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Cover photographs. Front: *Werauhia millennia*, a new species for the new millennium. A typical member of *Werauhia* sect. *Jutleya*, the new species shows the classic floral morphology of the genus, especially the cupulate-type stigma morphology.
Text begins on page 3. Photo by Jason Grant. **Back:** *Aechmea mertensii*. Photograph by Marcel LeCoufle.

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Werauhia millennia, a New Species for the New Millennium

Jason R. Grant[1] **Photography by the Author**

Abstract. In celebration of the new millennium, the advent of the 21st century, a new species is described from central Panama as *Werauhia millennia* J. R. Grant. A description of the pollen is the first for a species definitively attributed to the genus. Photos of *Werauhia burgeri, W. greenbergii,* and *W. notata* are also presented.

***Werauhia millennia* J.R. Grant, sp. nov.** (figures 1-3, cover)

TYPE. Panama. COCLÉ: Parque Nacional Omar Torrijos, 7.1 km from El Copé, 8° 40' 101" N, 80° 35' 546" W, ~700 m, 30 December 1996, Grant *96-02697 & Rundell* (holotype US; isotype SEL).

A *W. luis-gomezi* (Utley) J.R. Grant cui affinis, sed foliis verdis brevioribus [(12)-23–27 vs. 33.6–43.2 cm], bracteis primariis brevioribus (10–36 vs. 50–82 mm), et bracteis florigeris verdis brevioribus (4–9 vs. 15–17 mm) differt.

Plants acaulescent to very short caulescent, found terrestrial, but likely typically epiphytic, to 66 cm in flower. **Leaves** nearly uniform in a spreading rosette, coriaceous, (12)–23–27 cm long; **sheaths** elliptic, (4.5)-6–8 x (4)-5-6 cm, solid dark brown to merging into vertical dark brown striations that remain when dried, blackish on the lower surface; **blades** triangular, acuminate to a sharp point, (8)-17–19 x 4.5–5 cm at the base, 3.0–3.5 cm at the middle, entirely green, that is, there are no crossbands, stripes or mottling of any kind, the only coloration is the thin red margin and apex. **Scape** erect to curved-erect, 41–48 cm long, 3–8 mm in diameter; **scape bracts** remote. **Inflorescence** erect, cylindric, 8–13 cm long, 4.0–4.5 cm in width measuring from the apex of one sepal to the apex of one on the other side of the inflorescence; **primary bracts** 10–35 mm long, the length of each consecutively shorter towards the apex of the inflorescence, green with vertical pinkish-maroon striations. **Flowers** not pedicellate. **Primary bracts** triangular, apically acute, 10–36 mm long x 15–28 mm wide at its broadest at the base, subtending copious mucilage around the flower, drying during anthesis. **Floral bracts** acute, slightly carinate, 4–9 x 4–9 mm. **Sepals** ovate-elliptic with a rounded apex, coriaceous, 16–17 x 11–13 mm fresh [9–14 x 9–10 mm dried], green with a thin hyaline edge, to suffused with pinkish-maroon vertical striations. **Petals** elliptic to slightly obovate, apically retuse, 27–35 mm long x 5 mm wide at base to 15–17 mm wide at the broadest

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Figure 1.
Young inflorescence of *Werauhia millennia*.

Figure 2. Flower of *Werauhia millennia*.

Figure 3. Rosette of *Werauhia millennia*. Leaves are entirely green with thin red margin.

Figure 4. *Werauhia burgeri (Grant 96-02427)*. Panama. Chiriqui Prov., Parque Nacional La Amistad.

just above the middle, pale green, yet the lobes so dotted with minute pink-maroon dots to give the petals an overall pale copperish tint; **petal appendages** acute, apiculate, 7–9 x 2.1–2.5 mm, the apical 3–4 mm free and extending perpendicular to the attached portion to cover part of the ovary. **Stamens** 32-34 x 1.0–1.2 mm; **filaments** 28 mm long; **anthers** 6 mm long; **pollen** yellow, described further below. **Pistil** 33 mm long; **ovary** trigonal, 3–5 x 3–4 mm wide at base at anthesis, light green; style 26–27 mm long; stigma 0.5–1.0 mm long. Measurements are all based on dried material except for the flowers which are described from liquid-preserved material.

Relationships. *Werauhia millennia* belongs to *Werauhia* sect. *Jutleya* based on its compound inflorescence where a primary bract subtends pair of flowers that represent a reduced lateral branch (Grant 1995a, 1995b, 1996, 1997). *Werauhia millennia* clearly approaches *W. luis-gomezii* of Costa Rica, and indeed the measurements of the two largely overlap. However, *W. millennia* can be differentiated by its shorter, entirely green leaves [(12)–23-27 vs. 33.6–43.2 cm long], shorter primary bracts (10–36 vs. 50–82 mm long), and shorter, bright green floral bracts (4–9 vs. 15–17 mm long) that are distinctly shorter than the sepals. *Werauhia millennia* also appears to be related to *W. balanophora* (Mez) J.R. Grant, *W. nephrolepis* (L.B. Sm. & Pittendr.) J.R. Grant and *W. lyman-smithii* (Utley) J.R. Grant. Since the type material of *W. luis-gomezii* is unavailable for examination, comparison is based on its description and illustration in Utley (1983: 50).

Phenology. Curiously, in every case examined, the left (to the plant) flower opened first. Several days to perhaps weeks afterwards, the right flower would open. The flowers are nocturnal, and emit a pleasantly spicy fragrance somewhere between the scent of freshly cut ginger root and garlic. Plants were collected in flower in late December.

Figure 5. Parque Nacional Omar Torrijos, Coclé Province, Panama, habitat of *Werauhia millennia*.

Habitat and phenology. *Werauhia millennia* occurs in the premontane rainforest at the eastern end of the Cordillera Central in Panama. Other bromeliads collected at the type locality include *Guzmania calamifolia* var. *rosacea* (2700), *G. donnellsmithii* (2699), *G. sprucei* (2698), *Tillandsia insignis* (2692), and *Werauhia kupperiana* (2696).

Palynology. Pollen from dried flowers was mounted on an aluminum peg, sputter-coated for 4-5 minutes with an ISI PS-2 coating unit, then examined under an ISI 40 SEM microscope at the Department of Geology, University of Alaska - Fairbanks.

The pollen can be characterized as elliptical, 66–68 x 25–27 mm, monocolpate, with reticulate exine sculpturing. The aperture is monocolpate [terminology following Moore et al. (1991)], or sulcate [terminology following Halbritter (1992)], i.e. a single colpus or sulcus (furrow) extends linearly from one pole to the other. The colpus is usually tightly closed, but is often found fully opened. The sculpturing and surface texture of the exine is that of a semitectate reticulate pattern. The lumina are largest at the middle of the dorsal (anticopal) region, and are distinctly smaller at the polar ends. However, to the layman, each pollen grain may look convincingly like a piece of Kellogg's brand 'Smacks' cereal!

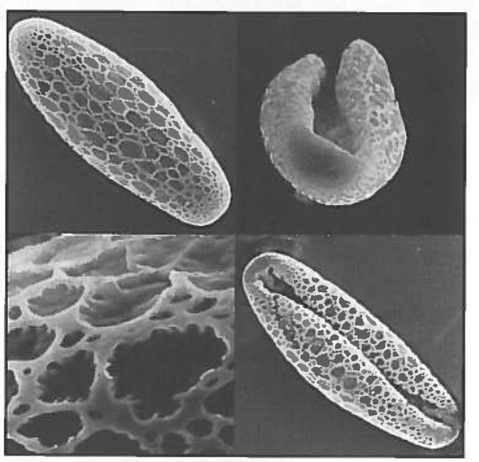

Figure 6. Pollen of *Werauhia millennia*. Clockwise from upper left: a) equatorial, dorsal (anticopal) view; b) polar view illustrating single aperture; c) equatorial, ventral (copal) view of showing entire single aperture; d) surface detail of reticulate exine pattern.

Pollen of *Werauhia millennia* appear similar in morphology to that of *Vriesea altodaserrae* (Ehler & Schill 1973: 15, Fig. 11), *V. saundersii* (Ehler &

Figure 7. *Werauhia notata* (Grant 97-2835). Panama. Chiriqui Prov., Reserva Forestal Fortuna.

Figure 8. *Werauhia greenbergii* (Grant 97-02814). Panama. Chiriqui Prov. Reserva Forestal Fortuna.

Schill 1973: 15, Fig. 8), and perhaps *Vriesea amazonica* (Halbritter 1992: 200, fig. 23). Nevertheless, it also appears quite distinctive, and with the eventual characterization of pollen from more species of the genus, may represent another useful character to circumscribe the genus *Werauhia* in the same manner as Till et al. (1997) have defined *Glomeropitcairnia*.

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Neuchâtel, Switzerland

Vegetative Propagation in Bromeliaceae

George Sidney Baracho[1] **Photograph by the Author**

The basic features of vegetative propagation in Bromeliaceae are presented here. They are primarily based upon personal observations and the data intended to provide the reader with food for thought. Some of the issues dealt with here may cause some consternation, but they are regarded as reflections (personal or otherwise) based on the references that were consulted. Many new points of view should arise from this discussion.

The mechanism for sexual reproduction is available to all higher plants in order to perpetuate species. Within this group, many perennials (those that live for three years or more, including bromeliads, with rare exceptions) can reproduce asexually as well as sexually. According to Richards (1986) and Grant (1989), both mechanisms require greater nutrient consumption by the plants since reproduction demands a greater physiological effort. Theoretically, the offspring will be fertile and will give rise to new plants.

Asexual reproduction is thought to be nature's way of giving the plant an alternative to sterility. Vegetative propagation is the most common form of asexual reproduction in aquatic plants since the aquatic habitat is more uniform than the terrestrial habitat, and here, propagule production is more guaranteed than seed production (Grant, 1989). Aquatic habitats are more uniform because there are fewer barriers and no natural or geomorphologic irregularities, which tend to interrupt or restrict propagule dispersal and, consequently, the establishment of new plant colonies. Therefore, in water, multiplication is faster because physical factors (when these occur) bring about the fragmentation of an individual produced vegetatively. This is much less frequent in land plants. In the aquatic habitat, propagules are naturally, or more easily, detached from the mother plant; they become independent and migrate to form new populations. By comparison, on land, geomorphologic heterogeneity is much more common, which often makes it impossible for the propagules to colonize new areas, even if they become separated from the mother plant.

In Bromeliaceae, vegetative reproduction most often results in the following types of propagules: rhizomes, stolons, and offsets. Rhizomes, or root-like stems, are adapted to living underground and serve to protect the plant from the harsh environment. Examples of bromeliads initiating rhizomes are *Aechmea aquilega*, *A. blanchetiana, Hohenbergia catingae, H. ramageana and Portea leptantha*). Stolons grow on the soil surface or underground (e.g., *Cryptanthus burle-marxii*). Offshoots come from buds that are usually found in the leaf axils (e.g., *Cryptanthus zonatus, C. bahianus, C. pickelii*). Variations in propagule size and type are also common and occur in many other bromeliad species (Smith & Downs, 1977, 1979).

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It is important to note that many plants use both reproductive strategies in nature. Some bromeliads may produce both flowers to be fertilized and propagules at the same time. Therefore, though pollinators may be abundant and cross fertilization theoretically possible, a genetic irregularity may inhibit sexual reproduction, which is then compensated for by asexual reproduction. Several bromeliads found growing on the highest mountain top of northeastern Brazil (Pico do Jabre, Maturéia municipality, Paraiba - 1,197 m) are good examples of this. Large populations of *Aechmea cf. aquilega* and other bromeliads are found here. The flowers of this species are pollinated by ornithophily (pollination by birds), to use Faegri & Van der Pijl's terminology(1979). Some plants were observed that reproduce by both mechanisms. Hummingbirds were seen in the area visiting the flowers, thus indicating that cross fertilization probably was taking place. If sexual reproduction is not successful, the production of propagules will at least guarantee the survival of this bromeliad population.

Figure 9. The formation of *Hohenbergia catingae* populations in the *caatinga* of Pernambuco depends on vegetative propagation and, to a lesser extent, on sexual reproduction.

When vegetative propagation is restricted, the plant compensates by producing a large number of seeds, not all of which are viable physiologically. But if the plant is actively reproducing vegetatively, seed production is often reduced (Grant, 1989). This relationship between sexual and asexual reproduction is very common in nature. In Pequeira municipality, Pernambuco State, populations of *Hohenbergia catingae* (*sensu lato*) form colonies using both types of reproduction. Closer observation should reveal which type of

reproduction occurs more frequently as well as the potential advantages and disadvantages for this species. At first glance, plants producing floral scapes are found in smaller numbers that those in the vegetative state, within the same population.

Historically, it seems that vegetative propagation was widely used by ancient peoples such as on the banks of the Nile, where the Egyptians took advantage of the fertile mud deposited by the river as the waters receded. Today Horticulturists tend to prize vegetative reproduction because it is thought that the main advantage of asexual reproduction is to maintain, through the production of offshoots, the same morphological traits as the mother plant. It is important to remember that, as a general rule, this happens only at the genotype level, and only sometimes in relation to phenotypic traits that are constantly changing. However, if the grower's main goal is to produce offspring with the same phenotypic traits as the mother plant (flower color or leaf variegation, which may change), then reproduction by propagules is advantageous since it is easier and more economical.

Now, if we consider genotype traits (those determined by the plant's genetic code), then vegetative reproduction is not all that beneficial. If the phenotypic traits of the descendent are exactly like those of the mother plant, then the genetic material is also identical, since genotype overrules phenotype. In this case, the propagule has no genetic variability and is less capable of responding positively to habitat change. A genetically variable species has a greater chance of becoming established in a changing environment, and permits genetic "trial-and-error" in an ongoing effort to restructure genetic organization. In other words, if the genetic variability of a species is limited, its survival and evolutionary opportunities are also restricted.

It now becomes clear that the advantages of vegetative propagation are not in maintaining the outer appearance of the mother plant. This type of continuity and multiplication of the hybrid genotype (and, consequently, the phenotype) is a valuable adaptive trait in and of itself, and offers a major chance at survival.

It is worth looking at offshoot senescence, a phenomenon that we still do not understand. Just as some plants grow vegetatively for many years, with no apparent loss of vigor, others show symptoms of aging or degeneration due to a build-up of viral diseases in the cytoplasm, among other causes. Although propagule senescence is common among cultivated plants, it apparently does not occur in nature (Richards, 1986).

In sexually reproducing organisms, the offspring have their own genotype which is different from that of the parents and is free from viral diseases. During the genetic recombination process, specifically meiosis, selection of the genes that will form the zygote takes place through a "meiotic

sieve", which eliminates "sick" genes that would be passed on to the gametes (Richards, 1986). This process is called the "clean-egg effect" and gives rise to offspring that are free from viral diseases. In asexually reproducing organisms, the "clean-egg effect" does not exist; there is no intervention from sex cells and no meiosis. The result is a buildup of cytoplasmic diseases as well as other ill effects, as happens frequently with micropropagation through the meristem.

In summary, Bromeliaceae exhibit a balance between sexual and asexual reproduction, although there seems to be a trend towards the latter. Vegetative reproduction is undoubtedly a mechanism that perpetuates heterozygotic gene recombination, with several advantages, such as those of hybridization, which greatly restrict gene recombination. Through this system, a vegetative nucleus can expand until it becomes "decadent", that is, as the environment undergoes profound changes over time to which organisms must adapt. It is the price that must be paid by this opportunistic reproductive strategy, which, together with sexual reproduction, has kept the bromeliads and their associated fauna alive, as an important self ecosystem, threatened today by man's senseless destruction of the environment.

Recife, Brazil

Reprinted in part from Bromélia 4(2), June 1997

WBC Odds and Ends

Reminder about registration. Please note that no mail registrations for the world conference will be accepted after June 2, 2000. The rate on June 2 will go up to $150 and payment will be at the door. However, if you have any questions about registration after June 2, you may call Joyce Brehm at 858-277-2030.

Special items for sale. In addition to the pins, posters, publications and books already mentioned as being for sale at the conference, there will be at least two other popular items. A limited number of the ethylene pills used to induce flowering that were such a hit at the Houston conference will also be available, as will a large amount of cork bark of various sizes.

New section for terrestrials. There will be a special section for terrestrials in non-decorative, single-color containers open at the show. This is something that terrestrial growers have sought for some time.

Reaffiliation reminder. Those affiliates that have not sent copies of their bylaws and current list of officers to the Affiliate Chairman should do so immediately. A reaffiliation ceremony is planned for the conference. If you have any questions about what is needed, please contact Affiliate Chairman Gene Schmidt at genops@aol.com.

Affiliates in Action

Gene Schmidt

Eileen Killingley, newsletter editor of the Illawarra Bromeliad Society (Aus) *Newslink*, sent an e-mail recently that included a very fine tribute to Margaret and Jeff Bartley. The following is an edited version from that found in the October, 1999, edition of the *Newslink*. The Illawarra Bromeliad Society is one of our newest affiliates, and we would like to thank the Bartley's in their efforts to make that happen as well. "...We would like to pay tribute to Margaret and Jeff Bartley, who since its inception, have been the backbone of our Society. It all started for Jeff with just one bromeliad and a note in a local newspaper in January, 1992, advertising a meeting to be held to discuss the formation of a bromeliad study group/society in the Illawarra. At his daughter's suggestion, Jeff went to the meeting held under the leadership of Merv Henderson, a life-member of the Bromeliad Society of New South Wales. Merv was eager to promote the growing of bromeliads in Australia, particularly along the east coast which he felt was so well suited to their cultivation. And so it was that at the inaugural meeting that Jeff was elected President of the Society. Margaret took over as Secretary on the resignation of Peter Rieck on February, 1993, and in June of that year published the first edition of the Newslink. Along with other duties, Margaret arranged the setting up of photograph albums, history scrapbooks, exchange of newsletters; and all the little extras such as the welcoming letters to prospective members, the cards sent when people were sick or sad, and the correspondence (which she still keeps up) with members no longer able to attend meetings, and with friends she has made from all over the world with the exchange of newsletters. Margaret and Jeff's house and garden have always been open for committee meetings, workshops for new members, and photo shoots, as well as the storage of all the paraphernalia for Show/display purposes. They always seemed to have been the first to arrive and the last to leave from any event, and Margaret's attention to detail has made every event very special. Thank you both so very much for all those years you've put into the Illawarra Bromeliad Society, we're finding you both a very hard act to follow!"

The October issue of the *Bromeliadvisory*, newsletter of the Bromeliad Society of South Florida, has news of two of its members. Don Kellner was featured in a *Miami Herald* article on September 9th. Don is an expert on native plants, which fortunately for us include several members of the bromeliad family. The article emphasized Don's expertise on South Florida's ferns, but BSSF members will recall the programs he has given as well as the recent article "A Day in Fakahatchee Strand" which has appeared not only in the BSSF's *Bromeliadvisory* but in many other Florida society newsletters as well. Perhaps best of all, Don has agreed to lead members of the BSSF into the Everglades to evaluate the effect of the Evil Weevil on the native bromeliad population. That trip is tentatively planned for February or March, 2000.

Thirty-eight members and guests enjoyed the hospitality of Dr. Jeff Block when he gave a tour of his lovely garden. There were rarely seen bromeliads, some in flower, like *Werauhia kupperiana* and two huge blooming *Alcantarea imperialis* plants just showing the last of their enormous flowers. Jeff's horticulture interest is not limited to Bromeliaceae. Large specimens of rare palms were to be seen in the enclosed patio and in the garden were uncommon fruit trees, ferns, mosses, begonias, and a wide variety of stunning orchids. Two blooming Bat flower plants (*Tacca chantrieri*) were visible but were a rarely seen albino form. Jeff laid on some great refreshments and the cockatoo was very welcoming! (*The Bromeliadvisory, Vol. 42, No. 9, October, 99, Bromeliad Society of South Florida*)

The X Australian Bromeliad Conference was held in August, and attended by over 150 delegates. Pamela Koide was the guest speaker, and by all accounts did an excellent job. Congratulations go out to organizers Lyn and Bob Hudson, as well as countless others who worked to put on an outstanding conference. The conference website will remain open and continue to be updated with pictures and comments from the conference. That web site again is: **http://members.xoom.com/bromeliads10** .

The Florida Council of Bromeliad Societies' Extravaganza is a bromeliad event that is hosted by a different Florida society every year, and 1999 was the Bromeliad Guild of Tampa Bay's turn. Tom and Carol Wolfe spearheaded the work for this event, but there were so many people involved that it is too difficult to list everyone. The weather was great, and 126 people attended the Saturday night banquet and auction, with the auction raising over $2400 for the Florida Council of Bromeliad Societies

Over the past two years, the BSI Affiliated Societies Committee has been asking for help in updating BSI records dealing with local bromeliad society affiliation. I would like to thank these societies for responding and supplying information affirming their affiliation:

Bromeliad Society of New South Wales
Bromeliad Society of Australia, Inc.
Bromeliad Society of Greater Chicago
Greater Dallas/Ft. Worth Bromeliad Society
Tarrant County Bromeliad Society
Florida West Coast Bromeliad Society
Illawarra Bromeliad Society
Bromeliad Society of New Zealand
San Diego Bromeliad Society
Bromeliad Guild of Tampa Bay
Bromeliad Society of Central Florida
Central Coast NSW Bromeliad Society
South Bay Bromeliad Society
New York Bromeliad Society
Shreveport Bromeliad Society
Bromeliad Society of Japan
Caloosahatchee Bromeliad Society

We look forward to hearing from you if your society was not on the list.

Meet the WBC Artist: Stephen C. Littlefield

Kathy Risley

Artist Stephen C. Littlefield's fascination with bromeliads began in the early 1970's by means of instructional walks through the gardens of the late Dr. Morris Dexter. The unusual forms, colors and shapes of the bromeliad family challenged his prior visual interpretations of surrealism and figurative imagery. Since then he has utilized bromeliads from a variety of sources including his own collection, other collections and bromeliad shows to create drawings, commissioned etchings, and relief prints on paper and fabric. He recently finished a commissioned painting in full color that is a 5' by 28' mural of a bromeliad collection.

Art has always been a part of this Florida Native's life. He believes that drawing skills are the bedrock of visual art. Steve's current focus is on painting and printmaking. He discovered his love of printmaking as a fine arts major at the University of South Florida in Tampa. His commitment to printmaking has resulted in the design and manufacture of several large etching presses. Now established in Clearwater, Florida, he is dedicated to raising the level of awareness and knowledge of traditional printmaking techniques. He is the founding instructor of the Printmaking Program of the Fine Arts Center in Dunedin, Florida.

Steve's commingling of bromeliads with artistic talent has resulted in various awards, including first place artistic awards at the 1994 and 1996 World Bromeliad Conferences. He has been very generous with all bromeliad organizations that he has been associated with. Among other things, he designed the logo in use by the Florida West Coast Bromeliad Society, the affiliate to which he belongs, and the logo used by the Saddleback Bromeliad Society in California. He developed the linoleum block print used for the 1996 Orlandiana poster, and is currently working on the painting that served as the design for the commemorative pin for the 50th Anniversary of the BSI and the poster for the San Francisco World Conference.

Clearwater, Florida

Guzmania izkoi, a New Species from Ecuador

José M. Manzanares and Walter Till

During the month of June, 1996, PROBONA Foundation financed an expedition to the Guacamayos Cordillera in the Napo province to explore for new species of bromeliads.

The study of Bromeliaceae from Guacamayos was made possible thanks to Javier Izko, Director of the PROBONA Foundation. He proposed the idea of searching this beautiful area for new ornamental species to establish a small business in order to grow and subsequently sell plants in the cities of Quito and Guayaquil. This would provide an incentive to save the forest in the Guacamayos region as the native people there would then have economic resources from the existing forest to rely on instead of cutting the primary forest to obtain wood or convert it to pasture land. This idea is already producing positive results, and we now we look forward to achieving them in other areas of Ecuador, plans for which are already in our work schedule.

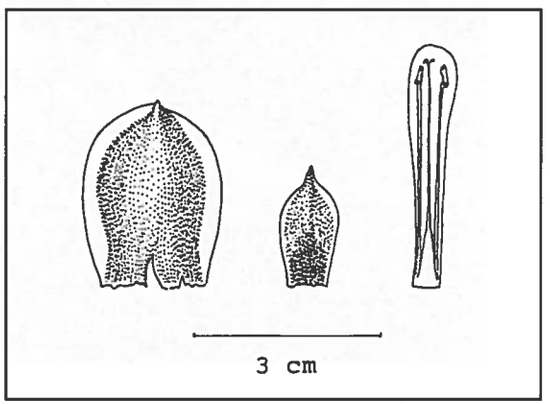
This new Guzmania was collected in the 7th day of the expedition. After a long walking trip from Tena, we arrived at a deep valley surrounded by high mountains. At this beautiful but almost inaccessible site at 1620 m., we found a small paradise for bromeliad lovers. Thousands of bromeliads were on the ground and high in the branches of the 40 m trees.

During this expedition we collected a total of 80 species belonging to the following genera: Aechmea, Catopsis, Guzmania, Mezobromelia, Pepinia, Pitcairnia, Racinaea, Ronnbergia, Tillandsia and Vriesea. Some of these species were not known to science and are now under study. One of them is proposed here as a new species.

Guzmania izkoi **J. Manzanares & W. Till, sp. nov.** (figures 10-13)

A G. *bipartita* L. B. Smith, cui similis et affinis, statura majore, scape longissimo, bracteis florigeris minoribus et sepalis majoribus differt.

Type. Ecuador. Prov. Napo: Cordillera de los Guacamayos, valley of the river Pigüi Yacu, 00°51'10" N, 77°57'20" W, 1620 m. *José M. Manzanares* 5585, 9 June 1996 (Holotype: QCNE, holotype; Isotype: SEL, WU, QCA).



S. Dalstrom after J. Manzanares

Figure 10. *Guzmania izkoi* Manzanares & W. Till: floral bract; sepal; petal, two of six stamens and pistil.

Photograph by José Manzanares

Figure 11: *Guzmania izkoi* Manzanares & W. Till in habitat.

Photograph by José Manzanares

Figure 12: Close-up of the inflorescence of *Guzmania izkoi* Manzanares & W. Till with nocturnal flowers.

Photograph by José Manzanares

Figure 13: *Guzmania bipartita* from the Guacamayos Cordillera in Napo province.

Plant an epiphyte, flowering 1.5–1.7 m tall with the inflorescence extended. Leaves rosulate, erect to spreading, 1.2–1.5 m long. **Leaf sheaths** elliptic, 22 x 11 cm, brown, densely lepidote, concolorous with blade toward sheath apex. **Leaf blade** ligulate, long acuminate, pungent, 4.2–5.5 cm wide, green, inconspicuously lepidote toward the apex, thin-coriaceous. **Scape** erect to slightly declinate, 100 x 1.3 cm, sparsely lepidote, dark brown. **Scape bracts** erect to spreading, 10–35 x 4 cm, foliaceous, totally imbricate throughout, not exposing the scape but clasping it, sheaths dark castaneous, apex green. Inflorescence erect, 27 x 12 cm, laxly bipinnate with four densely and polystichously arranged branches. **Primary bracts** ovate, acuminate, 5.5 x 6.5 cm, exceeding the sterile bases of the branches, dark castaneous with green apex. Branches with a stout, 2.5 cm long, bracteate, sterile base, slightly spreading, 8–10 x 5.5–6 cm, strobilate, densely polystichously 60- to 70- flowered. **Floral bracts** obovate, rounded and apiculate, 3 x 2.5 cm, strongly nerved at the apex, glabrous abaxially, nerved and obscurely lepidote adaxially, green with red margin. **Flowers** with a stout, 2 mm long pedicel, erect, nocturnal. Sepals elliptic to obovate, 20 x 8 mm, connate for 4–6 mm, the adaxial pair carinate, punctulate, thin coriaceous, strongly nerved and dark brown adaxially, strongly nerved at the apex and dark castaneous abaxially. **Corolla** lobes spreading. **Petals** ligulate, obtuse, basally connate for 1.8 cm, 3.5 cm long, cream.

This new species differs from the related and sympatric *Guzmania bipartita* L. B. Smith by its larger habit, longer scape, smaller floral bracts which are green with red margins, larger, strongly nerved sepals, and the nocturnal flowers with spreading corolla.

The epithet name was chosen to honor my friend, Javier Izko, Director of PROBONA.

Portraits of Bromeliaceae from the Mexican Yucatan Peninsula-I: *Hechtia schottii* Baker ex Hemsley

I. Ramirez[1], F. Chi-May, G. Carnevali, F. May-Pat & G. Chuc-Puc

This is the first of a series of articles on Bromeliaceae of the Mexican Yucatan Peninsula. This geographical area is comprised of three states (Quintana Roo, Yucatan, and Campeche), constituting the Mexican portion of the Yucatan Peninsula. The Yucatan Peninsula is located in the southernmost portion of the country, and it is famous for its Mayan ruins, "henequén" production, and beaches on the Caribbean coast (figure 14).

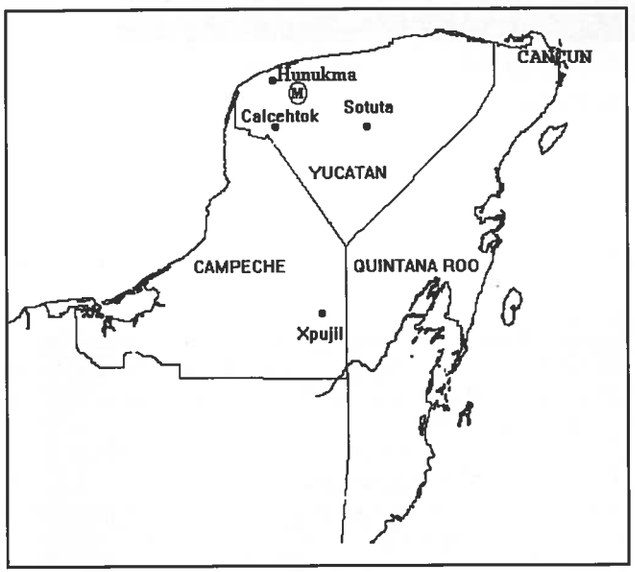


Figure 14. Distribution of *Hechtia schottii* in the Yucatan Peninsula.

Photograph by Ivón Ramirez

The vegetation types covering the peninsula are correlated with the precipitation and soil type, with dry areas (sand dunes and low caducifolious forests) to the north and wet and taller forests toward the south. There is a precipitation gradient from southeast (wettest) to northwest (driest). The flora comprises an estimated 2,200-2,300 species of which about 168 taxa (ca. 7.3% of the total flora) are currently considered endemics (Durán *et al.*, 1998). This figure is being revised by an ongoing floristic project (Carnevali *et al.*, in prep.), since it appears that the actual number of endemics might be somewhat higher. The Yucatan flora is apparently related to the flora of northern Mesoamerica more than it is to that of the West Indies, as previously thought (Estrada-Loera, 1991). The epiphytic flora is poor compared to other areas of Mexico and the

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Neotropics. This is certainly due to the predominance of dry vegetation types, recent origin of the area, its flatness (the highest elevation hardly reaches 210 m), and the almost total absence of rivers and other fresh water bodies. The main epiphytic families are Orchidaceae, Bromeliaceae, Cactaceae, and some fern families, a pattern also found in other essentially flat, dry tropical areas (e.g., Gentry and Dodson, 1987).

The family Bromeliaceae is represented by both terrestrial and epiphytic members, but epiphytes are much more common in the area. Most of the species present have wide distributional ranges in the Neotropics, especially in the Caribbean Arch (Smith & Lundell, 1940; Olmsted & Gómez-Juárez, 1997; Ramirez & Carnevali, 1999). *Tillandsia* is the most diverse genus in the area with 20 species, including a recently proposed new species, *Tillandsia may-patii* I. Ramirez & Camevali (Ramirez and Carnevali, 1999) and one more, which has only recently been discovered and is yet to be described.

Hechtia schottii, the species we are portraying here (figure 15), belongs to a genus of almost 50 species, ranging from southern Texas and northern Mexico to northern Nicaragua. With the exception of five species, the genus is endemic to Mexico. In Mexico, states like Oaxaca, Guerrero, and Mexico are particularly well represented. Rosettes are terrestrial with lateral or terminal inflorescences that can reach up to 3 m high in some species. As an interesting characteristic, the genus *Hechtia* consists mainly of dioecious members (except probably by *H. gayii* L. W. Lent, 1995, described as monoecious). Most of the species are restricted to just a few populations, and are generally associated to rocky soils (mostly of calcareous origin but some grow on volcanic outcrops), usually in exposed situations.

Hechtia schottii was previously reported from the states of Yucatan, Veracruz, and San Luis Potosi (Smith and Downs, 1974), the latter two states being in central Mexico. A detailed study of living and herbarium material, however, has revealed that the species is actually restricted to the Yucatán Peninsula, in the states of Yucatán and Campeche. So far, *H. schottii* is known from only four populations (figure 14). It inhabits open vegetation associations on calcareous soils, often associated with sinkholes (locally known as "cenotes"), growing along with several terrestrial and climbing herbs of different families, mostly Convolvulaceae, Compositae, Euphorbiaceae, and Agavaceae. It also occurs in low caducifolious forests but populations in this habitat do not perform well since they are light-limited. We suppose that in localities where the *Hechtia* plants are found inside the forests, their current situation of shading is due to the abandonment of old "henequén fields" (*Agave fourcroides* Lem.), thus creating an open habitat temporally suitable for invasion by *Hechtia*. Eventually, the forest tree species re-colonize the old field, leaving the long-lived hechtias under the shade of the secondary, successional forest. Under these conditions, the stems

and leaves etiolate and become unduly elongate, and the plants fail to bloom and fruit properly.

Photograph by Ivón Ramirez

Figure 15. *Hechtia schottii* in habitat (Calcehtok, Yucatan)

Hechtia schottii is a dioecious species, with male and female sexes on separate individuals. Inflorescences are lateral so rosettes are polycarpic. Flowers of both sexes are white, sweetly fragrant; female flowers have white stigmas (figure 16), and male flowers have green anthers and yellow pollen (figure 17). Flowering is mostly during the dry season (December-April) and fruit setting is very high, producing dry dehiscing capsules, with numerous dry seeds that fall close to the parent plant. Flowers are visited by several insects, mostly bees (native and exotic species), wasps, ants, and several other larger insects, that probably also use inflorescences as places to stalk and trap smaller prey.

Studies regarding population structure, sex ratios, floral and reproductive biology are being conducted in three out of the four known populations of the species in the peninsula (I. Ramirez *et al.*, unpublished). These studies are aimed at understanding the reproductive strategy of the species and getting the essential knowledge to meaningfully propose a plan to protect the few populations of the species.

Hechtia schottii is endemic to the Yucatan Peninsula. Male flowers represent a very important source of pollen for the honey-producing insects in the area (*Trigona* spp., *Melipona* spp., *Nannotrigona* spp., and *Apis mellifera*). Unfortunately, the largest known population of the species is located close to the Calcehtok caverns, near the village of the same name, a famous tourist destination in the northwestern Yucatan state. The attractiveness of the caverns

Figure 16. Female flowers of *Hechtia schottii*

Photograph by Ivón Ramirez

Photograph by Ivón Ramirez

Figure 17. Male flowers of *Hechtia schottii* with *Apis mellifera.*

has brought about some undesirable side effects along with the frequent visitors. These include clearing of the natural vegetation (it is perceived as thorny and scrubby, thus, undesirable), littering of the area, and generation of periodic fires during the dry season. These seasonal fires cause the death of many *Hechtia* individuals and of most of the seeds that are shed prior to the rainy season.

Besides the biological interest of the plant, *Hechtia schottii* is of easy cultivation if provided with a large container and a well-drained, terrestrial substrate. The plants require exposure to fairly high light intensities if they are to be grown to a healthy, natural-looking appearance. The plants must reach a certain critical size to bloom, and eventually become too large for most greenhouses. The leaves are very spiny and the plants should be kept out of the way and handled carefully. *Hechtia schottii* is, therefore, along with many other *Hechtia* species, more amenable as a landscape plant under tropical and subtropical conditions. Nothing is known about its tolerance to frost, but since it comes from a low elevation and tropical conditions, we suppose it will not be able to withstand below-freezing temperatures for any length of time. Furthermore, the polycarpic characteristics of the genus make the plants very appealing since the rosettes are extremely long lasting and do not require the frequent trimming or removal of old, dying rosettes, so typical of most bromeliads. Seeds germinate easily (in the lab) and are viable for long periods if kept in dry, cool conditions. The plants also produce long, creeping stolons, which can be used to reproduce them but that if left besides the mother rosette, will eventually produce a large, showy clump. With such care, plants of *Hechtia schottii* (and of many other Hechtias) will become very showy healthy specimens which will reward bromeliad lovers with several many-flowered male or female inflorescences a year and showy, large, compact spiny rosettes, much in the way of some Agave species.

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Greigias of Highland Chiapas: La Piña Silvestre

Virginia Guess and Robert Guess
Photographs by Robert Guess

Two species of *Greigia* grow in the understory of evergreen cloud forests in Highland Chiapas, Mexico: *Greigia oaxacana* L.B. Smith and *Greigia vanhyningii* L. B. Smith. Belonging to one of the less dramatic genera of the subfamily Bromelioideae, these caulescent species lack the flamboyant colors and exotic shapes that attract most bromeliad enthusiasts. As terrestrial plants, they form discreet colonies on the slopes of dark, damp arroyos where their long, green leaves offer a subtle camouflage amidst surrounding vegetation. Even their inconspicuous inflorescences packed with tiny flowers remain hidden in the leaf axils.

Several established populations of *G. oaxacana* eluded us for many years during our frequent hikes along the trails of Reserva Huitepec, six kilometers from the center of San Crist6bal de Las Casas. This ecological reserve, inaugurated in 1986 and now under the aegis of PRONATURA CHIAPAS, A.C., occupies 135 hectares on the western flank of Cerro Huitepec, one of the four mountain peaks surrounding San Cristóbal. Here the common tillandsias of the highlands flourish in oak and cloud forests: *T. ponderosa, T. vicentina, T. guatemalensis, T.eizii, T. lieboldiana, and T.capitata var. guzmanioides*. [See Note] Only when a Maya caretaker at this reserve casually mentioned a plant producing small fruits did we discover that a species of *Greigia* also grew among these more colorful tillandsias. He referred to the fruit as "la piña silvestre" (wild pineapple).

Agreeing to show us the source of this fruit, he guided us along a narrow path to the southern edge of the reserve, where we descended into a heavily forested arroyo, approximately 25 meters deep and varying from 10 to 20 meters wide at the bottom. After walking a short distance parallel to a shallow, meandering stream, we had our first glimpse of *G. oaxacana* at an altitude of 2200 meters. Closely spaced and firmly rooted on the steep north-facing slope of the arroyo, the population of about 300 plants extended along a circumscribed area nearly 200 meters long. Recent heavy rainfall had washed away the dense layer of leaves that usually carpet the slope exposing many of the thick stems of *G. oaxacana*. Large trees and ferns shaded the colony allowing only dappled sunlight to penetrate briefly at midmorning. While some plants grew in the stream bed, none were established on the opposite, south-facing side of the arroyo.

The mature plant, almost a meter in height and a meter wide, appears as a mass of long, thin, drooping leaves that fall gracefully to the ground. The leaf

Figure 18. Habitat in Reserva Huitepec where plants of *Greigia oaxacana* cluster on damp, heavily shaded slopes. Note exposed stems visible where dense leaf cover has eroded.

Figure 19. Leaves must be pulled back to expose the inflorescences of *Greigia oaxacana*.

Figure 20. Ripening fruits of *Greigia oaxacana* nestle deep in the leaf axils.

Figure 21. La piña silvestre: local name for the fruit of *Greigia oaxacana.*

blades are glabrous above, covered with coarse, white scales below, and armed with many short, narrow, upward-curving spines. Multiple, lateral inflorescences composed of white flowers with lavender tips emerge deep in the leaf axils during the dry season from December to May. By April to early May, each inflorescence produces some twenty, three-chambered fruits, each about three centimeters long. The ripe fruit turns a light amber color, and yields a minute quantity of juice and pulp that can be sucked from the tip opposite the sepals. The unique flavor, a pleasant sweet and tart blend, resembles the taste of the wild bananas of Chiapas.

Further exploration revealed two additional colonies of *G. oaxacana* growing higher up in the same reserve at 2500 meters. This species has also been reported in the Municipio of Tenejapa, Chiapas, some 35 kilometers from San Crist6bal de Las Casas (Smith and Downs 1979:1640). To date, we have been unable to locate this site. The holotype comes from the Chinantecas Mountains at an altitude of 2300 meters, 85 kilometers southwest of Tuxtepec, Oaxaca, Mexico (Smith 1959:52-53).

Another species of *Greigia* represented in Chiapas is *G. van-hyningii*, named after Oather C. Van Hyning, an early director of the Bromeliad Society who died in 1973 (Foster 1974:24). On one of his numerous expeditions to Mexico, he collected the holotype near Perote, Veracruz, Mexico, at 2100 meters (Smith 1959:53). In 1965, Breedlove found the species on the west-facing slope of Cerro Tzontehuitz, another of the four peaks near San Crist6bal de Las Casas (Smith and Downs 1979:1637). This population, 15 kilometers northeast of the city, continues to thrive today.

We estimate that here more than 500 plants of *G. van-hyningii* grow broadly scattered over a densely vegetated slope of a cloud forest. Nearby stands a site where thousands of Maya Indians gather annually in early May to honor Santa Cruz, a religious icon revered throughout Mexico. Since their traditional pilgrimage coincides with the ripening of the fruit of *G. van-hyningii*, they take the opportunity to harvest the fruits. As evidence of this, the tops of over 100 mature specimens, examined in mid-July of 1999, had been "lopped" off with machetes at the level of the leaf axils in order to free the fruits from the sharp, spiny leaves. As new growth was already sprouting, this method does not appear to permanently damage the plant.

The species differs from *G. oaxacana* in several ways. Plants of *G. oaxacana* grow in densely populated colonies, whereas those of *G. van-hyningii* are more widely dispersed. The slightly longer, arched leaves of *G. van-hyningii*, reaching over a meter in length, are recurved rather than drooped, and have sharp, dark, serrated teeth that are somewhat larger than those of *G. oaxacana.*

In contrast to the ovate sheaths of *G. oaxacana*, those of *G. van-hyningii* are elliptic and distinctly castaneous. Both species produce small, edible fruits.

Although the fruit of *G. oaxacana* neither tastes like nor resembles the commercially-grown pineapple of *Ananas comosus*, the Maya, nevertheless, refer to greigias collectively as "la piña silvestre" or "la piña de monte." As mentioned above, their use of these sobriquets first alerted us to the possible presence of fruiting bromeliads. But, like Van Hyning when he first discovered the species that was named in his honor, we will have to return at another time of the year in order to see *G. van-hyningii* in flower and taste the fruit.

The future outlook for the perpetuation of both species of *Greigia* in Chiapas is favorable. Because the fruits nestle deep in the spiny sheaths of both *G. oaxacana* and *G. van-hyningii*, harvesting requires considerable effort for the amount of food gained. Thus, the Maya of Highland Chiapas gather them more opportunistically as a welcomed refreshment than as a commodity to sell in local markets. In addition, the locations of the plants offer some inherent protection from destruction. *G. oaxacana* grows within the confines of a nature reserve, and *G. van-hyningii* thrives along the isolated summit of a mountain considered sacred by a large community of Maya who appear determined to safeguard the site for their traditional religious rites.

NOTE: *T.capitata var. guzmanioides* is now considered in synonymy with *Tillandsia lautneri* Ehlers(Ehlers 1993; Plever 1998).

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Our thanks to Roberto G6mez Pérez who first introduced us to *Greigia oaxacana* at Reserva Huitepec; and to Manuel Hernández G6mez and Juan Hernández G6mez who guided us to the Maya pilgrimage site at Cerro Tzontehuitz and the nearby colony of *Greigia van-hyningii.*

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Santa Barbara, California

Figure 22. *Greigia van-hyningii* growing in situ on the west-facing slope of Cerro Tzontehuitr.

Figure 23. *Greigia van-hyningii* removed from habitat. Note the large root mass and arching, recurved leaves.

A Beautiful *Guzmania* from Panama

Chester Skotak **Photograph by the author**

The town of El Cope sits just a few kilometers from the continental divide in the Cocle Province of Panama. The nearby forest is my favorite place to roam and be overwhelmed by nature at its best.

I am always surprised to hear others talk about bromeliads of this area, or read articles concerning them, that do not mention *Guzmania lingulata* 'Fortuna'. Mark Whitten of the Florida Museum of Natural History collected this plant in 1984 and Harry Luther and John Kress collected a similar plant at Fortuna, in the Chirique Province of Panama in 1986. I have also found this plant in Santa Fe, Veraguas Province. The El Cope form is distinguished from the Fortuna form in that the inflorescence has a more conical appearance. The Santa Fe form is an intermediate between the two. I believe that in the future it may become a separate species.

Figure 24. *Guzmania* 'Fortuna' flowering in cultivation in Costa Rica

In the three places that I have seen this *Guzmania*, it is always in association with *Guzmania musaica*, a dark leaf form of *Guzmania lingulata*, and *Guzmania glomerata*. These three plants could well be involved in what I consider to be a recent and ongoing hybrid swarm. However, I will leave this possibility for others to examine and simply send along this photo to show that nature can produce amazing bromeliads all on its own. Not all spectacular bromeliads need come out of someone's hybridizing program.

Alajuela, Costa Rica

Selbyana Publishes 20th Volume

Bruce K. Holst & Edna Sieff

Selbyana, the scientific journal of the Marie Selby Botanical Gardens, has just published its 20th volume. The journal has been, and continues to be an important vehicle for Selby Gardens' scientists to publish their research findings. It is also a focal point for scientists around the world to publish original research papers on tropical plants, particularly bromeliads, orchids, other epiphytes, and the ecology of the forest canopy. The first volume was published in 1975, the same year the botanical garden opened to the public.

More than 450 articles have been published in the journal, including more than 80 on Bromeliaceae. Many landmark papers on epiphyte biology have appeared in *Selbyana*, as well as the first ever descriptions of more than 600 species of plants, including 56 Bromeliaceae. Write to the Editor for more information, or see the publications section of Selby Gardens web site <http://www.selby.org/publ/> and click on "Selbyana" for a complete list of articles, as well as ordering information. Most back issues are available from Selby Gardens.

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Marie Selby Botanical Gardens,
Sarasota, Florida USA

Judges Handbook Changes

Betty Ann Prevatt[1]

The Handbook for Judges, Exhibitors, & Affiliates includes the rules and instructions for staging a BSI show. The following changes were voted on by the Judges Certification Committee at the World Bromeliad Conference in Houston 1998. These changes and additions are now in effect and you should note them in your copy of the Handbook.

Additions/Corrections

Page 2, #3 & page 18 - Affiliate Shows Committee: (addition)

If show report and slides are not received within one month following the show, the affiliate will be billed for the cost of plaques.

Page 5, # f - (addition)

a) Judges may change incorrect name on an entry tag **with permission** from the Classification Chairman during ribbon judging, if it was missed at the time of Entry and Classification. A note should be made on the entry card, initialed by the judge, and since Classification bears this responsibility, the chairman should also sign the card.

Page 17 - Important Major Committees: (addition)

Serving on major committees for credit should include chairmen for general/show, awards, classification, clerks, entries, judges, placement and schedule. All of these committees are important to a show. All major committees should include a co-chair, which would also get credit for serving.

Page 21, #11 - Cultivar Verification: (change)

This chairman using The Bromeliad Cultivar Registry, plus all official, updated material regarding cultivars published in the BSI Journal, and/or the official correspondence from the BSI Cultivar Registrar, will determine cultivar eligibility for BSI Major Awards. All cultivars are eligible for any major award if listed by formula.

Page 29, # 5 - Horticultural Displays: (addition)

Mounting that have been "home" to a plant for a long time will not be the beauty that it once was. Judges should judge the plants and consider the age of the mount. Judges need to be made aware that some tillandsias never root and a judge should not take off points or try to re-classify.

[1]BSI Certification Committee Chairman

ALSO, PLEASE MAKE NOTE OF THIS IN THE TILLANDSIA SECTION OF THE HANDBOOK.

Page 59, # C - Difficulty of Cultivation/Rarity: (addition)

Difficulty of cultivation and rarity should also be considered in ribbon judging and not just during major awards. When judging Tillandsia clumps, points should not be taken off when the dry, dead leaves near the roots or at the base are not removed. The dry leaves can be trimmed back, but complete removal may cause clump to fall apart.

Page 66, # 3 - Master Judges: (addition)

When a judge becomes a Master Judge, they are still required to attend symposiums, but they do not have to take the written point scoring test.

Page 66, # 4 - Judge Emeritus:

THIS PARAGRAPH REMAINS AS ORIGINALLY PRINTED IN THE HANDBOOK. (previous recent change is rescinded.)

Page 68, # 1 - Requirements for Judging School Instructor: (change)

Be a judge in good standing who has renewed his/her certification at least once, and who has served as general/show chairman, or chairman/co-chairman of a major committee for a standard BSI show in the last 3 years. Major committees are defined as general/show, awards, judges, classification, clerks, entries, placement and schedule. EXCEPTION: New instructors may be "grandfathered" in those geographical areas outside of the United States where BSI judging instructors are needed.

Page 69, # 2, par.#l - Symposium Instructor (change)

The same rule for Judges School Instructor will apply for Symposium Instructor (see above)

Page 76, Judges - (addition - please add after second paragraph)

When a judging team decides to give a RED ribbon, they should note on the back of the entry card, the reasons for taking off 11 points. They should also write any courteous, constructive comments that will help the exhibitor or public justify the ribbon awarded.

Page 81 - Seminars (change)

Delete the last sentence and add: Judges will receive credit for attending seminars.

I encourage every society to support the BSI and make their next show a BSI show. If you have any questions about staging a BSI show, or discuss problems that have prevented you from staging a BSI show, please let me know. I will be glad to help in any way I can. You can reach me by phone, 941-334-8242, or mail at 2982 Second Street, Fort Myers, Florida 33916.

Fort Myers, Florida

World Conference Judges School

Betty Ann Prevatt

Student Judges who are participating in the World Bromeliad Conference Judges Schools, and anyone interested in beginning the school series at the World Conference in San Francisco, June 2000, should contact Betty Ann Prevatt, Judges Certification Committee Chairman immediately. Since we are unaware of any students who have not finished the course, it is imperative that we receive this information in time to set up a school; otherwise, there will be no Judges school at the Conference. If there is a need to establish a Judges school at the conference, of if you have any questions, please contact Betty Ann Prevatt, 2902 Second St., Fort Myers, Fl. 33916: telephone at 941-334-1242

BSI Honors Wally Berg

A new award, to be known as the Wally Berg Award of Excellence, has been approved by the BSI Board of Directors as a horticultural award of excellence to be presented to deserving individuals at future world conferences. The award honors Wally Berg, who has assembled one of the finest private collection of bromeliads in the world. The completeness and quality of his collection is known world-wide, and until Wally's recent health problems, he has always welcomed visitors to his Sarasota home where it has been on immaculate display. He is known for having many uncommon plants and for growing them uncommonly well.

Wally has always been an enthusiastic supporter of the BSI and has donated many rare plants for sales and auctions benefiting the Bromeliad Identification Center at Selby Gardens, the "evil weevil" research, and other worthy causes. He also volunteered many hours of his time at Selby Gardens. He has been guest speaker at many affiliate meetings, beguiling those in attendance with tales of his many collecting trips.

It is an honor well deserved.

Available Now

50th Anniversary commemorative pin

The BSI has been most fortunate in having someone of the stature of noted Clearwater, Florida Artist Stephen C. Littlefield volunteer to design both the poster and the pin being sold at the upcoming World Bromeliad Conference in San Francisco.

The picture on the pin denotes a neoregelia spanned by the Golden Gate Bridge, in whose shadow the 50th anniversary celebration is being held. The five flowers each represent ten years of the BSI. The margin is that of the BSI logo. There is a tack back to the pin, making it usable as either a pin or tie tack.

The price of the pin at the San Francisco World Bromeliad Conference will be $10.00, but if ordered prior to the conference, it can be obtained for $8.00 including shipping. Orders received between December 1, 1999 and Christmas, 1999 will be shipped by priority mail, but the additional cost will be added to the price.

Order from BSI Publications, 6523 El Camino Real, Carlsbad, CA 92009, USA. California residents please add 7.75% sales tax.

Golden Anniversary

The Bromeliad Society International
World Bromeliad Conference

Registration form

San Francisco, CA

Hyatt Regency Hotel

June 26 through July 5, 2000

Registration Rates are:

$130.00 January 2, 2000-June 1, 2000

$150.00 June 2, 2000 and at the door.

Please print or type (we want to be able to reach you).

Name_____

Your address_____

_____

City_____ State _____Country_____

Zip or Country code_____

Telephone (Include country or area code)_____

Name On badge(s)? (please print)

1._____ BSI voting member___(this will be checked)

2._____ BSI voting member___(this will be checked)

3._____ BSI voting member___(this will be checked)

Your BSI Affiliate Name?_____(if applicable)

Amount (per registrant)_____ Check/Visa/Master Card (circle one) #_____

Credit Card Expiration Date

Signature as it appears on your card_____

Add $15.00 per registrant if not a BSI voting member. (Do not pay dues and receive *The Journal of The Bromeliad Society*)

Send this form and payment to: Carolyn Schoenau, P.O. Box 12981, Gainesville, FL 32604

The registration fee is 70% refundable until June 15, 2000. After that no refund will be given (except in cases of illness or death)

Publications Available now from the BSI

The Red-Flowered Tillandsias from Brazil $30.00 each
(Die rotblühenden Brasilianischen Tillandsien) Quantities limited
by Renate Ehlers [with English translation by Derek Butcher]

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The Bromeliad Cultivar Register $40.00 each
By Don Beadle

Prices include postage at book rate. Order from BSI Publications, 6523 Camino Real, Carlsbad CA 92009. California residents add 7.75% sales tax. Please make checks out to "Bromeliad Society, Int." Publications may be ordered on line at htttp://bsi.org

The Bromeliad Society International

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.

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Photograph by Marcel LeCoufle

Aechmea mertensii (G. Meyer) Schultes f.

This species occurs widely in the warmer parts of South America at elevations from 45 m to 1700 m in Colombia, Peru, Ecuador, Brazil, French Guiana, Surinam, Guyana, Trinidad and Venezuela. It is a highly variable plant. The one pictured, a relatively small form, is the most common form in cultivation. Some forms can reach up to 8 dm. It has sometimes been called the "Patriotic Plant" in the United states because the coloring of the inflorescence often consists of red, white, and blue all at the same time - the colors of the American flag.

Calendar

12-14 May — The Bromeliad Society of Central Florida will hold its 25th annual Mother's Day Show and Sale at the Florida Mall, 8001 S. Orange Blossom Trail in Orlando, Florida. Hours of this BSI standard judged event are 10 a.m. to 9 p.m. on Friday & Saturday, and noon to 6 p.m. on Sunday. Contact: Eloise Beach, 407-886-8892 or Betsy McCrory at 407-348-2139.

26 Jun -5 Jul — The Bromeliad Society International will commemorate its 50th anniversary at the World Bromeliad Conference to be held at the Hyatt Regency Hotel in San Francisco, California. Tours, seminars conducted by leading bromeliad authorities from around the world, competitive show, sales of plants and other items, banquet, rare plant auction, social gatherings, and educational displays.

A helpful hint

If you are handling cactus or spiny bromeliads and get a few spines in your hand, a piece of sticky tape or sticky plaster will do the trick. If not, spread some woodworking or hobby glue on and wait till it sets, then pull off. Spines are gone. From Mary Nicholson. Bromlink, Gold Coast Succulent & Bromeliad Society, Nov-Dec 1998.