (229) as 229.1.

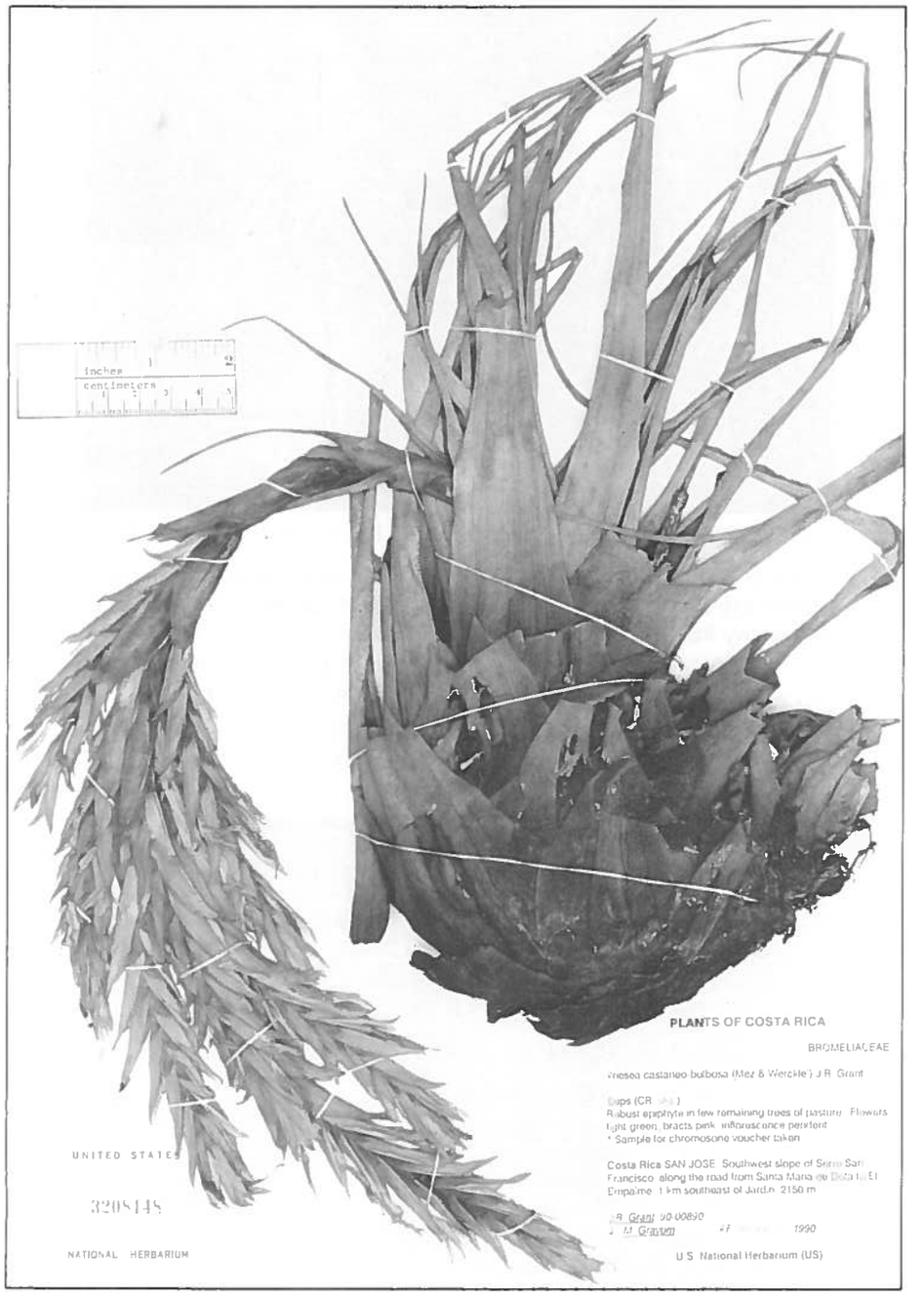
Vriesea castaneo-bulbosa belongs to a group within *Vriesea* having densely lepidote, narrowly triangular leaf blades. This group is composed of most of the species in both Subkeys I and II of *Vriesea* in Smith and Downs (1977). *Vriesea castaneo-bulbosa* falls into Subkey I because of its compound inflorescence. This species shows closest affinities to *V. incurva* but can be segregated by its more robust appearance and generally larger size. The rosette is larger, the leaves are longer and erect, not recurving, the scape is longer, the inflorescence is longer, wider, and more robust, the scape bracts are more developed, the primary bracts, which are scarcely differentiated from the scape bracts in *V. incurva,* are quite distinct in *V. castaneo-bulbosa,* the petals are longer, and the differences in the floral bracts are outlined below. The following couplet may be added to the key of Smith and Downs (1977).

A. Leaves 10–23 cm long; scape 3–6 cm long; inflorescence 18–25 cm long; floral bracts ecarinate, densely lepidote to glabrous, 25–33 mm long, spreading or divergent and recurving at maturity ..... **229 V. incurva**

B. Leaves 19–33 cm long; scape 17–21 cm long; inflorescence 24–30 cm long; floral bracts carinate, glabrous, 30–37 mm long, straight to slightly spreading, not recurving ..... **229.1 V. castaneo-bulbosa**

Smithsonian Institute

Figure 5
Vriesea incurva (Griseb.) R.W. Read



Smithsonian Institute

Figure 6
Vriesea castaneo-bulbosa (Mez & Werclé) J.R. Grant

Photos by Author

Figure 7

Habit of *Vriesea castaneo-bulbosa.* The two specimens nearing full bloom are shown with *Tillandsia multicaulis,* orchids, bryophytes, and many lichen species.

Figure 8

Vriesea castaneo-bulbosa in bud, near Jardin, Costa Rica.

Specimens examined.

Vriesea castaneo-bulbosa: Costa Rica. Cartago. Vicinity of Cartago, alt. 1200–1400 m, 1901 *(Werklé)* in herb. Inst. phys.-geog. Costar. *16189)* – Herb. Mez (TYPE B, photo at US); 51 miles south of Cartago on Inter-American Hwy., south side of Talamanca Mts., elev. 8650 ft., 23 July 1962, *Haines & Haines 742* (CR, US); San Jose. Laguna de la Chonta, northeast of Santa Maria de Dota, 2000–2100 m, 18 Dec. 1925, *Standley 42257* (US); high in oaks near Santa Maria de Dota, 8000 ft. 15 Dec. 1948, *Foster 2680* (US); southwest slope of Serro Francisco along the road from Santa Maria de Dota to El Empalme, 1 km southeast of Jardin, 2150 m, 27 Feb. 1990, *Grant & Grayum 90-00890* (CR, US, WS); southwest slope of Serro Francisco along the road from Santa Maria de Dota to El Empalme, 1 km southeast of Jardin, 2150 m, 12 Jan. 1991, *Grant, Rundell & Ramirez 91-01363* (CR, MO, SEL, US).

V. incurva. Costa Rica. Alajuela. 1 km south of the Rio Santiaguito near Cinchona, between Vara Blanca and Cariblanco, 15 Jan. 1991, *Grant, Rundell & Ramirez 91-01439* (CR, US); 15 km north of San Ramon, 16 Jan. 1991, *Grant & Skotak 91-01468* (CR, US); Cartago. 8 miles south of Cartago on Inter-American Highway, north slope of Talamanca Mts., elev. 6050 ft., 16 July 1962, *Haines & Haines 717* (US); Dulce Nombre, 1400 m. 27 Feb. 1924, *Standley 35788* (US); along the Rio Reventado, north of Cartago, 1460–1650 m, 26 Feb. 1926, *Standley & Valerio 49509* (US); along the Rio Macho Electric Plant Road, near Orosi, 17 Jan. 1991, *Grant & Skotak 91-01502* (CR, US, WS); San Jose. Zurqui, 2000–2500 m, 13 Feb. 1926, *Standley & Valerio 48338* (US).

Acknowledgements. The author thanks Dr. M. Grayum with whom he first collected the specimens of this species; the curators and staff of the Herbario National, Instituto de Biodiversidad, Santo Domingo, Heredia, Costa Rica, especially Cecilia Herrera and Pablo Sanchez-Vindas, for assistance and access to the collections; the curators and staff of the U.S. National Herbarium, Smithsonian Institution, for assistance; and K. Cameron, H.E. Luther, M.A. Spencer, and Drs. R.B. Faden, W.J. Kress, R.W. Read, J.R. Rundell, L.B. Smith, and J.F. Utley for reviewing the manuscript.

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College Park, MD

The Genus *Mezobromelia*

Werner Rauh

The genus *Mezobromelia,* erected by L.B. Smith in 1935,[1] is nearly unknown to bromeliad horticulturists. It was named in honour of the German bromeliad scientist Carl Mez. Only four species of *Mezobromelia* are known, [as this is written][2] and their distribution area extends from the Dptm. Amazonas in northern Peru through Ecuador to Colombia.

All *Mezobromelia* species, with the exception of *M. bicolor,* have big rosettes. In its vegetative condition *Mezobromelia* cannot be distinguished from the big rosettes of *Vriesea* or *Guzmania.* The flowers show characteristics of both genera: the petals are conglutinated up to the middle to a tube to which the filaments of the stamens are attached (figure 9 III), a characteristic of *Guzmania,* but the petals bear two scales on the inside surface at base, a characteristic of *Vriesea,* as shown in the same drawing. The flowers are distichously arranged, as in *Vriesea,* again with the exception of *M. bicolor.*

The type of the genus is *Mezobromelia bicolor* L.B. Smith, for which we have searched in vain in the type locality, the summit of west peak, La Cumbre, 2100–2400 m, Prov. La Valle, Colombia. It may not have been in flower, or it may have disappeared.

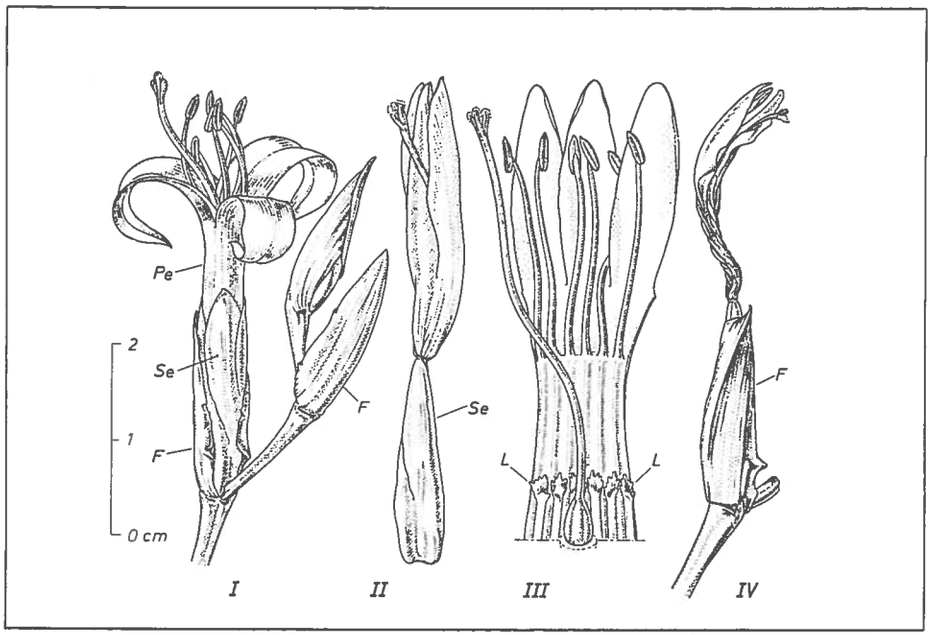
In comparison with the other mezobromelias, *M. bicolor* is a small plant, flowering only up to 50 cm tall. The inflorescence is laxly bipinnate with bright red, very broad primary bracts; the lower ones long acuminate, exceeding the spikes, the upper ones shorter; spikes short stipitate, ellipsoid with 3–5 spirally arranged flowers (fig. 10 I). Floral bracts oblong-lanceolate, exceeded by the sepals, carinate toward apex, glabrous, strongly nerved. Sepals subfree, oblong-lanceolate, broadly acute, carinate, glabrous, nerved; petals yellow, ligulate 20 mm long with 2 triangular scales above the base. Stamens and style included (fig. 10 III).

Mezobromelia bicolor resembles a small *Vriesea capituligera.* It is known from the type locality and from eastern Ecuador, Prov. Napo. L.B. Smith described it from incomplete material.[1]

Mezobromelia fulgens L.B. Smith, collected by J. Steyermark (1943) on the Paramo Cachiyaco to La Entrada and Nudo de Sabillas, between 2500 m and 3500 m in southern Ecuador. We collected *M. fulgens* on the road Loja-Zamora below La Cumbre at 2800 m in the direction of Zamora (fig. 11). This species grows mainly as a terrestrial in the west and windblown paramo plain together with *Chusquea* (bamboo), *Melastomataceae* shrubs, ferns, in spagnum cushions.

[1] Proc. Am. Acad. (Contributions Gray Herbarium, 106) 70, 151.

[2] *In addition to those described here,* M. pleiosticha *(Griesb.) Utley & Luther comb. nov. was published 1991,* Ann. Missouri Bot. Gard. *78:270.*



F. Rückert

Figure 9
Mezobromelia hutchisonii (L.B. Smith) W. Weber & L.B. Smith (=*M. trollii* Rauh). I. Bloom spike with opened flower: *Se* sepals, *Pe* petals, *F* floral bracts: II. Flower in postfloral state; III. Opened flower with ligules: *(L);* IV. Young fruit.

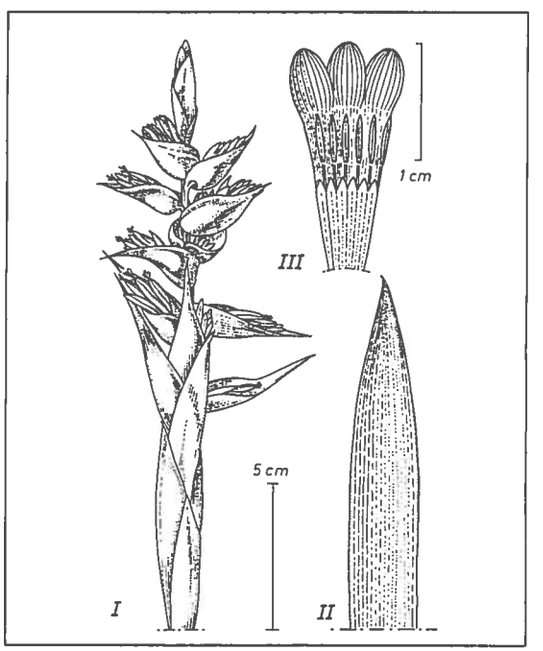


Figure 10
Mezobromelia bicolor L.B. Smith. I. Inflorescence; II. Upper part of a leaf; III. Opened flower.

(After Smith & Downs)

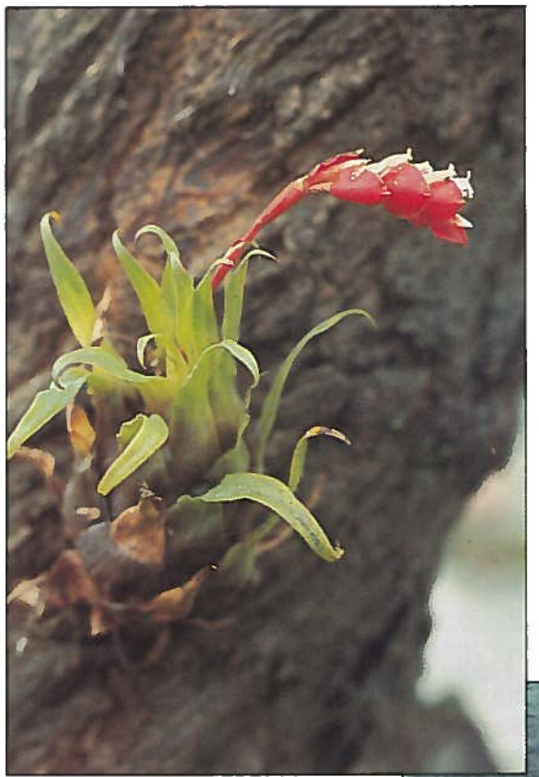
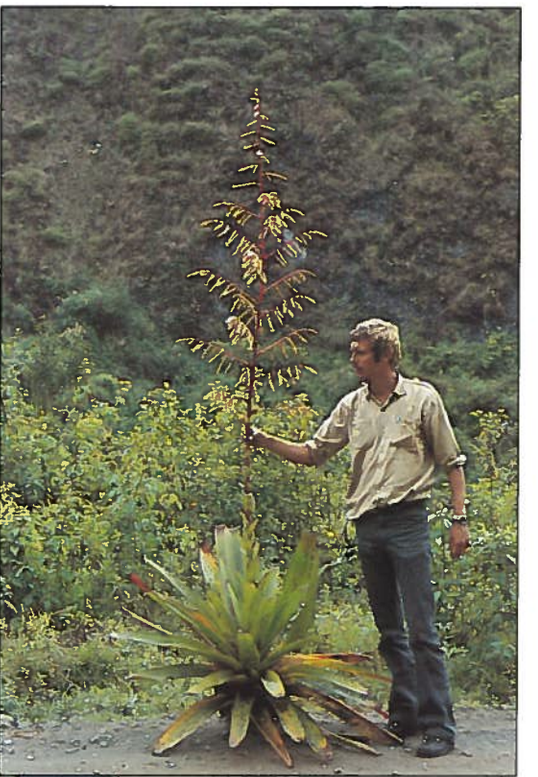


Figure 11
Mezobromelia fulgens shown in full bloom at 2800 meters on the paramo (Cumbre Loja-Zamora, southern Ecuador).

Photos by author

Figure 12
Tillandsia seemannii on the path Loja-Zamora at 2900 m near the habitat of *Mezobromelia fulgens.*

Figure 13
Mezobromelia lyman-smithii, shown as collected in 1973. Small plants collected at the same time flowered in cultivation 16 years later.



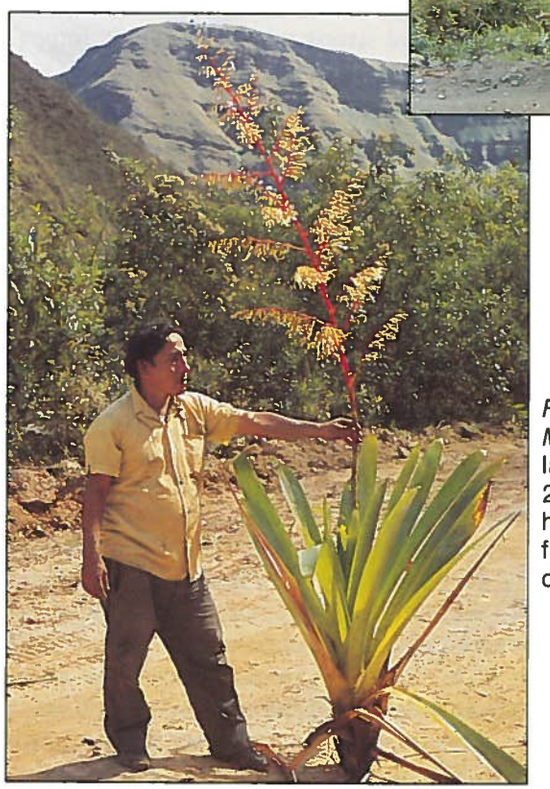


Figure 14
Mezobromelia hutchisonii has a large rosette and reaches up to 2.5 m. The inflorescence may have from 2 to 4 branches with flowering spikes reaching downwards.

In the same region, we found *Tillandsia seemannii* (Baker) Mez, a beautiful dwarf tillandsia (fig. 12), but very difficult to cultivate, and also an unidentified tillandsia with long stolons and the big rosettes of *Greigia mulfordii.*

Mezobromelia fulgens, forms big, short-caulescent rosettes up to 1.5 m tall and 1.3 m in diameter. The erect inflorescence scape is about 1 m long, round, thick, carmine red and covered densely with scape bracts; the inflorescence is 1–2 m tall, laxly pyramidal, bi- tripinnate, sometimes at the base also quadripinnate. Rachis thick, glabrous, carmine red; primary bracts broadly ovate, carmine red, slightly longer than the naked, flattened bases of the primary branches. Spikes and flowers more or less deflexed-secund. Spikes with a slender, slightly geniculate red rachis and 3–5 distichously arranged flowers. Floral bracts broadly elliptic, obtuse, glabrous, dark purple-red, about 22 mm long, somewhat shorter than the ecarinate sepals, connate for 5 mm. Petals yellow-green, ligulate, up to 6 cm long, conglutinate for 4 cm, the free lobes recurved, with 2 dentate scales at the base. Stamens and style shorter than the petals.

On the paramo plain, *M. fulgens* grows terrestrially; the big tanks are filled with rain water and often closed by cushions of mosses. On the Amazonian side, on the upper limit of the mist forest, *M. fulgens* changes to epiphytic growth and becomes smaller.

As a consequence of the extreme weather conditions, low temperatures during the whole year, much rain or mist, and strong winds it is nearly impossible to cultivate *M. fulgens* in contrast to a third species, *M. lyman-smithii.*

Mezobromelia lyman-smithii Rauh & Barthlott (fig. 13), was found by the authors in 1973 growing as an epiphyte in a mist forest (1800–2000 m) on the old Quito road between Quevedo and Latacunga (Prov. Cotopaxi). In 1975, we found this species growing as a saxicole at an altitude between 2400 and 2800 m in the valley of Sto. Domingo de los Colorados and between Mindo and Quito (Prov. Pinchincha). This author took some small plants with him and one of them flowered in July 1991, sixteen years later, in the botanical garden in Heidelberg. The inflorescence came out in April and was in full flower in July. The flowering period lasted more than one month.

M. lyman-smithii is also a big plant. It reaches up to 3 m in height when in flower; the tank rosettes are 70–90 cm tall and 1.3 cm in diameter; the thick, green-to-red inflorescence scape is up to 1.1 m long. The inflorescence is 1.5–2 m long, pyramidal, tripinnate at the base, bipinnate in the upper half. Primary bracts with a long carmine red sheath and a green, recurved blade; primary branches suberect about 35 cm long with a carmine red rachis. Spikes (fig. 15) distichously arranged, but all secund, about 10 cm long, and 2 cm wide with a flattened, carmine red rachis. Flowers distichous, at first dense, later laxly arranged and rachis visible. Floral bracts up to 2.5 cm long, ecarinate, even, nerved when dry, exceeding the sepals, carmine red at the base and yellow in the upper half. Sepals up to 2.3 cm long, acute; the posterior slightly carinate, connate for 4 mm. Petals pale lemon-yellow, high-conglutinated; the free lobes

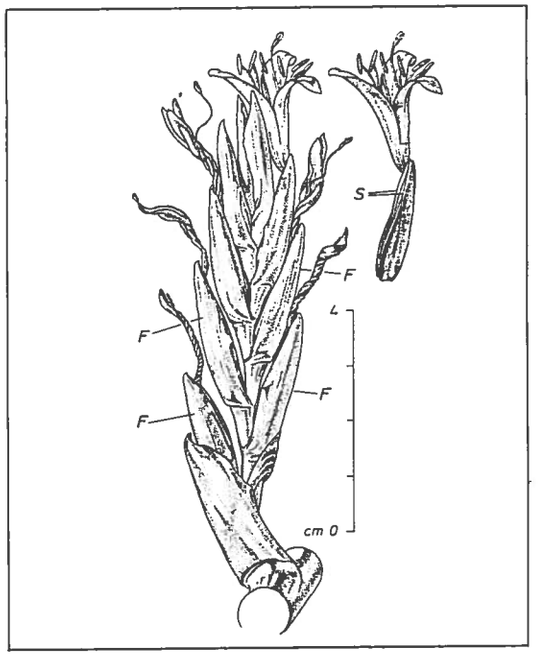


Figure 15
Mezobromelia lyman-smithii
Rauh & Barthlott.
I. Single spike: *F* floral bracts;
II. Single flower with sepals *(S).*

recurved, ligulate, obtuse (fig. 15) with 2 scales. Filaments adnate to the petal tube, shorter than the petals. Style as long as the petals.

Mezobromelia hutchisonii (L.B. Smith) W. Weber & L.B. Smith (= *M. trollii* Rauh). In July 1976, Rauh discovered another *Mezobromelia* in northeastern Peru in the mist forest at the Rio Sonche, between Chachapoyas and Mendoza (Dptm. Amazonas), at an altitude between 2000 and 2400 m, mostly epiphytic. Rauh described this beautiful species in honour of the famous German morphologist Wilhelm Troll as *Mezobromelia trollii,* but he overlooked the fact that this species had already been collected in the same locality by Paul Hutchison and Wright in 1964 and described by L.B. Smith in 1966 as *Tillandsia hutchisonii.* W. Weber, however, stated that it was not a Tillandsia but a *Mezobromelia* identical with *M. trollii.* So he made the new combination *M. hutchisonii* W. Weber & L.B. Smith.

Mezobromelia hutchisonii has a large rosette (fig. 14) up to 2.5 m tall, with an erect, laxly pyramidal bi- to tri- (even quadri-) pinnate inflorescences. The rachis of the inflorescence branches and the spikes are bright carmine red and more or less flexuous. The distichously arranged spikes are all secund downward and have up to 6 laxly and distichously arranged, sessile, divergent flowers up to 5 cm long. Floral bracts are shorter than the sepals, ecarinate, 2 cm long, pale yellow-red striped, even glabrous. Sepals, pale yellow to white, obtuse, ecarinate, connate for 2 mm. Petals, pale yellow, ligulate, up to 5 cm long, for more than half conglutinated above the base, with 2 dentate ligules (fig. 9 III); the free lobes

at anthesis recurved (fig. 9 I). Stamens shorter than the petals but visible at anthesis; their filaments adnate for 2 cm with the petals (fig. 9, III); style surpassing the anthers.

Mezobromelia hutchisonii is related to *M. fulgens* from northern Ecuador.

The distribution area of the genus *Mezobromelia* currently extends from central Colombia down to northern Peru.

Key to the Four Known *Mezobromelia* Species

1. Flowering plants up to 50 cm tall. Inflorescence bipinnate. Spikes densely ellipsoid, horizontally spreading; the basal ones surpassed by the bright red primary bracts. Flowers spirally arranged.
   Mezobromelia bicolor L.B. Smith (central Colombia to N.E. Ecuador)

— Flowering plants more than 50 cm tall, up to 3 m. Inflorescences mostly tri-to quadripinnate. Spikes secund *2*

2. Spikes +/– dense with a nearly straight rachis. Floral bracts longer than the sepals, at the base carmine red, pale yellow in the upper half
   Mezobromelia lyman-smithii Rauh & Barthlott (west central Ecuador)

— Spikes lax with a strongly geniculate rachis *3*

3. Floral bracts and primary bracts dark purple-red. Primary branches up to 20 cm long, mostly curved down
   Mezobromelia fulgens L.B. Smith (southern Ecuador)

— Floral bracts pale yellow, red striped; primary bracts carmine red; primary branches straight, divergent; the basal ones up to 40 cm long
   Mezobromelia hutchisonii (L.B. Smith) W. Weber & L.B. Smith (= *M. trollii* Rauh) (northern Peru)

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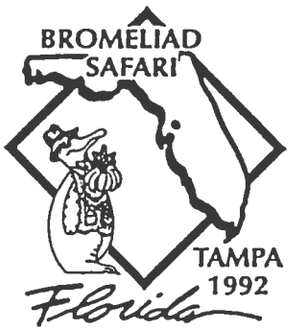
Heidelberg, Federal Republic of Germany



BROMELIAD SAFARI

10TH WORLD CONFERENCE
JUNE 11 - 14, 1992
TAMPA, FLORIDA

Dear BSI Members: 1 November 1991

Happy New Year from the Bromeliad Guild of Tampa Bay! We want this to be your happiest year ever so pack up your Safari outfit and join us for the big hunt!

Early registration for the 1992 World Bromeliad Conference was a great success with 369 enthusiasts signed up. Why not make your 1992 resolution to attend? Join the 369 on June 11–14 at Saddlebrook Golf & Tennis Resort for four days and three nights of bromeliad saturation. Take time to attend the many varied and informative seminars about bromeliad culture, greenhouse management, growing under lights, artistic arranging, and plant selection for hybridizing.

Perhaps you have always dreamed of attending a World Bromeliad Conference and have not been able to do so. The 1992 conference committee has worked hard to obtain the best room rates and amenities possible to give you as much value for your registration dollars as possible.

Included in your registration is a poolside buffet for a Safari send-off on Thursday night and a Safari celebration banquet on Saturday night. Your Safari badge will admit you to the seminars, judged plant show, sales areas, Honorary Trustees Tea and Crumpets, and the bus tours to selected gardens and homes. We have raised over $6,000 to help defray the cost of this conference. We want to make this conference as enjoyable and as affordable to as many people as possible.

The Florida Council of Bromeliad Socities welcomes everyone to this conference. Its representatives are giving many hours of hard work in making preparations. The Council is providing a free rare plant seedling to each registrant who is registered as a guest at Saddlebrook.

Regular adult registration is $120.00 per person. Make your check payable to BGTB World Conference and mail it to Mrs. Gwen Carnegie, Registrar, 1734 Magnolia Road, Belleair, FL 34616; telephone 813-584-7749. Detailed information about the resort and transportation is provided in the conference ad on page 38. You may reserve your room by using a credit card and payment will not be due until the conference. If you must cancel your registration because of an emergency you may do so up to 48 hours before the conference opens.

Please call me if you have any special needs or questions.

Tom Wolfe, General Chairman
5211 Lake LeClaire, Rd., Lutz, FL 33549, 813-961-1475

Vice-President of The Bromeliad Society, Incorporated

Bill Frazel

As an officer of this society and corporation I have an obligation to the members to carry out their wishes. It is important that members know that the Board of Directors is there to serve them. We cannot do our work without their support. We need input from the members on a variety of matters. As a member, it is up to you to help the board in its endeavors and to suggest fields or directions the BSI should take.

My duties are spelled out in the bylaws: to preside at meetings in the absence of the president, to chair the World Bromeliad Conference Committee, and to perform such other duties as may be required.

I would like to give you a little information about my main job, the World Conference Committee. World Bromeliad Conferences are sponsored by an affiliated society and the BSI. Other societies sometimes share the work.

If an affiliate wants to sponsor a world conference it first makes a formal proposal to the WBC Committee. The chairman then acts as liaison between that society and the BSI board. I, as chairman, must see that they have the financial and physical capabilities to put on such a conference. If there are no foreseen problems, I will recommend approval to the board.

At each conference I am responsible for setting up a BSI information booth. We did this with great success at the Houston 1990 conference where we not only had the opportunity to meet and talk with many members, but also to offer various publications for sale. We hope to have a bigger and better facility at the Tampa 1992 conference. That will be the place for you to talk directly with board members and to offer your ideas and recommendations.

12500 S.W. 12th Street
Davie, Florida 33325

Pollen Preservation; Or, How To Build Your Own Bromeliad

Don Beadle

Early in collecting and raising billbergias it seemed reasonable to me that most of the hybrid Bills were from marriages of convenience and occurred when bloom periods naturally coincided in the hybridizer's greenhouse. My observations and records of bloom period over several years have confirmed this most of the time.

My early efforts were limited to crossing and reverse-crossing whatever was ready each morning. This process resulted in a lot of cousins that carried strong family resemblances, but few beauty contest winners. Bills seem to bloom in an orderly and predictable fashion throughout the year with few in bloom in August or September and with the majority in bloom December through March.

The hybrids seem more erratic and variable. However, Claude Ward's Muriel Waterman is usually blooming for the annual flower show while most of my clones are bloomed out two to three weeks earlier. The desire to cross Muriel Waterman as a pollen plant to one of the late spring bloomers resulted in my reading up on pollen preservation.

That didn't take long. The only references I found said it wouldn't work. I therefore put on my bifocals and began collecting ripe pollen in zip-loc plastic bags labelled with the donor plant's identity and date. The bags were stored in a corner of the refrigerator. Within a few days, mildew or mold had destroyed most of the materials so I moved the bags up to the freezer.

This apparently worked fine because the mother Bills never suspected they were being artifically impregnated and placidly accepted the chilly pollen. There seemed to be no problem with obtaining crosses with pollen up to 90 days old. The acceptance rate seemed to drop off after 60 days, but crosses have been made successfully with pollen frozen for 18 months.

If any unusual genetic deficiency or weakness occurred in the hybrids from these crosses, it has not yet become apparent. It also seemed to make no difference whether the pollen was allowed to thaw out first.

Frozen pollen seems to become dry, fine and hard to handle with toothpicks, pencil tips or other solid pollinating tools. I've regularly used a small artist's brush for years with no trouble. In fact, some of my hybrids have incontestably demonstrated that I've transferred a little too much pollen. On these rare

and embarrassing occasions, the value of thorough record keeping is obvious. One at least knows where to start looking for the papa plant's proper identity.

Species Bill pollen is apparently stronger than the more exotic hybrids and is viable over a long period of time. I've had great difficulty setting seed on Bills like Fascinator, 'Manda's Othello', Fantasia, Muriel Waterman, Gerda, etc. In contrast, *pyramidalis, nutans* and similar Bills are willing to mate with almost anything.

Repeated reference to the ease of hybridizing Bills is made in most of the bromeliad literature. My records indicate I get seed to set in about 20 percent of my attempts and when I attempt selfing, my success rate drops to under 10 percent (even dealing with species Bills) and, believe me, I try hard. I'll concede that the private parts are perhaps a bit handier on Bills, but they are as delicate, stubborn, difficult and cranky as any of the other genera.

Well, now that you know how to preserve pollen, go out and build your own bromeliad!

Reprinted from Star to Star *newsletter, 1983*
Corpus Christi, TX
with the author's corrections

Mr. Beadle has compiled the BSI (tentative) checklist of all known cultivar and grex names for bromeliads. It is an invaluable 249-page reference book for collectors, hybridizers, newsletter editors, and bromeliad show classification chairmen. By using this book you can be pretty certain of cultivar and grex names and how to spell them. Order from: Don Beadle, P.O. Box 81464, Corpus Christi, TX 78468-1464. Make checks payable to BSI.

Prices:

United States 3rd class	$20.00
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Regional Reflections

Heating The Small Greenhouse

Carol M. Johnson

Back in the early sixties I finally got my first greenhouse, a Lord and Burnham glass house, 14 x 26 feet, made of redwood and supported by steel pipes. Wow! Heaven! After all those years of gardening outdoors and losing the battle with cold and insects, all my problems were in the past. Oh, yeah? I was so dumb I thought there was no need for heat in the greenhouse—the plants would be covered and that was all they would need. Wrong. It got colder in the glass house than outdoors.

Since that time there have been many small greenhouses and then some large ones. Forget the large ones. Most bromeliad hobby growers start by growing their plants outdoors (in Florida), in a pool or patio area and then bringing them inside for the cold weather. After a couple of years, the putting and taking becomes tiresome and they build a small greenhouse and their education continues. Now the greenhouse must be covered in winter and some form of heat provided for the cold spells. If the new greenhouse has a flat roof and that roof is covered with poly, rain water collects and if unrelieved, its weight will crush the structure.

The small greenhouse grower seemingly does everything according to Murphy's Law—the first time. Mostly, during the winter months the greenhouse is unbearably hot, but when the sun goes down and the temperature drops, then the cover becomes justified.

Following are my heating experiences over the years for the small greenhouse:

For the glass house. My first purchase was an Aladdin kerosene heater. The next winter I bought another since one was not enough. At that time the heaters were of the kind with a round wick that mostly produced more smoke than heat.

Screen rooms. If there is a screen room attached to the house and it is covered in winter, the heating problem is usually less complicated than in a free-standing structure. At least on one side the heat from the house extends into the screen room and is also a shelter from the cold winds. It is possible to use electric heaters in this situation since the extension cord will not be so long that the current is dissipated before reaching the heater.

Fiberglass pitched roof. Our third greenhouse was a 24 x 60 wood structure, concrete base and fiberglass roof. In that house, since it was covered, we installed a Modine gas heater with thermostatic control. We covered the sides with poly in winter, but set the thermostat and were able to sleep at night.

In #4 we made all the mistakes. It was another 24 x 60, but with a flat roof covered with shade cloth in summer and poly in winter. Water collected in great pools and unless relieved, the roof came crashing down. Just inside the door was an old broom handle to which was fastened an ice pick. With flashlight in one hand and ice pick in the other, many miserable hours were spent poking holes in the poly so the rain water could drain. In this greenhouse we used a kerosene torpedo type heater with an electric blower. This type of heater puts out a tremendous amount of heat (and uses a lot of fuel) but can set fire to the greenhouse in a hurry if it is placed too close to wood members or dried plant material. This type heater also will use up the oxygen in a tightly closed area and this causes the heater to go out. Fumes (and smoke) from kerosene heaters often promote premature blooming of bromeliads. Do not use a torpedo type heater in a house smaller than 20–40 feet or equivalent. In one cold night I fried nearly all the plants in my garden room.

Auxiliary heat. We now heat our greenhouses with propane heaters, but we also have a fleet of stand-by radiant kerosene heaters just in case of power failure. These heaters are a far cry from the Aladdin wick type. They have mantles of fiber glass instead of cloth and these mantles turn blue from the flames and produce much heat. It is possible to purchase this type of heater with blower fans, but then you would again be without heat if the power fails. It takes about 2/3 gallon of kerosene to fill each heater, but that keeps it burning for nearly eleven hours.

Water. This is one method of heating which we have never tried. Many growers use their sprinkler systems to keep temperatures above or just at freezing. Florida fern growers have their sprinklers going continuously during freezes, and you have no doubt seen pictures of the resulting mounds of ice. We have not used this method for a couple of reasons. One, we pump our own water, which puts us at the mercy of the electric power supply, and two, I want to keep my bromeliads pretty and saleable, not just alive. I really believe it is not the best way to go from central Florida north.

My recommendation for the small greenhouse is the radiant kerosene heater. Initial cost is under $100, operation is efficient and economical, the heater is small enough to store in the warm months and is easily moved from one area to another.

Finally, before installing your heating system, buy a good, reliable thermometer and hang it in the coldest spot in the greenhouse. It will be the "horse's mouth" when it comes time to turn on the heat.

Longwood, Florida
Reprinted from Florida Council of Bromeliad Societies
Newsletter, *November 1990*

Honorary Trustees of the Bromeliad Society, Incorporated

The Board of Directors at its 1991 meeting in New Orleans learned again that much of the history of The Bromeliad Society, Inc. is not commonly known even to directors. An example is the honorary trustees: who they are, why they were elected and when. We were reminded that the names of two men who made significant contributions to the society and to bromeliad culture were never, so it appears, proposed for the honor and office of honorary trustee. The board then, acting on the motion of a member, elected Charles A. Wiley and Ed Hummel honorary trustees. A resumé of Mr. Wiley's contributions appeared in the last issue. We are trying to obtain information about Mr. Hummel, whose many hybrids are well-known. We would be grateful if those who knew him would send biographical and bromeliad-related information about him to the editor.

Another decision was to clarify the status of honorary trustees when they die. The question came up because the *Journal,* has listed the names of the living honorary trustees only. Surely it was not the intent of the 1951 board to restrict the honor to the living, nor was that the intent of the 1990 board when it adopted the revised bylaws. The solution was to direct the editor to publish the names of all honorary trustees.

There just is not enough space in every issue of the *Journal* to carry all of the names so the least we can do is to print a full list in this issue and annually after this, and to continue to list the names of the living honorary trustees in each issue. We hope that this will be a satisfactory compromise.

To continue this exposition one more step, you will find below an extract from the bylaws concerning honorary trustees. If you would like to nominate someone here are the instructions. The Board of Directors will act on recommendations of the selection committee during its next meeting in 1992 at the world conference in Tampa.—TUL

Extract from The Bromeliad Society, Inc. Bylaws and Standing Rules, 1990:

ARTICLE VIII
Honorary Trustees

A. Definition. The classification of honorary trustee is established to recognize individuals whose distinguished contributions have advanced the purposes of the society. Honorary trustees shall serve without duty, liability, or responsibility. They shall receive the *Journal* (during their lifetime) and be exempt from paying dues.

B. Method of selection. Any voting member may present written nominations [at least 60 days before the next annual meeting] to the president who with the other officers shall comprise a selection committee. That committee shall report its recommendations annually to the board. A favorable vote by three-fourths of the board members present shall be required to elect such nominees.

C. Notification and records. The president shall notify the individuals of their election, inform them of their privileges and provide them with a certificate attesting to their election. The secretary shall maintain a separate and permanent record of all such elections and pertinent correspondence.

Our Honorary Trustees

The following list was compiled from the *Bulletin* and *Journal* beginning with the first mention of honorary trustees in volume 1, no. 1 (January-February 1951). Omissions, changes, or errors should be reported promptly to the editor.

Living honorary trustees:

Name	Year elected	*Journal* reference relating to election
Walter Richter	1960	v. 10:2
Lyman B. Smith	1960	v. 10:2
A.B. Graf	1962	v. 12:2
Harold Martin	1962	v. 12:2
William Morris	1962	v. 12:2
Marcel Lecoufle	1968	v. 18:74
Werner Rauh	1969	v. 19:26
Olwen Ferris	1970	v. 20:122
Robert W. Read	1977	v. 27:194
Roberto Burle Marx	1982	v. 32:3–11
Elmer J. Lorenz	1985	v. 35:246
Roberto Kautsky	1986	v. 36:191, 195
Grace M. Goode	1987	v. 37:191, 195, 198

Deceased honorary trustees:

Name	Year elected	*Date of* death	*Journal* references relating to election and death
Alberto Castellanos	1951	5 September 1968	1:3; 9.125
Jules Chantrier	1951	‡	1:3
Charles Chevalier	1951	‡	1:3
David Fairchild	1951	6 August 1954	1:3
F.C. Hoehne	1951	‡	1:3
Charles G. Hodgson	1951	1969	1:3; 19:53
Charles K. Lankester	1951	8 July 1969	1:3; 19:127; 20:9–10
Muriel Waterman	1951	‡	1:3
Raulino Reitz	1960	20 November 1990	10:2; 41:58
Adda Abendroth	1962	‡	12:2
Mulford B. Foster	1962	28 August 1978	12:2; 28:243–244
W.B. Charley	1963	1976	13:74; 26-123
Richard Oeser	1963	‡	13:2
Luis Ariza Julia	1970	24 September 1989	20:98; 40:10
Robert G. Wilson	1970	8 April 1989	20:98
Julien Marnier-Lapostolle	1970	18 February 1976	20:122; 26:93
David Barry, Jr.	1972	1 February 1978	22:74; 28:115–116
William Whitmore Goodale Moir	1980	21 February 1985	30:98; 35:158
Victoria Padilla	1982	16 September 1986	32:2; 37:3–7
William Weber	1984	30 July 1986	36:264–265
Racine Sarasy Foster	1985	21 March 1991	35:191; 41:109
Ed. Hummel	1991	29 November 1979	30:23
Charles A. Wiley	1991	30 May 1980	30:227–228

‡ *unable to determine*

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 _____

NOTICE OF ANNUAL GENERAL MEETING OF THE BROMELIAD SOCIETY, INC. AND THE BOARD OF DIRECTORS

The annual meeting of the voting members will be held in Tampa, Florida, on 10 June 1992. It will be followed immediately by the annual meeting of the Board of Directors. The exact location and times of the meetings will be announced in the next issue of the *Journal*. Any proposed business requiring a vote by either body must be submitted in writing to the president not less than 60 days before the meetings.

BROMELIAD SAFARI

10TH WORLD CONFERENCE
JUNE 11 - 14, 1992
TAMPA, FLORIDA

FEATURED SPEAKER:
Harry E. Luther, Director
Mulford B. Foster Bromeliad Identification Center,
Marie Selby Botanical Gardens, Sarasota, Florida

CONFERENCE HIGHLIGHTS:

* JUDGED PLANT SHOW * SEMINARS * POOLSIDE PARTY * PLANT RAFFLES *
* PLANT SALES BY FOREIGN & DOMESTIC GROWERS * CRYPTANTHUS AUCTION *
* HOME GARDEN TOURS * OUTSTANDING EXPERT SPEAKERS * DISPLAYS *
* RARE PLANT AUCTION * HONORARY TRUSTEES * TEA & CRUMPETS * EXHIBTS *
* EDUCATION * RECREATION * FUN *

* LOCATION -- SADDLEBROOK GOLF & TENNIS RESORT

REGISTRATION DETAILS:

Adult Regular ——$120.00--- per person (Nov. 2, 1991 to April 1, 1992)
Adult Late ————$145.00---- per person (after April 1, 1992)
Children 16 & under -$ 45.00---- per person without bus tours (no deadline)
" " " $ 60.00- " " to include bus tours

USE REGISTRATION FORM BELOW–
MAKE CHECKS PAYABLE TO: BGTB WORLD CONFERENCE
MAIL TO: Mrs. Gwen Carnegie, Registrar
1734 Magnolia Rd., Belleair, Fl 34616
Phone: (813) 584-7749

HOTEL RESERVATIONS:
Saddlebrook Golf & Tennis Resort
1000 Saddlebrook Way,
Wesley Chapel, FL 33543-4499
Phone: 1-800-729-8383 -or-
(813) 973-1111
Fax: 813-973-1312
Conference Rates to April1,1992
Delux guest room——$70.00
(Single, or double occup.)
1-Bedroom Suite——$85.00
(Single or double occup.)
2-Bedroom Suite——$120.00
(Single, double, triple or quad.)

Specify Brom. Conf. rates!

AIRLINES: 40% Discount - Special Fares
DELTA AIRLINES
1-800-241-6760
File No. L0573

AUTOMOBILE RENTAL:
Special Low daily & weekly rates-
BUDGET RENTAL 1-800-241-6760
Rate Code #VARB/BROM
Cars avail. at Saddlebrook location.

REGISTRATION FORM:

TENTH WORLD BROMELIAD CONFERENCE

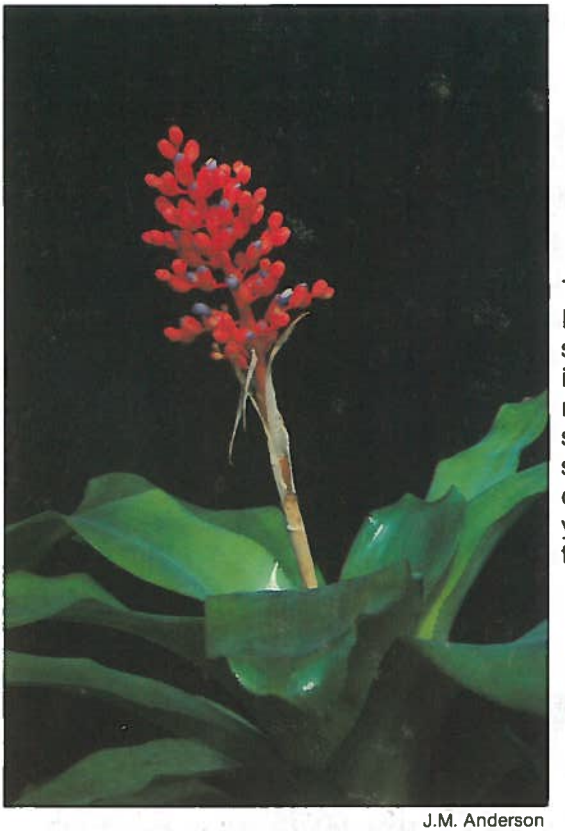
Please make checks payable to: BGTB World Bromeliad Conference
Mail to: Mrs. Gwen Carnegie, Registrar
1734 Magnolia Road
Belleair, FL 34616 Ph.(813)584 7749

Name:_____ Please list any Bromeliad Clubs to which you belong:
Address:_____ _____
City_____ State_____ Zip____ _____

* Direct hotel registrations to Saddlebrook and indicate that you are attending the World Bromeliad Conference to qualify for special rates and a rare plant seedling.

The Bromeliad Society, Inc.

The purpose of this nonprofit corporation is to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world. You are invited to join.



J.M. Anderson

This is *Aechmea miniata.* Harry Luther's description on page 8 specifies that the inflorescence is "branched nearly to its apex" resulting in a globose or globe-shape. His comparison of this species with *A. fulgens,* shown on the front cover, may reassure you or cause you to write new tags.

Calendar of Shows

14–22 March	The New York Flower Show, "Discovery '92," will be held at Pier 92, 55th St. and the Hudson River, New York City. Weekday hours: 10 a.m. to 8 p.m.; weekend hours: 10 a.m. to 6 p.m. Benefit preview March 13, 1992. The New York Bromeliad Society will be an important participant. For advanced ticket sales or information call or write to: The New York Flower Show, 128 W. 58th St., New York, NY 10019; 212-757-0915; Theresa Begley, Secretary, NY Bromeliad Society, 130 Vanderbilt Ave., Staten Island, NY 10304.
1–3 May 1992	Bromeliad Society of Mobile 15th Annual Show and Sale. Bel Air Mall, intersection of Airport Blvd. and I-65, Mobile, Alabama. Friday 1 p.m. to 9 p.m.; Saturday, 9 a.m. to 9 p.m.; Sunday, 1 p.m. to 6 p.m. F.D. Armstrong, P.O. Box 746, Daphne, AL 36526.
4 June-7 September 1992	"Epiphytic Jewels; Canopy Dwellers of the Tropical Rain Forest," by Ms. Bonnie Arant Ertelt. Museum of Botany and the Arts, The Marie Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida. This show has been scheduled to coincide with the 1992 World Bromeliad Conference.
11–14 June 1992	1992 World Bromeliad Conference sponsored by The Bromeliad Guild of Tampa Bay, Inc., The Florida Council of Bromeliad Societies, Inc., and The Bromeliad Society, Inc.. Saddlebrook, Tampa, Florida. Tom Wolfe, General Chairman, 813-961-1475.

Please send 1992 show and related notices to reach the editor at least 60 days before publication date of the *Journal.* The deadline for May–June 1992 is 1 March 1992.