JOURNAL

OF THE BROMELIAD SOCIETY

VOLUME 63(2): 97-144 JULY - AUGUST 2013

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Front Cover: *Guzmania kentii.* Photograph by Eric Gouda. Story on page 75

Back Cover: Color blend by bromeliads in trees and background. Photo by Jose Donayre. Story on pg. 6

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President's Message: Announcing the Harry E. Luther BSI Scholar Program

Bruce Holst & Jay Thurrott

During his tenure at Selby Gardens as Director of the Bromeliad Identification Center and Curator of Living Collections, Harry Luther had a profound influence on the world's understanding and knowledge of bromeliads. In fact, Harry was an Honorary Trustee of the Bromeliad Society International and recipient of the Society's highest award, the Wally Berg Award of Excellence.

Harry played a significant role in fostering the longstanding history of partnership and collaboration between Marie Selby Botanical Gardens (MSBG) and the Bromeliad Society International (BSI). In honor of Harry's memory and scientific contributions, BSI will launch a new research initiative in July, the Harry E. Luther BSI Scholar Program. Professional and higher-level student scientists will conduct bromeliad research to advance the mutual goals of BSI and MSBG. The program is expected to bolster the education and research dimensions of both BSI and MSBG, help maintain the high quality of the living collection, and further the conservation of bromeliads. The Mulford B. Foster Bromeliad Research Center (BRC) at Selby Gardens will become the home base for the program.

Upon the announcement, Selby Gardens CEO Tom Buchter commented, "We are pleased to have this opportunity to collaborate once again with our colleagues at the Bromeliad Society International in support of bromeliad research. The discoveries and scientific advances that will result from the Harry E. Luther BSI Scholar Program will undoubtedly lead to greater understanding and appreciation of these important plants."

In addition to research and conservation efforts, the program will document bromeliad diversity in nature, conserve rare bromeliad species in cultivation, publish articles about bromeliads for scientific and lay periodicals, and provide public lectures.

The BSI will manage the scholarship program finances and accept donations to the fund. To contribute, send a check made to the BSI-Harry E. Luther Scholar Program to Annette Dominguez, Membership Secretary, 8117 Shenandoah Drive, Austin TX 78753-5734, USA. Further information for applicants to the Scholar Program will be made available in the coming months.

Conference Corner

Bonnie Boutwell

It's September again! One year ago we were all talking bromeliads in Orlando and in one more short year we'll be talking Hawaiian in Paradise!

Here's the latest from our Hawaiian partners:

The 2 hour Poster Session scheduled for Friday morning will be a Round Table Panel with the following participants: Peter DeMello, David Fell, Sharon Petersen, David Shiigi and Lisa Vinzant. What a great opportunity to "pick the brains" of the experts – Hawaiian style!

Our Hawaiian partners are working hard – if you have specific questions on an event or possibly want to volunteer to help on a committee – feel free to drop them an e-mail:

Conference Coordinator: Lynette Wageman lynettew@hawaii.edu.
Conference Treasurer: Raleigh Ferdun rferdun@yahoo.com.
Administrative Coordinator & Show Awards: Marie Ferdun marie.ferdun@hawaiiantel.net.
Sales Chairman: Sharon Petersen kikinalo@hawaii.rr.com
Tours: Troy Oden Odenzl@aol.com
On-Site Registration: Terese Leber lebert@eastwestcenter.org.
Hospitality: Susan Andrade posusand@hotmail.com
Conference Program: Stan Schab stanley.schab@gmail.com.

There's lots more information coming soon. I know everyone wants to know all the particulars on the hotel and any special airline packages we are able to confirm: the hotel is building our registration site and will have it available for registration very soon and I am working with Hawaiian Air to confirm some group rates – stay tuned!

Please remember – talk to your friends about joining you in Hawaii. BSI needs membership support to make this and future conferences successful.

There is a lot of news to share this month thanks to our members in Hawaii. Sharon Petersen has worked closely with the State of Hawaii to establish the process we will follow to import plants to Hawaii for the Show and Sale. Here's the results of her efforts:

The State of Hawaii has established restrictions on the importation of bromeliad (Bromeliaceae) plants to prevent the introduction of pests harmful to the pineapple industry and environment. Please adhere to the following guidelines when bringing bromeliads into Hawaii for the 2014 World Bromeliad Conference:

Bromeliads originating from domestic United States:

* Only bromeliad plants of genus other than Ananas (pineapple) may be brought into Hawaii for the conference.

Figure 1. Ala Moana Hotel, Honolulu, HI.

* Individuals arriving in Hawaii must declare all plants and plant parts on the "Plants and Animals Declaration Form" and present these items for inspection to a Plant Quarantine inspector in the baggage claim area. Shipments may be ordered to an inspection office for examination.

* Bromeliad shipments sent to Hawaii for the conference via USPS, UPS, FedEx, etc., must be labeled "LIVE PLANTS. MAY BE OPENED FOR AGRICULTURAL INSPECTION" and addressed to the following inspection office:

Hawaii Department of Agriculture
Plant Quarantine Branch
c/o Hawaii Bromeliad Society
1849 Auiki St.
Honolulu, HI 96819

* Bromeliad plants should be shipped bare-rooted or in artificial media; no soil/earth allowed.

* All plant shipments must be accompanied by an invoice or manifest containing the owner's name and a list of the contents and quantities enclosed. Each plant must be labeled as to genus and species.

* All plant shipments must be accompanied by a phytosanitary certificate or a certificate of origin issued by an agricultural official of the state of origin.

* The Hawaii Bromeliad Society is the designated permittee on behalf of all bromeliad importers participating in the 2014 World Bromeliad Conference. HBS will arrange for pick-up from the inspection office and delivery of plant shipments to the conference location. HBS will not be held responsible for any damages incurred in shipping.

Bromeliads from Hawaii:

* Plant material shipped from Hawaii may be subject to import requirements of the receiving state or country; please contact your area officials for more information.

Hotel Information:
Reservations for the World Conference may be made at the website following the Hotel address below.
Ala Moana Hotel
410 Atkinson Drive
Honolulu, HI 96814-4722
https://resweb.passkey.com/Resweb.do?mode=welcome_ei_new&eventID=10786798

Mahalo,
Bonnie

Figure 2. Ala Moana Hotel, Honolulu, HI.

What Bromeliads Can Tell Us About Darwinian Evolution: Part 2

David H. Benzing

Almost exactly four decades ago and shortly before his death, geneticist Theodosius Dobzhansky published a landmark paper titled: "Nothing makes sense in biology except in the light of evolution." Had his message been crafted primarily for younger colleagues it could have read: Constructs that guide economic analysis serve as well to critique organisms as products of evolution. As it turned out, advice from a venerated Ukrainian-American geneticist wasn't necessary to get an important ball rolling. Today the scientific literature is studded with phrases such as cost-effective use of resources, resource use efficiency, differential resource allocation, and amortized investments. Tools borrowed from economists are particularly well suited for botanical inquiry because, unlike animals, plants produce series of leaves, stems, and roots through much of their lifetimes. The options for adaptive adjustment afforded by what amounts to open ended versus closed ended embryology is just the ticket for an organism fated to spend its days confined to a space that isn't likely to provide enough of one or more vital resources to realize its full growth potential (Fig. 1).

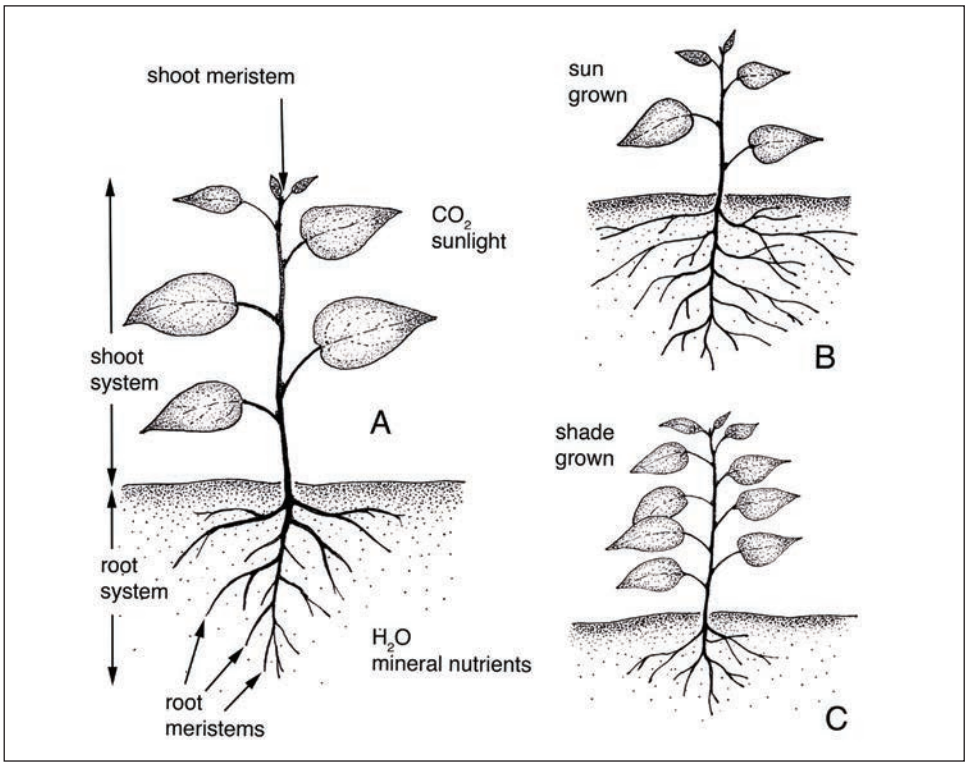

Figure 1. A stereotypical land plant grown under optimal conditions and labeled to indicate its organization into shoot and root systems, its development via the organ-forming activities of apical meristems, and the locations of the resources required for growth. B. A plant of the same type grown in full sun while rooted in soil deficient in moisture and or one or more nutrients. C. The same plant grown in shade while rooted in soil well supplied with moisture and soil nutrients.

Figure 2. A shade-grown specimen of *Tillandsia utriculata*

It's reasonable, and eminently informative, to view the individual plant as the equivalent of a green machine, something like a factory except that it runs on sunlight rather than electricity or a fossil fuel. Like achieving profitability for the latter, success of the Darwinian kind entails the gathering of raw materials, in this case commodities such as CO_2 and nitrogen from air and soil respectively, and using them to fabricate finished products, namely offspring. What isn't so obvious, and remains poorly understood, is how a plant, as an organism operating without consciousness or will, accomplishes its evolutionary imperative. Achieving Darwinian fitness in sustainable fashion obliges the acquisition and employment with high cost-effectiveness the scarcest of the diverse commodities that a plant needs to pass its genes on to the next generation. Doing so involves decisions guided by a kind of intelligence that most of us don't realize even exists.

Bromeliads, or at least the epiphytic types, aren't the best candidates for demonstrating how plants make calculated decisions as they accumulate and use resources to create their genetic legacies, or how economic considerations influence how they go about accomplishing this feat. Better examples occur among the species that root in the ground and thus retain the division of labor inherent to possessing fully developed shoot and root systems (Fig. 1). Most of the epiphytic bromeliads fail this test because they combine in the shoot system vital functions that more conventionally organized plants perform separately in either roots or shoots. Being effectively rootless denies Spanish moss and many of its relatives the more widely occurring, primitive alternative. Terrestrials represented by members of bromeliad genera such as *Dyckia* and *Pitcairnia* operate more like most other plants, but they lack the special adaptations that make Bromeliaceae one of the most appealing of families to hobbyists and evolutionary botanists alike.

A simple experiment using a short-lived herb demonstrates how a plant operates like a factory. Sow two seeds of a weedy annual in as many pots (Fig. 1), one containing abundant nutrients (B) and the other (C) significantly less of the same amendments. Now provide both subjects plenty of sunlight and moisture. Differential growth will result: lots of root compared to shoot mass will describe the inhabitant of pot C, and exactly the opposite will apply for the individual in pot B. Now, repeat this process except assure ample supplies of soil nutrients and water for both specimens and heavily shade one pot (B) but not the other (C). Again, the plant in pot B in this second run will be leafier than its counterpart in pot C. Somehow each of the four test subjects managed to assess its resource supplies above and below ground and matched this information with what it needed to maximize growth. Having gauged supply and demand, each individual proceeded to allocate biomass in a pattern that over time would have maximized its production of seeds (its fitness). Where one of the soil-based resources, let's say nitrogen in the case of the first pair of seedlings, was in shortest supply relative to demand roots being the organs of acquisition were emphasized. Where a scarcity of photons (sunlight) limited growth most, proportionally more biomass ended up in foliage.

The tank forming bromeliads exhibit phenotypic plasticity (see part one for definition) by how their foliage develops in deep shade versus full sun. The *Tillandsia utriculata* specimen displayed in Figure 2 intercepts light with broader, thinner, distinctly greener leaves than the greyer, stiffer, thicker, and narrower kind born by the more exposed representative of the same species shown in Figure 3. Biomass dedicated to photosynthesis by the shade-adapted specimen yields the greatest energetic return when deployed in the form of a relatively thin, more or less horizontally held organ heavily supplied with

Figure 3. A sun-grown specimen of *Tillandsia utriculata*

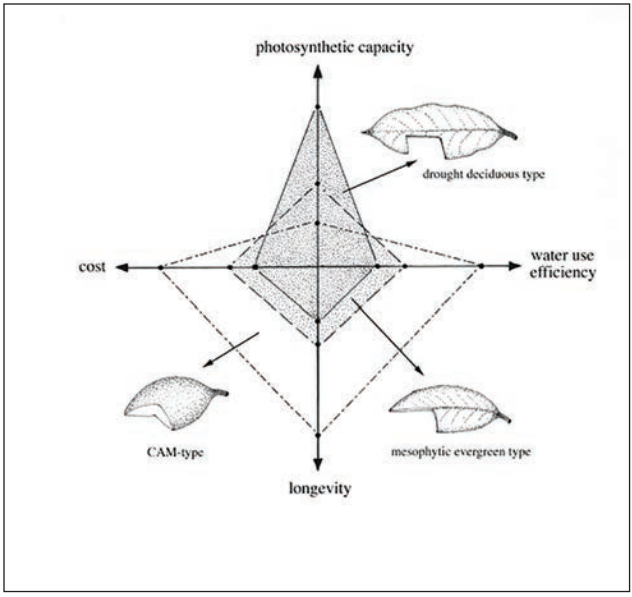

Figure 4. A graphic depiction of the three major leaf types indicating the relationships that prevail among their four distinguishing properties.

chlorophyll. Being more upright, reflective, and robust is the superior configuration in sunnier sites. Committing less chlorophyll per unit surface area not only promotes resource economy, it also makes sense because it reduces the likelihood that a leaf regularly exposed to unscreened sunlight will experience injurious photo-overload. Reverse these attributes and both individuals would lose fitness and could even die.

An additional variable that hasn't been mentioned yet also figures into economic-evolutionary interpretations of leaf structure and performance. Perhaps you've wondered about differences in leaf longevity, specifically why foliage produced by this or that bromeliad routinely survives less than a year and for others the same organs remain green through multiple seasons. You also may have noticed that certain aspects of leaf anatomy and texture faithfully associate with short, intermediate, or longer life spans. More precisely, you might have observed that the thicker and tougher a leaf, the greater its term of useful service. Had measurements been possible, you would have further discovered that rates of photosynthesis and water loss (but not water use efficiency, which is described below) inversely track leaf longevity, both phenomena declining relative to life span.

Figure 4 summarizes how three widely occurring types of leaves consistently differ by duration of service, photosynthetic capacity, structure, and water use efficiency. The most ephemeral of these three types, the one exemplified by seasonally deciduous *Pitcairnia heterophylla*, is thin and largely devoid of mechanically strengthening tissue. Plants that possess this type of leaf also exhibit high rates of photosynthesis accompanied by heavy expenditures of moisture. Foliage born by a soft, thin leafed *Guzmania* or *Vriesea* falls into the intermediate or mesophytic category because the individual leaf in this case lives longer than the deciduous type, but not as long as the much thicker, stiffer organs that serve the grey tillandsias and the other dry-growing bromeliads. Rates of food production and water use efficiency range between these two extremes as well. Incidentally, the three leaves depicted in Figure 4 to represent the three leaf types just described follow the stereotypical "eudicot" model (broad blade, distinct petiole). Their strap shaped monocot equivalent as it occurs among the bromeliads possesses the same three suites of associated characteristics.

The record setters for leaf longevity in Bromeliaceae invariably occupy punishing habitats. These least vigorous growers among its membership also pay the highest price for their food making apparatus because foliage programmed to function for years has to be stout and sufficiently fiber-rich (and consequently expensive) to tolerate extensive wear and tear and extended opportunities for assaults by herbivores and pathogens. Figure 4 further indicates that photosynthetic capacity bottoms out and water use economy peaks for the species equipped with the most durable leaves. In essence, "xeromorphic" (anatomically drought-adapted) foliage costs the most to manufacture and maintain, hence requires the longest pay back period (amortization schedule) and more. A leaf, like a piece of machinery installed in a factory, must pay for itself and remain functional long enough there after to earn an acceptable profit. Remember that a photosynthetic organ what ever its type has two mandates: to defray its cost and grant its bearer the wherewithal to construct no less essential reproductive organs and other non-green parts.

Economics shape leaf structure and function less than usual when a special situation affects fitness more. Drought adaptation provides a good example. Whenever a leaf opens its stomata to allow CO_2 to enter moisture diffuses out along the same pathway. For a mesophytic type appendage this exchange typically results in about 500 grams of water being expended for each gram of photosynthetic product (dry weight) gained. Xerophytic (dry-growing) bromeliads in genera such as *Hechtia* satisfy their need to use scarce moisture economically by engineering leaf form and physiology in ways that slow evaporative loss while food is being made. But the same anatomy restricts CO_2 uptake. Water use efficiencies as favorable as 30:1 are possible, but the attending, unavoidable curtailment of photosynthesis reduces growth apace. Here we see how aridity acting as an agent of natural selection has favored drought tolerance at the expense of diminished vigor and elevated leaf cost as the arbiter of Darwinian fitness. It's a functional tradeoff in the sense that resource use efficiency (high for moisture, but lower for the resources invested in foliage) is achieved by reducing a plant's capacity to out compete (overgrow) its botanical neighbors.

In summary, evolution has molded the plant body and how it operates in accordance with certain economic principles and constraints and at multiple levels of botanical form and function. Individuals bent on understanding plants in depth are well advised to keep in mind the instrumental roles played by Darwinian selection and adaptation. Not all of the shapes, sizes, textures, and so on that a bromeliad displays reveal its needs and tolerances in culture or nature. Neither are all of its most striking features the immediate consequences of evolution, i.e., currently adaptive. Deciding which of the two possible interpretations applies in specific cases is difficult to say the least. As a result, much of the complexity that prevails across the plant kingdom remains unexplained, and until science fully meets this challenge, Bromeliaceae will continue to hold more than its share of what remain undiscovered of botany's most fascinating secrets.

Reference:

Benzing, David H. 2012. *Air Plants: Epiphytes and Aerial Gardens*. Comstock Publishing Associates, a division of Cornell University Press

Guzmania kentii, A Nice Species In Cultivation

Eric Gouda, Utrecht University Botanic Garden

Figure 1. First flowering plant of *Guzmania kentii* in the greenhouse at Utrecht. Photo by Eric Gouda

At the Botanic Garden we grew *Guzmania kentii* Luther (1993: 450) from seeds collected on a trip we (José Manzanares, Betty Patterson and me) made in 2008 in Imbabura, Ecuador. It turned out to be an easy species to grow and flowered without artificial initiation. From the description given by Harry Luther you can read that it is about 50 cm tall when flowering (flowers opening at midnight and closing after dawn). Our specimen became a little bit taller, up to ca. 80 cm. Obviously it is this species and the seeds where collected in the same province as the type. It is a very nice red inflorescence with striped primary bracts and spectacular when full with open flowers. Our plants opened their flowers also at night, but staying fresh until midday. The pictures were taken in the morning.


Figure 2. A closer view of the inflorescence. Photo by Eric Gouda

I noted that the floral bracts in our specimen are definitely not carinate and not nerved when fresh. The adaxial sepals are carinate (as in the description), but bluntly so when fresh. That's why it does not key out in Smith & Downs (1977: 1279) to *Guzmania goudotiana* Mez (1896: 942), it's closest relative following the protolog, but to *Guzmania sphaeroidea* (André) André ex Mez *DC. Monogr. Phan.* ix. 942 (1896: 942), which has much smaller and has less dense spikes.

I remember that I was collecting the seeds from a plant that was growing on a slope at the road side with bushes and small trees. The plants were growing on the ground in medium to low light conditions at about 2000 m elevation. We grow it under medium humid conditions and about room temperature and it looks quite happy. The inflorescence of the specimen in the picture had to go for a Herbarium voucher, but soon another one will open its flowers and I will try to get some seeds on it. I certainly feel that this species is worth growing in your collection if your conditions are suitable for it.

Literature

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Mez, C. (1896) *Bromeliaceae in De Candolle, C. (ed.). Monographiae Phanerogamarum*. Masson & C., Paris, pp. 1–990.

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Figure 3. The inflorescence can be less dense at the base in some specimens. Photo by Eric Gouda

Figure 4. Close-up view of the flower of *Guzmania kentii.* Photo by Eric Gouda

A Jewel In Broward, FL: Josefa's "Sunshine Bromeliads"

Jose Donayre

Figure 1. Entrance to "Sunshine Bromeliads". Photo by Jose Donayre

Figure 2. Bromeliads on trees, palms, motifs, everywhere. Photo by Jose Donayre

Of all the southern states of America arching over the Gulf of Mexico it is the south of Florida that has climatic conditions comparable to the areas of Latin America where many species of bromeliads originate. Many of these species have been acclimatized to our region: growing and reproducing with ease for almost two hundred years. As a result, there are a large number of bromeliad hobbyists, collectors and specialists in Florida. Historical names of explorers, botanists, taxonomists and hybridizers, creators of innumerable new plants abound in the registries and publications of the last two centuries. The more recent ones from the last generation are remembered with admiration. Some of them are still among us and continue their consuming interest in exploring the possibilities offered by the tropical climes of southern Florida.

Although the earliest explorations, as far back as the 1700s, originated in Europe, North American explorers focused their travel around the South American countries, often bringing back known species and discovering numerous new ones which soon were acclimatized to their new habitat. A generation of specialists dedicated to crossing species plants, and their hybrids, created large numbers of new plants "made in USA". Thus, the names of brilliant, imaginative creators like Mulford Foster, the Wilsons, Don Beadle, Julian Nally, Nat DeLeon and many others carry the Florida flag around the world.

Figure 3. Bromeliads on motifs, along the walks and in the ground. Photo by Jose Donayre

Figure 4. Sales area in main shade house. Photo by Jose Donayre

All this has resulted in a great expansion of the commercial market for bromeliads fed by large nurseries established in various locations in the state responding to the internal and world demand. In Florida, large industrial enterprises like the Deroose establishment in Apopka, DeLeon's Bromeliads in Homestead, Russell's Bromeliads in Clermont, which produce millions of plants each year for mass markets, coexist with much smaller commercial establishments like Tropiflora, Michael's Bromeliads and Bullis Bromeliads which commercialize and create new hybrids for sale to customers over a wide area. There are also many other family or individually run nurseries. These very small nurseries cultivate and propagate bromeliads for sale locally, promoting the hobby around their areas of influence.

One outstanding example of these family nurseries is located in Southwest Ranches in Broward County, created and run by Josefa Leon since 1985 whose plants are particularly sought by collectors and hobbyists. First, it was simply called "Sunshine Ranches" to become more specifically named "Sunshine Bromeliads" in 2006 during a major expansion which brought grandchildren Jorge and Rolando into the family management. The main character of this nursery is that it transcends the idea of a business to become a personal enterprise born of the genuine love for these beautiful plants.

Behind "Sunshine Bromeliads" there is a notable story of forced migration to Florida due to the political circumstances of the 1960s and, at the same time, an exemplary dedication, care and personal vigilance of each plant through their generations. Beyond

Figure 5. More bromeliads in sales tables in main shade house. Photo by Jose Donayre

Figure 6. Neoregelia for sale in main shade house. Photo by Jose Donayre

Figure 7. Josefa Leon in her demonstration corner. Photo by Jose Donayre

that is the effervescent personality of Josefa Leon who makes long lasting friends of each of her numerous clients. It is not only the quality of her plants but, in great measure, the personal sympathy she radiates that turns these clients into admirers.

The history of Josefa's journey from Havana to Florida coincides with my experience in Boston during the first year of my post-graduate training when I could hear on the radio the results of the confrontation at the Cochinos Bay and the mass shootings following it. It was then, in the early months of 1962, when Josefa and her family left in a cargo ship. Although six months pregnant with her last daughter Jackie, she did not vacillate and left with whatever she could keep under the most severe confiscatory process by stern guards. The crude details of the event and the journey told by her stay in the family memory as much as the joyous arrival to Fort Lauderdale and the transfer to Dinner Key on December 27, 1962 to pass immigration at what is now renamed as "Liberty Tower" in Miami.

Adapting to her new country, Josefa worked as any recent migrant cleaning houses, taking care of children and the sick, in a knit dress factory in Hialeah, etc. Once established in Miami Lakes, almost twenty years after her arrival, she met with Jerry Puittinen in 1981, a turning point in her life in Florida. Jerry, had moved from Pennsylvania to Florida and had a personal collection of bromeliads she used to sell at home and in many plant affairs. Six *Ae*. "Victoria" were the first bromeliads Josefa bought from Jerry with whom she developed a closed friendship despite the fact that Jerry did not speak Spanish nor Josefa English. As she says: "we understood each other in bromeliad language". This was

Figure 8. Trellis at her demonstration corner. Photo by Jose Donayre

reflected in their interview by the Miami Herald in January 1988, "Bromeliad's language speaks fluently to two friends". Jerry took her friend to a meeting of the Bromeliad Society of South Florida where Wally Berg, a notable bromeliad personality, was showing striking slides of his own collection. Josefa was so impressed by the variety, forms, sizes and colors that at that moment she decided to pursue the cult of bromeliads. Soon, in 1983, she had her first "shade house" in her home and started cultivating tropical plants. Bromeliads were the best selling ones.

Once bitten by the bromeliad bug, with the possibilities of acquiring, growing and selling them, a business dream started with the purchase of a 2.9 acre piece of land in Southwest Ranches, at US $18 an acre in 1983. By 1985 she had finished building a house and started seriously increasing her stock and selling them at every opportunity with her friend Jerry. *Guzmanias* were her favorites at the beginning, then the *Vriesias* but finally she settled on *Neoregelias* which have captured most of her attention and obtained most of her awards. So much so that in south Florida bromeliad shows the larger, most colorful and spectacular *Neoregelias* are always from Josefa. She has become the most frequent winner of ribbons, awards and "Sweepstakes" and has had her plants named Best of Show many times, At the same time she was becoming one of the main sources of quality bromeliads in the area. She also became an active participant as exhibitor, seller and provider of auction plants in the annual Extravaganza events organized by the Florida Council of Bromeliad Societies (FCBS), and the biannual World Conferences like the ones in Houston in 1986 and Miami in 1988 among others.

Figure 9. At a South Florida Show with one of her artistic arrangements. Photo by Jose Donayre

In anticipation for the latter, the VIII World Conference "Miami Magic" held at the Inter Continental Hotel in Miami in May 1988, the New Herald published two well illustrated articles by Georgia Tasker in March. The first one, "So proud, so strong, the Bromeliad grows on its fans. Backyard growers enraptured in Bromeliad bliss" reviewing the trajectory, preferences and methods of Dr. Frank Sherman of Pinecrest, FL and those of Josefa when both had reached great notoriety on the local bromeliad world as collectors and growers. A second article by Tasker ("Meet the man that some Bromeliads call 'Daddy'") referred to the experience of Nat DeLeon, one of the most celebrated creators of bromeliad hybrids in Florida.

But to talk about Josefa's bromeliads that seem to respond to the personal care lavished on them with spectacular sizes, conformation, brilliant colors and exceptional inflorescences is not enough. My impression is that Josefa speaks to them in Spanish, the language from the lands they come from, easily permuting into Portuguese for the many species originating in Brazil. She has an innate artistic sense in terms of the best setting, arrangements and presentation of her plants. This is shown very sharply in the way in which they are displayed and maintained in the open areas of her house as well as in the arrangements she does for special events. To go through the gates of her house is to enter into a tropical paradise around which innumerable groups of bromeliads are perfectly combined in form, size and color in a natural disposition in trees, palms or around plantings, shrubs or architectural details. It is not surprising that those who enter to buy some plants and have to walk through such variety of arrangements arrive to the back of the property where the selling part of the nursery is, decided to get not only the maximum number of plants possible but also ideas as to how to display them. For this particular purpose Josefa has created a special corner showing clients how can they use and mix them for decoration in gardens, trees, large artistic pots as well as in interiors. There is where she now provides some of her artistic sense in the use of bromeliads for her clients.

South Florida has in Josefa and her "Sunshine Bromeliads" a point of convergence for friends, hobbyists and collectors. Entire Societies frequently program educational and shopping sprees to her nursery for their members. Those of us who are in the vicinity are thankful for the privilege of having her nearby.

Figure 10. At the head table of the show where many of Josefa's plants can be found. Photo by Jose Donayre

Figure 11. Josefa enjoying an afternoon with her bromeliads under the sun. Photo by Jose Donayre

Bromeliad Society Of South Florida - 2012 Show

Alan Herndon

Figure 1. Best Blooming *Aechmea* - A large, dark clone of *Aechmea chantinii* exhibited by Dr. Jeff Block. Photo by Mickey Gallander.

Figure 2. Best Nonblooming *Billbergia* - *Billbergia* 'La Vie en Rose' exhibited by Jose Donayre. Photo by Mickey Gallander.

Our show is traditionally held near the middle of April, just late enough to ensure that a good number of *Neoregelia* species and hybrids will be in bloom but early enough to avoid the full heat of summer in Miami. In 2012, however, a warm winter followed by a cool spring shifted the blooming cycles of many species. Many *Neoregelia* were already past bloom by the middle of April. Fortunately, a very large number of different *Neoregelia* forms are grown locally, so there were still plenty in the proper state of development at show time. Of course, the warm winter also affected the blooming period of other groups. The net effect was a show with a lower proportion of blooming plants than usual. There was also somewhat less diversity as the number of infrequently grown genera entered this year fell compared to previous years.

Figure 3. Best Non-blooming *Edmundoa - Edmundoa lindenii* (variegated). Exhibited by Karl Green. Photo by Mickey Gallander.

We experienced some trouble with the weather despite mid-April historically being the driest part of our dry season. Saturday, when the show and sale opened to the public, visitor turnout was suppressed by a severe weather advisory in the morning and another in the afternoon. We did not have the severe storms, but our plant sales are held outside, so the frequent rains on that day lessened the enthusiasm of buyers. Fortunately, Sunday was a much better day.

Fewer plants were entered into the judged show than in the recent past, but the tables were adequately filled. Fortunately, the quality of the individual entries was also high.

Perennial favorite, Josefa Leon, won the Sweepstakes Award with a set of entries headlined by the Best Blooming Bromeliad (a sprawling clump of variegated *Neoregelia pendula*) and the Best Non-blooming Bromeliad (an enormous clump of albomarginate *Orthophytum vagans*). A veteran of over 30 years in competitive shows, Josefa, always spreads her entries among many different sections to maximize the potential for major awards. In addition, her entries are well selected and cleaned, so very few earn less than the Award of Merit ribbon during general judging.

Figure 4. Bronze Award for Nonblooming *Vriesea* - Clump of *Vriesea ospinae* var. *grueberi* with variegated pup. Exhibited by Josefa Leon. Photo by Mickey Gallander.

Figure 5. Best Nonblooming Bromeliad - A large clump of albomarginate *Orthophytum vagans* exhibited by Josefa Leon. Photo by Mickey Gallander.

As usual, the Art Show run by Sharon Biddex-Maessen, added greatly to the plant show. The Art, much of it from local students in the Arts Magnet program at Southwood Middle, covered almost all of 3 walls surrounding the plants. Fairchild Tropical Botanic Garden generously provided family passes for students exhibiting in the show. Many of these families visited the show, primarily to take photos of the young artists with their works on display. We hope some found the living plants of similar interest. Local adult artists also displayed works in the Art Show. Among the works presented by adult artists, that judged best was a watercolor of clumping *Neoregelia* 'Super Fireball' by Marta Flor.

Eight commercial bromeliad growers from south and central Florida, along with a Member's Sales Table featuring plants from local hobbyists, provided an opportunity for serious bromeliad shopping. More unusual plants, often those hard to find at commercial nurseries, were featured at two auctions, one on Saturday and one on Sunday. Dr. Jeff Block contributed many of the plants, primarily seldom seen and beautifully grown *Guzmania* hybrids, for the Sunday auction. These auctions were well attended and attracted some spirited bidding, providing a welcome boost to the income derived from the show.

Vriesea ospinae was the talk of the show due to 3 entries. Harvey Bullis IV, in his

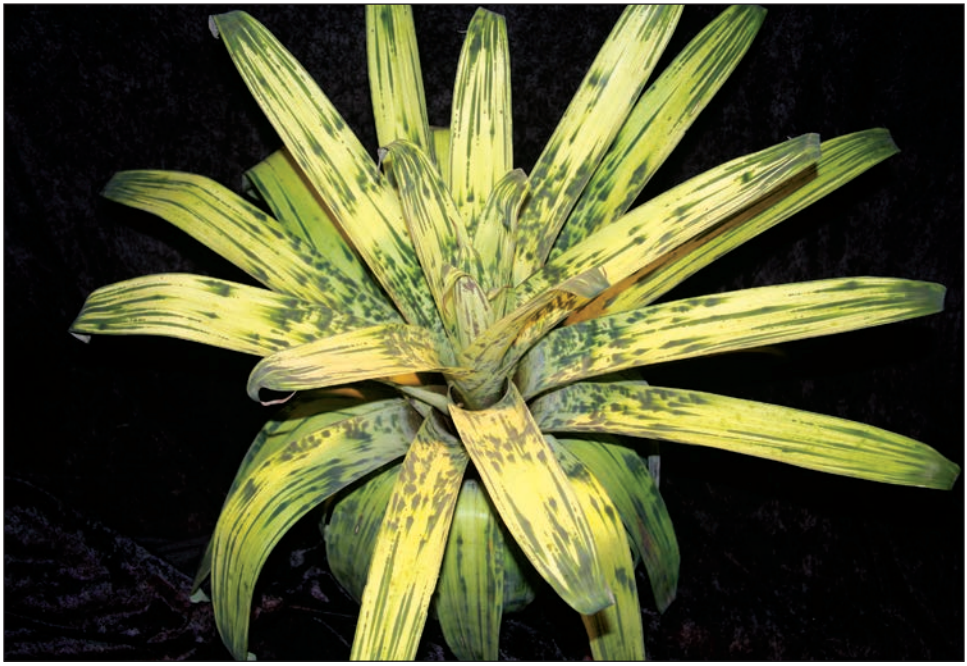

Figure 6. Best Nonblooming *Vriesea* - *Vriesea ospinae* variant exhibited by Harvey Bullis IV. Photo by Mickey Gallander.

Figure 7. Best Nonblooming *Neoregelia* - *Neoregelia* 'Rio Negro' exhibited by Jose Donayre. Photo by Mickey Gallander.

first appearance in our competitive show, entered two plants of a new variant of *Vriesea ospinae*. Josefa Leon entered a clump of plain old *Vriesea ospinae* var. *gruberi*, but one of the rosettes was nicely variegated. Dr. Jeff Block had another blooming, albomarginate *Vriesea* 'Splendide' in the show this year. As was the case last year, this plant attracted plenty of attention.

As in years past, Bullis Bromeliads generously donated an eye-catching display of plants that we place at the entrance to the show room in order to entice visitors into the show. This year, their display was a living wall. A panel approximately 5 x 5 feet was covered on one side with trays tilted at the proper angle so a potted bromeliad would be seen in a top view. The Bullis display featured *Neoregelia* 'Donger' over most of the panel with a contrasting band of *Vriesea* 'Mint Julep' running diagonally through the center. Of course, there is no limit to the design possibilities with this system and we expect to see many creative variations in the years to come.

Each year, our show takes an inordinate amount of our members' energy, but it provides the best opportunity we have to interact with that segment of the public that is not already familiar with the charms of bromeliads. Perhaps more importantly, we have an opportunity to show the public that there is much more to bromeliads than one would expect from the very limited diversity of species and hybrids so frequently used in landscaping down here. This gives us the motivation to return next year with another Show and Sale to capture the interest of yet more people.

Figure 8. Best Blooming *Orthophytum* - Close up of blooming *Orthophytum roseum* exhibited by Karl Green. Photo by Mickey Gallander.

Figure 9. Best Nonblooming *Cryptanthus* - *Cryptanthus* 'Absolute Zero' exhibited by Harvey Bullis IV. Photo by Mickey Gallander.

The 50-year Membership Project

Alan Herndon

BSI has now been in existence for over 60 years, and it seems an appropriate time to reach back into history and honor some of the people who have helped the BSI survive those decades and helped expand the public knowledge about bromeliads. The first project undertaken, at the urging of Peter Tristram, was the identification of very long-term BSI members; those who have been members for 50 years or more.

At present we have identified 5 such members. There may be more members deserving recognition, but we have been hampered in our search by poor records of memberships from the early days. It has proven easiest to find qualified members among the list of our Honorary Trustees because the Trustees have always been exceptionally active members whose names frequently appeared in the Bromeliad Society Bulletin (predecessor to the Journal of the Bromeliad Society). Dates of original membership are less than clear in many cases, but Elmer Lorenz (Los Angeles) stands alone as the only surviving member from the original meeting that founded the BSI. Following in 1953 was Marcel Lecoufle (Paris). Nat DeLeon (Miami) joined BSI around 1956. William Morris was one of the early BSI members from Australia (joined 1957) and has the further distinction of being the only person to serve as an Honorary Trustee for 50 years. Herb Plever (New York), the new kid on the block, has only been a member since 1961.

As part of the project, short profiles of these members, and their lives among bromeliads, have been published in the Journal. William Morris was featured in volume 62(2): 70-72. Marcel Lecoufle in volume 62(3): 113-118 and Herb Plever in 62(4): 181-184. Nat DeLeon's profile appeared in the last issue of the Journal, and the profile of Elmer Lorenz is featured in the current issue. BSI also has plans to issue a medallion to honor people who reach the 50 year mark, with the design still under discussion. Given that Herb Plever and Nat DeLeon were planning to attend the 2012 World Conference, Urszule Dudek designed a certificate, printed by the Bromeliad Society of South Florida, that could be handed to those two at the Banquet (Fig 1). Certificates were mailed to the three honorees unable to attend the Conference.

We realize we may have missed other people who have also been members for 50 or more years. Given the lack of adequate membership records, we need your help identifying these people. If you know another current BSI member _ including yourself _ who was a member by 1962, please let us know. Also, this project is intended to continue indefinitely. By the time the 2014 World Conference in Hawaii starts, we would like to have a list of all current members who joined by or before 1964 so they can be recognized during the Conference.

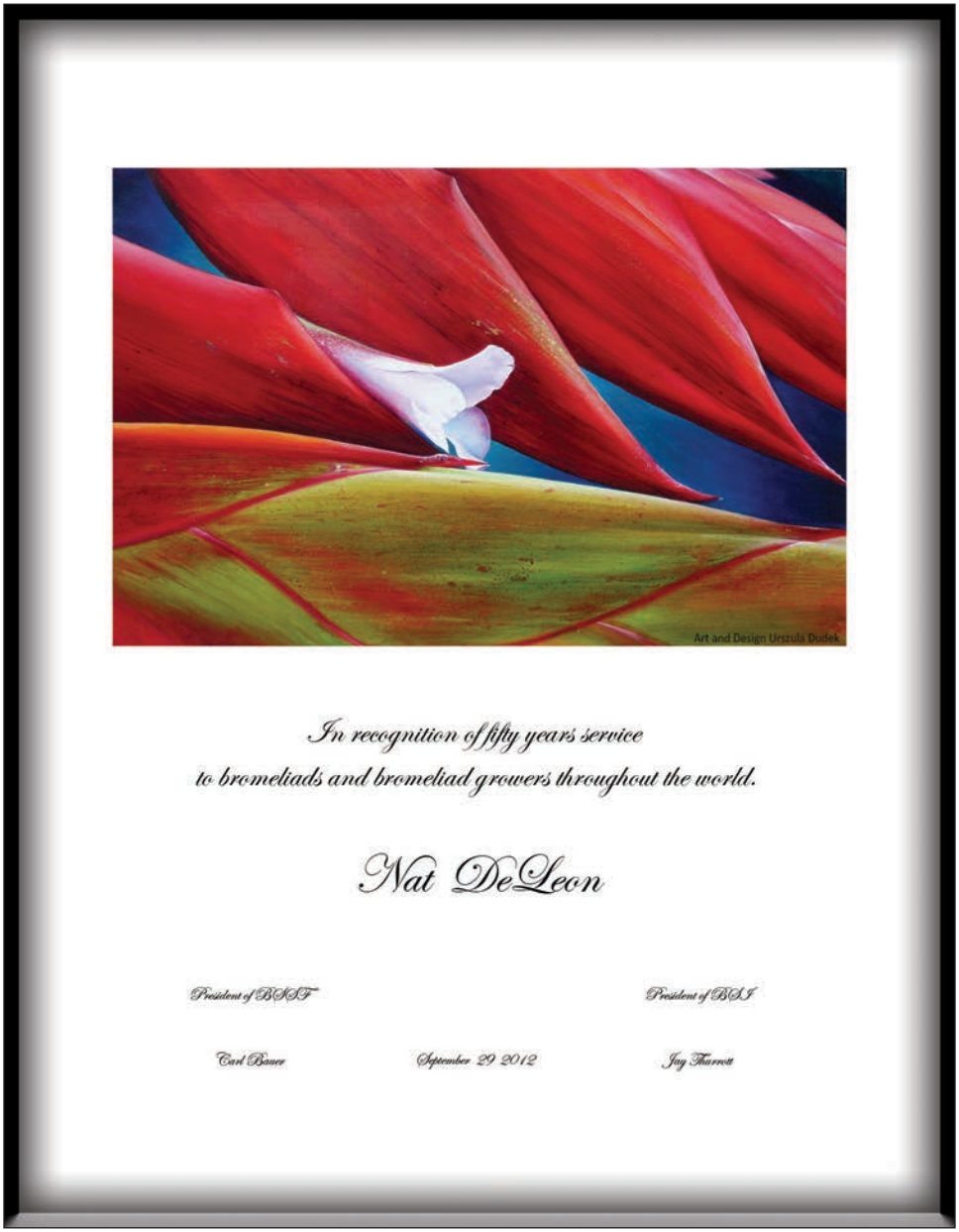

Figure 1. A replica of the certificate given to Nat DeLeon during the post-Banquet ceremonies at the 2012 World Bromeliad Conference in Orlando.

A Plantsman For All Seasons

Robert Kopfstein

Figure 1. Elmer in his library- surrounded by plant books. Photo by Robert Kopfstein.

Elmer Lorenz was there when it all began. It started in 1946 when tropical plant growers from the southern California area attracted to the little known group called bromeliads organized a round-robin to share the limited knowledge available on these plants. By May 1949 the group decided to form a bromeliad society, and the following year ...

> It was on a Sunday afternoon,
> September 17, 1950 at the home of
> Mr. and Mrs. Frank Overton in Glendale,
> California that a small but enthusiastic group
> of plant lovers met and organized a society,
> not just a local society but an international
> society for the benefit of bromeliad enthusiasts
> all over the world.
>
> (Mulford B. Foster,
> Bromeliad Society Bulletin,
> I(1):2)

Included in the initial Board of Directors were Dr. Lyman Smith, Mulford Foster, Laslislaus Cutak, Victoria Padilla, and of course Elmer Lorenz.

Elmer John Lorenz was born on February 20, 1914. World War One began when he was six months old. Woodrow Wilson was president of the U.S. and Los Angeles was still a west coast backwater. It wasn't long before the young Elmer became interested in plants. His first interest was begonias, and his collection today still reflects that interest. He soon branched out and included the epiphytic cactus genus *Rhipsalis* as part of his gardening interests. In the 1920's he acquired his first bromeliad, a *Billbergia nutans* as a gift. In 1937 he joined the Begonia Society and began in earnest his networking with people in the plant world. At the time it was not altogether easy to find nurseries that carried exotic plants in southern California, so Elmer began to order from Julius Roehrs (a mail-order nursery based in New Jersey that was a major source for tropical plants) in 1937. It was from the Roehrs catalog that he ordered his first specimen of *Billbergia* 'Theodore L. Mead'.

The founding of BSI coincides with Elmer buying the house in which he currently lives in Eagle Rock, California, a suburb of Los Angeles, and the town where Elmer was born 99 years ago. The lot was one acre with a house; however, there was no landscaping whatsoever. In 1950 Elmer began work on his garden which now consists of one half acre: some years ago Caltrans needed the other half of the garden for a freeway offramp (Ah well, this is California. . .).

Bit by bit, Elmer filled his garden with tropical and subtropical plants, constructing lath houses, greenhouses and ponds. The garden began to attract visitors including Mulford Foster, Roberto Burle-Marx, Thelma O'Reilly, Werner Rauh, Dutch Vandervort, Victoria

Figure 2. A small section of the plants growing in Elmer's yard. Bromeliads predominate in this section. Photo by Robert Kopfstein.

Figure 3. A perfect spot for sitting among the plants. Photo by Robert Kopfstein.

Padilla (who cites Elmer as having a significant bromeliad collection in a Bromeliad Society Bulletin article dated March-April, 1954), and there have been scores of other visitors over the decades who have come to see Elmer's remarkable collection of plants.

Both Elmer and his wife Joyce (d. 2008) devoted their lives to the promotion of plants and gardens. Elmer was a volunteer at the Huntington Gallery and Gardens for 35 years, and Joyce was a docent there as well. Some years ago this author had the pleasure to be on one of the Joyce's tours, and her enthusiasm and knowledge impressed everyone in the group.

Elmer's professional career included a stint working for the U.S. War Department before World War II. In August 1941, before the outbreak of American hostilities, Elmer joined the Army and served until November of 1945. Following the war he went to work for the U.S. Post Office. At that time all civil service examinations were administered at the Post Office, and Elmer was in charge of giving these exams.

Once the Bromeliad Society International was formed, Elmer devoted years of service to the organization. He served as a board member, as president, as membership secretary and for many years as a bromeliad judge. During Elmer's presidency the BSI Identification Center was formed.

Not content simply to collect unusual plants and study them in his garden, Elmer also traveled in order to see the plants in habitat, touring Costa Rica, Southeast Asia, Australia

and the South Pacific. The eclecticism of Elmer's tastes is evident in his garden and house today.

When you drive up to the front of the property it is evident that a plant person lives there. There are palms, bromeliads, begonias, pots of *Rhipsalis* hanging from the trees. As you enter the half acre garden there are surprises at every turn. Thousands of plants fill the space, and as you walk around with Elmer, every plant seems to have a story. Only months away from his hundreth birthday, Elmer works in his garden every day, and it is only occasionally that he forgets the botanical name of the plants there. Of the bromeliads, the neoregelias are his favorite genus, and he has hundreds of them on display. When asked how many plants are in the garden Elmer responded with a smile, "Good question."

But there is more. Elmer is also a voracious reader. His collection of books—many are out of print botanical volumes -- numbers more than 2000. Currently _ on Kindle _ Elmer is reading John Grissom's Litigation and The Panther by DeMille, a book on Al Qaida. The computer is also an integral part of Elmer's life, and one sets prominently on the desk in his den.

In his century on planet Earth, Elmer J. Lorenz has demonstrated his lifelong involvement with the environment, enriching everyone with his love of plants. He also has shown his commitment to his fellow man with his labors to help found the Bromeliad Society and to make it prosper over the years to the benefit of thousands of plant enthusiasts. Elmer's wit and intellect make him truly a plantsman for all seasons.

Figure 4. Another view of Elmer's yard showing more diversity in plant families. Although bromeliads are still conspicuous, palms and other tropicals are also evident. Photo by Robert Kopfstein.

x *Neophytum* 'Burgundy Thrill'

Geoff Lawn, BSI Cultivar Registrar

Figure 1. x *Neophytum* 'Burgundy Thrill'. Photo by Dennis Cathcart.

In his earlier years of growing and breeding champion bromeliads, Herb Hill of Raingreen Tropicals nursery in Lithia, Florida crossed *Neoregelia* 'Royal Burgundy' x *Orthophytum navioides* in 1983. This produced *Neophytum* 'Burgundy Hill', named by Texan grower John Anderson. *Neophytums* were still rather a novelty back then, so this new introduction with its flattish rosette of radiating greenish red spoke-like leaves and central red flush at blooming with white flowers, soon became popular. *O. navioides* seems to dominate in such crosses and even the normal foliage spotting from *N.* 'Royal Burgundy' hasn't transmitted to the progeny. By 2013 there are still only 22 x *Neophytums* registered.

Around 2008-9 the demand for x *Neophytum* 'Burgundy Hill' was such that Tropiflora Nursery of Sarasota, Florida had a large batch of this bigeneric tissue-cultured. All propagules as they were grown on matched the original 'Burgundy Hill' with one exception. A single explant was a chimera which started developing bold central cream variegation in each leaf. Naturally this selection was isolated and given special attention.

Figure 2. x *Neophytum* 'Burgundy Thrill'. Photo by Dennis Cathcart.

The variegation held true through to maturity with a full rosette of around 150 striped leaves, each 2.5cms. wide by 60cms long, tapering to a point (Figure 1). Young pups have some random striations but later develop broad central cream stripes which turn reddish pink in strong light. At this stage stock plants show no sign of reverting to all green nor albino pups. In ideal conditions with regular feeding, this striking cultivar, named by Dennis Cathcart, can reach 1 metre diameter.

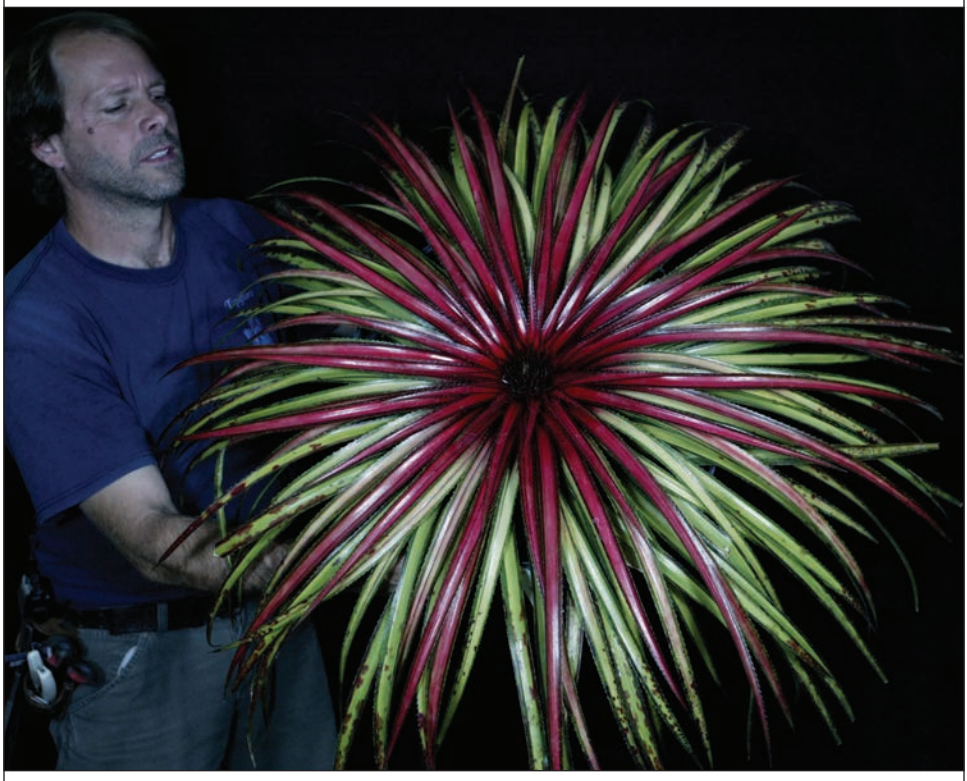

Figure 3. x *Neophytum* 'Burgundy Thrill'. Photo by Dennis Cathcart.

New Bigeneric Genus: *x Orthocohnia*

Geoff Lawn, BSI Cultivar Registrar

In March, 2013 a new nothogenus x *Orthocohnia* was first recorded in the BSI Bromeliad Cultivar Register under the International Code of Nomenclature for algae, fungi and plants (I.C.N.---Melbourne Code 2011). Its breeder is Ray Lemieux of Tropiflora Nursery, Sarasota, Florida, U.S. A. who created this cross in 1996 and coined the bigeneric genus name x *Orthocohnia*. The cultivar was named 'Surprise' by Ray also and registered by nursery owner Dennis Cathcart.

The seed parent is *Deuterocohnia lorentziana* (Mez) M.A. Spencer & L.B. Smith. Reference: Bradea 6:141-5 (1993). Although formerly known as *Abromeitiella lorentziana,* this species was described originally in 1896 as *Pitcairnia lorentziana* (Mez). Reference: DC. Monogr. Phan. 9:974.

The pollen parent is *Orthophytum estevesii* (Rauh) Leme. Reference: J. Brom. Soc. 54(1): 37-9. (2004). This species was formerly known as *Orthophytum fosterianum* L.B. Smith. var. *estevesii* Rauh. Reference: Trop. Subtrop. Pflanzenwelt 79: 27-29, figs. 14,15. (1991).

All photos featured here and in the following article were taken by Dennis Cathcart at Tropiflora Nursery, Florida (Figure 1).

Figure 1. Potted *x Orthocohnia* 'Surprise' . Photo Dennis Cathcart

x Orthocohnia 'Surprise'

Geoff Lawn, BSI Cultivar Registrar

Figure 1. *x Orthocohnia* 'Surprise'. Photo Dennis Cathcart.

In 1996, Florida breeder Ray Lemieux of Tropiflora Nursery in Sarasota crossed a green clone of *Deuterocohnia lorentziana* with *Orthophytum estevesii*. The resultant fairly uniform progeny he named *x Orthocohnia* 'Surprise'. As with the seed parent, the siblings matured to tightly-clustered rosette mounds with short, fleshy stolons (Figure 1). Each grey-green rosette is flecked white on the obverse and mainly solid silver on the reverse with streaking at the leaf tips. Each rosette grows to10cm. in diameter with brown-spined leaves 1.25cm. wide and 4.5cm. long, sharply tapering to a point. The short inflorescence is multi-flowered to 4.5cm. tall with reddish sepals and light green petals (Figure 2).

The seed parent, *Deuterocohnia lorentziana*, is a small, saxicolous species endemic to north-western Argentina at 1750-1850 metres altitude. The holotype plant was found at Cuesta de la Chilca, Catamarca Province . It was formerly described by Alberto Castellanos as *Abromeitiella lorentziana* in 1944, but discovered as early as 1896. This taxon rather resembles the bigeneric cultivar featured here. Subtle differences are that x *Orthocohnia* 'Surprise' has more leaves per rosette and each leaf blade displays numerous, finer spines. The inflorescence is secund downwards (flowers on one side) with more open, slightly wider petals.

The pollen parent, *Orthophytum estevesii*, was elevated to species status by Elton Leme (2004) and separated from *O. fosterianum* (L.B. Smith 1958), which is an imperfectly known taxon and *O. sucrei* (Luther 1997), on important morphological differences. This small, saxicolous Brazilian species inhabits the Atlantic Forest in the States of Minas Gerais and Espirito Santo and forms dense, medium-sized populations on rocky outcrops which are partially soil-covered but sun-exposed. The light green rosettes are stemless, 12-30cm. high with narrowly-triangular, channelled leaves. Each upright scape to 17cm. tall produces a viviparous offset atop the inflorescence, traits not evident in x *Orthocohnia* 'Surprise'.

Figure 2. *x Orthocohnia* 'Surprise' inflorescence. Photo Dennis Cathcart

Obviously this hardy, delightful miniature x *Orthocohnia* 'Surprise' enjoys bright light to full sun in a well-drained rockery position in warm to temperate climates. Alternatively pot culture in a fertile, soil-filled gritty mix with some humus can produce excellent growth.

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The BSI Seed Fund has found a new chairman! Many thanks to Bryan Windham of Kenner, Louisiana for taking on this responsibility.

More information to follow soon!

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