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Editor: Andrew Flower, PO Box 57-021 Mana, Porirua 5247, New Zealand
tel: +64 4 2399-659, fax: +64 4 2399-671, email: editor@bsi.org
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Front— A putative natural hybrid between *Tillandsia ehlersiana* and *T. streptophylla* originating in Mexico, and flowering in the editor's nursery. Photo by Andrew Flower.

Back— *Dyckia* sp. at the type locality of *Vriesea claudiana* (see page 17ff) , being protected by the poisonous snake *Bothrops jararaca* in defence position. Photo by Elton M.C. Leme.

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Editorial

Following Harry Luther's resignation from the Marie Selby Botanical Garden, the BSI Board has begun discussions with Selby Gardens aimed at re-defining and, hopefully, strengtening our long-term relationship. We can confirm now that the Mulford B. Foster Bromeliad Identification Center is operational, and requests for identification should be directed to Dr. Bruce Holst at Selby.

In This Issue

The plant illustrated on our cover is thought to be a natural hybrid, from Mexico, and was purchased from Bird Rock Tropicals in California (their code #TX054) in 1996. The so-called "natural hybrid" population was also found by Renate Ehlers at the type locality of *Tillandsia ehlersiana*, thought to be one of the parents together with *T. streptophylla*. It is a relatively huge plant in cultivation, and my plant has self pollinated and produced viable seed. I know one of these plants owned by Bob Hudson in Cairns has also produced viable seed, so it will be very interesting to see what form the mature offspring develop.

Scientific

The stream of new species descriptions from Brazil continues with two new orthophytums from Atlantic forest areas in Espírito Santo and Bahia: *Orthophytum pseudostoloniferum* and *O. guaratingense*. They are desribed by Elton Leme and Ludovic Kollman (page 5). Harry Luther describes a new species, *Guzmania ferruginea*, native to Peru and Ecuador (page 14).

Lithophytic plants grow naturally on rocks, or in rocky ground. Those of us who grow bromeliads in cultivation don't usually think of vrieseas as rock dwellers, but there is a group of them in Brazil. On page 17 Elton Leme, Thais Trindade-Lima and Otávio Ribeiro describe a new lithophytic species, *Vriesea claudiana* named for bromeliad scientist Claudio Coelho de Paula. They also update the record for the little-known *Vriesea saxicola* that has flowered in Elton's extensive collection. ("saxicole" is another term used to indicate a rock-dwelling lifestyle).

Cultivation

Bridget Magney has spent a lot of effort designing and producing her new "bromeliad frames." We encourage exciting new innovations for bringing bromeliads to public attention, and this new venture is described on page32. Bridget lives in Orange County California, and we wish her success in her venture.

General Interest

Francisco Oliva-Esteve and Bruno Manara recently retraced the 1966 trek by Julian Sterermark to Smoky Hill and Small Turkeys Hill in the wet forest of the now Paria National Park in Venezuela where Dr Sterermark discovered *Guzmania membranacea*. Their adventure is told starting on page 38. Following this we have a list sent in by Francisco updating name changes in his bromeliad books.

Studies on *Orthophytum* - Part X. Two Small-sized New Species.

Elton M. C. Leme & Ludovic J. C. Kollmann. Illustrations by E.M.C. Leme.

In the sequence of the studies on Orthophytum, two new species belonging to the "disjunctum subcomplex" (Leme, 2004) are described and illustrated: *Orthophytum pseudostoloniferum* Leme & L. Kollmann and *O. guaratingense* Leme & L. Kollmann, a delicate species from the Atlantic Forest domain of the states of Espírito Santo and Bahia, respectively.

Figure 1. Details of the inflorescence of *Orthophytum guaratingense* Leme & L. Kollmann.

Figure 2. Habit of *Orthophytum guaratingense* associated with *Cactaceae* and *Aechmea* sp.

Orthophytum guaratingense Leme & L. Kollmann, sp. nov. **Type:** Brazil. Bahia, Guaratinga, Córrego do Ouro, 323 m. elev., 16º36.33'S 40º00.65'"W, 22 Apr. 2009, E. Leme 7784, L. Kollmann, A. P. Fontana & C. Esgário (Holotype, RB; Isotype, MBML).

A O. striatifolium Leme & L. Kollmann, cui proxima, sed foliis plus numerosis, laminis foliorum angustioribus, supra apicem versus glabris, marginibus spinis sparse dispositis, floribus minoribus et plus mumerosis, petalis brevioribus et ovulis apiculatis differt.

Plant saxicolous, stemless, 10-12 cm tall, propagating by slender stolons, 6-10 x 0.3-0.4 cm, shoots at the inflorescence apex not detected. ***Leaves*** 30 to 35 in number, rosulate, densely arranged and forming a distinct rosette before anthesis and afterwards; sheaths inconspicuous; ***blades*** narrowly sublinear-triangular, 9-12 cm long, 0.6-0.7 cm wide at base, ca. 1 mm thick near the base, thinly coriaceous mainly toward the base, suberect-arcuate, slightly channeled, dark green to slightly bronze colored, abaxially densely and coarsely white-lepidote with trichomes obscuring the color of the blade, finely nerved, adaxially subdensely white lepidote only at the base and glabrous toward the apex, apex long attenuate-caudate; ***margins*** laxly spinose, spines narrowly triangular, acicular and pale castaneous toward the apex, 0.5-1.5 mm long, 0.5-1 mm wide at base, 6-11 mm apart, slightly to distinctly antrorse-uncinate. ***Scape*** erect, 5-6 cm long, 0.5-0.6 cm in diam., densely white-lanate, pale green with color partially obscured by the trichomes; ***scape bracts*** foliaceous and similar to the leaves, suberect-arcuate. ***Inflorescence*** simple, densely capitate-rosulate, 18- to 25-flowered, erect, 2.5-3 cm long, ca. 4 cm in diameter (including floral bracts); ***floral bracts*** narrowly subtriangular-ovate, apex acuminate, distinctly canaliculate, navicular, strongly recurved, slightly exceeding the petals, greenish-yellow toward base and yellow-green near the apex and margins, thin in texture, abaxially densely to subdensely white-lepidote, nerved, adaxially inconspicuously and sparsely white-lepidote to glabrous, 25-29 x 10-13 mm, the basal ones ecarinate, the upper ones obtusely if at all carinate, margins subdensely to laxly spinose, spines narrowly triangular to acicular, prevailing retrorse, uncinate, pale yellowish-castaneous, 0.5-1.5 mm long, 2-5 mm apart. ***Flowers*** 23-24 mm long (including the petals), sessile, densely arranged, odorless; ***sepals*** symmetrical, narrowly lanceolate, attenuate toward the apex, apex acuminate-caudate, ca. 13 x 3.5 mm, free, entire, pale green, finely nerved, thin in texture, inconspicuously white-lepidote along

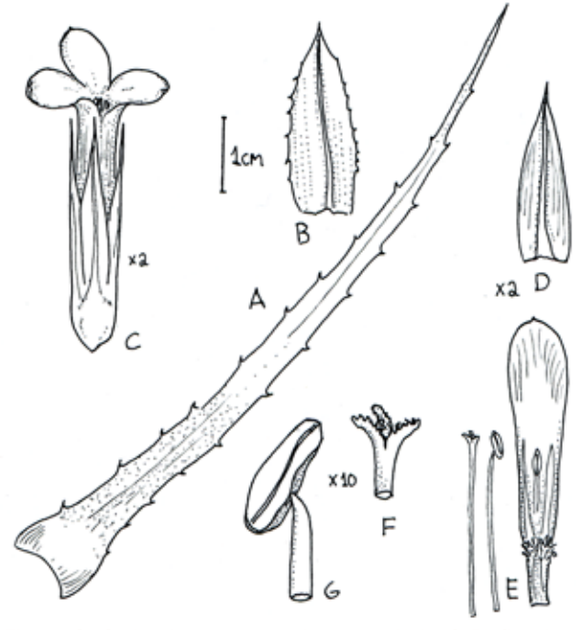

Figure 3. *Orthophytum guaratingense*: A) leaf; B) floral bract; C) flower; D) sepal; E) petals and style; F) stigma; G) anther.

Figure 4. General view of the habitat of *Orthophytum guaratingense* in Córrego do Ouro, Guaratinga, Bahia.

the central-distal portion to glabrous, the adaxial ones carinate with keels decurrent on the ovary, the abaxial one obtusely if at all carinate; ***petals*** spathulate, apex rounded and remotely apiculate, ca. 20 x 4 mm, free, erect at anthesis except for the suberect to nearly spreading apex, white, bearing 2 densely digitate-lacerate, upwardly-oriented appendages ca. 3 mm above the base, as well as 2 conspicuous longitudinal callosities exceeding the the anthers; ***filaments*** terete, white, the antepetalous ones 9-10 mm long, adnate to the petals for ca. 6 mm, the antesepalous ones 11-12 mm long, free; ***anthers*** 1.7- 2 mm long, base and apex obtuse, compressed laterally, green, dorsifixed at middle; ***pollen*** sulcate, ellipsoid, exine reticulate, muri narrowed; ***stigma*** conduplicate, ca. 1.5 mm in diameter, blades spreading-recurved, white, margins lacerate-fimbriate; ***ovary*** ca. 3 mm long, ca. 3.5 mm wide at apex, subtrigonous; epigynous tube lacking; placentation apical; ovules apiculate. ***Fruits*** unknown.

Orthophytum guaratingense is another member of the "disjunctum subcomplex", characterized by its general smaller size, comparatively narrower and more numerous leaves. It is closely related to *O. striatifolium*, an endemic species of the central-north region of Espírito Santo State (Leme & Kollmann, 2007). However, this new species can be distinguished from it by the leaf-rosette with a distinctly higher number of leaves (30 to 34 vs. 10 to 14 in number), narrower leaf blades (6-7 mm vs. 14-15 mm wide at base) and adaxially glabrous toward the apex (vs. subdensely white-lepidote

Figure 5. Red-leafed form of *Orthophytum guaratingense*, associated with *Alcantarea* sp.

with trichomes arranged in rows), margins with sparsely arranged spines (6-11 mm vs. 4-7 mm apart), shorter (23-24 mm vs. 32-34 mm long) and more numerous flowers (18 to 25 vs. 6 to 9 in number), petals shorter (ca. 20 mm vs. 27-28 mm long), and by the apiculate ovules.

The new species was encountered on the top of an inselberg in the the county of Guaratinga, south region of Bahia. The saxicolous plants occur in full sun forming small groups densely aggregated in depression of the granitic surface where a very shallow layer of organic substrate has accumulated. However, the larger groups of plants were found associated with large clumps of *Aechmea* sp. and *Alcantarea* sp. which provided them a partially shaded growing condition. Although the green leafed plants of *Orthophytum guaratingense* are more common at the type locality, we also observed reddish-leafed groups of plants in certain areas of the inselberg.

Despite the botanical richness of the region, which is under the Atlantic Forest Domain and is characterized by the presence of breathtaking inselberg formations, the whole area is severely affected by cattle breeding activities and periodic fires that is destroying the higher and more inaccessible parts of the inselbergs, where endemic species like *Orthophytum guaratingense* are confined.

Orthophytum pseudostoloniferum Leme & L. Kollmann, sp. nov. **Type**: Brazil. Espírito Santo, Santa Teresa, Várzea Alegre, Cachoeira do Madalon, 296 m elev., 19º54.97'S 40º45.69'W, 29 Sept. 2006, E. Leme 6915, L. Kollmann, A. P. Fontana & M. Zanoni (Holotype, MBML. Isotypes, HB, RB).

A O. estevesii (Rauh) Leme, cui proxima, sed planta breviore, laminis foliorum angustioribus, subtus distincte albo-lepidotis, marginibus spinis brevioribus, bracteis foriferis brevioribus et etiam marginibus spinis brevioribus, floribus et sepalis brevioribus differt; a O. striatifolium Leme & L. Kollmann, affinis, sed plantis haud rhizomatosis, laminis foliorum supra glabris, bracteis floriferis longioribus, petalis apice leviter cucullatis differt.

Plant saxicolous, stemless, 10-13 cm tall, propagating by short basal shoots and from a single conspicuous shoot at the inflorescence apex that develops continuously after anthesis. ***Leaves*** 10 to14 in number, rosulate, subdensely arranged and forming a distinct rosette before anthesis and afterwards, ***sheaths*** inconspicuous, ***blades*** narrowly triangular-lanceolate, 9-11 cm long, 0.9-1.5 cm wide at base, ca 2 mm thick near the base, thick-coriaceous mainly toward the base, arcuate to nearly spreading, slightly channeled mainly toward the apex with a semicircular curve in cross-section to nearly flat, greenish-bronze colored, abaxially densely and coarsely white-lepidote, nerved, adaxially densely white lepidote at base only and glabrous toward the apex, apex long attenuate-caudate, margins subdensely to laxly spinose, spines narrowly triangular, acicular and pale castaneous toward the apex, 1.5-2 mm long, ca. 1 mm wide at base, 4-9 mm apart, the basal ones nearly straight, the upper ones distinctly antrorse-uncinate. ***Scape*** erect, 5-9 cm long, 0.5-0.7 cm in diameter, densely white-lanate, green with color obscured by the trichomes, ***scape*** bracts foliaceous and similar to the leaves, subspreading-arcuate to reflexed. ***Inflorescence*** simple, densely capitate-rosulate, 8- to 10-flowered, erect, ca. 2.5 cm long, 4.5-5 cm in diameter (including floral bracts), ***floral bracts*** narrowly ovate, apex acuminate, distinctly canaliculate, navicular, ecarinate, strongly recurved, exceeding the sepals, yellowish-green to orange (when fully exposed), thin in texture, inconspicuously and sparsely white-lepidote near the base to glabrous, glabrous toward the apex, nerved abaxially, 25-35 x 11-15 mm, densely spinose, spines narrowly triangular, the basal ones retrorse the median to apical ones antrorse, uncinate, greenish except for the pale castaneous apex, 0.5-1.5 mm long, 0.5-1 mm apart. ***Flowers*** 26-28 mm long (including the petals), sessile, densely arranged, odorless, ***sepals*** symmetrical, narrowly lanceolate, attenuate toward the apex, apex acuminate-caudate, 14-16 x 3-4 mm, free, entire, pale green to greenish-yellow, nerved, thin in texture, glabrous, the

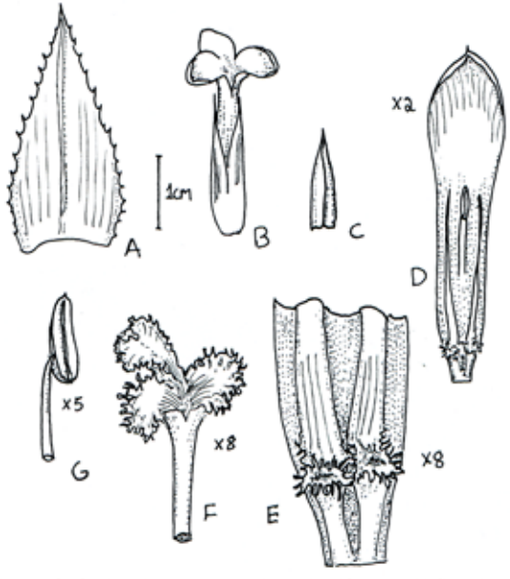

Figure 6. *Orthophytum pseudostoloniferum*: A) floral bract; B) flower; C) sepal; D) petal; E) details of the petal appendages; F) stigma; G) anther.

Figure 7. Details of the flower and the conspicuous apical shoots of the inflorescence of *Orthophytum pseudostoloniferum*.

adaxial ones carinate with keels decurrent on the ovary, the abaxial one ecarinate, ***petals*** sublinear-spathulate, apex obtuse and slightly emarginate-cucullate and minutely caudate, 23-24 x 4.5-5 mm, free, erect at anthesis except for the suberect to nearly spreading apex, white except for the greenish-white central portion, bearing 2 densely lacerate-scalloped, mostly downwardly oriented appendages ca. 2 mm above the base, as well as 2 conspicuous longitudinal callosities equaling the anthers, ***filaments*** the antepetalous ones 13-14 mm long, adnate to the petals for 8-9 mm, the antesepalous ones 14-15 mm long, free, ***anthers*** 2-2.5 mm long, base obtuse, apex obtuse and minutely apiculate, compressed laterally, dorsifixed at 1/3 of their length above the base, ***pollen*** sulcate, ellipsoid, exine micro-insulate- reticulate, muri thickened, ***stigma*** simple-erect, ca. 2 mm in diameter, blades spreading-recurved, white, margins laciniate, ***ovary*** 4-5 mm long, ca. 4 mm wide at apex, trigonous; epigynous tube lacking; placentation apical; ovules obtuse, green. ***Fruits*** distinctly enlarged from the ovary, subglobose, white toward base and greenish near the apex.

Figure 8. Habit of *Orthophytum pseudostoloniferum*.

Paratypes: Brazil. Espírito Santo: Santa Teresa, Várzea Alegre, Cachoeira do Madalon, 30 Aug. 2001, L. Kollmann 4447, E. Bausen & W. Pizziolo, cult. E. Leme 6704 (MBML, HB); ibid., 29 Sept. 2006, L. Kollmann 9337, A. P. Fontana, M. Zanoni & E. Leme (MBML).

Like its closest relative, *Orthophytum pseudostoloniferum* is characterized by its general smaller size and the development of a large, single shoot at the inflorescence apex that very soon reaches mature plant size, making the scape it is attached to appearing as a false slender stolon. The name chosen for this new species depicts the reported phenomenon.

The new species is very closely related to *Orthophytum estevesii*, differing by the proportionally smaller size when in bloom (10-13 cm vs. 12-30 cm tall), narrower leaf blades (0.9-1.5 cm vs. 1.5-2.4 cm wide), greenish-bronze colored (vs. light green), densely white lepidote abaxially (vs. glabrous), margins with proportionally shorter spines (1.5-2 mm vs. 2-4 mm long), floral bracts with proportionally smaller marginal spines (0.5-1.5 mm vs. 1.5-2.5 mm long), shorter flowers (26-28 mm vs. 30-35 mm long), and by the shorter sepals (14-16 mm vs. 18-22 mm long). On the other hand,

this new species somewhat resembles the recently described *O. striatifolium*. However, it can be distinguished from it by the propagation of short basal shoots and from shoots originated at the inflorescence apex (vs. propagating by slenderly rhizomes), leaf blades adaxially glabrous, floral bracts longer (25-35 mm vs. 17-23 mm long), and by the petals with apex slightly cucullate (vs. not cucullate).

Orthophytum pseudostoloniferum was found growing in shaded humid sites in the Atlantic Forest, close to a waterfall (Medalon), forming large and dense groups of plants more often on rocky surfaces and sometimes on the forest floor.

Acknowledgments

The authors thank the botanists Andre Paviotti Fontana and Clara Esgario for their support during field studies in Espírito Santo and Bahia and valuable suggestions.

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Authors

Elton M. C. Leme: Herbarium Bradeanum, C. Postal 15005, Rio de Janeiro, RJ, 20.031-970, Brazil. e-mail: leme@tj.rj.gov.br

Ludovic J. C. Kollmann, Museu de Biologia Prof. Mello Leitão, Av. José Ruschi, 4, Santa Teresa, Espírito Santo, 29.650-000, Brazil. E-mail: ludovic@limainfo.com.br

Guzmania ferruginea, a New Rusty Red Guzmania from Peru and Ecuador.

Harry E. Luther.[1]

Figure 1. *Guzmania ferruginea* flowering in cultivation.

1 Gardens By The Bay, National Parks Board Headquarters, 1 Cluny Road, Singapore 259569. email harry_luther@nparks.gov.sq.

Guzmania ferruginea H. Luther, sp. nov. **TYPE**: Ecuador. Ex hort Ecugenera Cia Ltda, Ecuador via J. Kent, no specific locality. Flowered in cultivation SEL 2007-212, 20 Aug 2009, H.E. Luther s.n. (Holotype: SEL).

A Guzmania calamifolia Andre ex Mez, cui similis et affinis, vaginis foliorum ferrugineo lepidotis differt.

Figure 2. *Guzmania calamifolia* from Panama.

Plant a densely clustering terrestrial or lithophyte, flowering 45—120 cm tall. ***Leaves*** erect to spreading, rosulate, 8 to 20 in number, 75—120 cm long; ***leaf sheaths*** narrowly elliptic, 4—12 x 2—4 cm, castaneous with a thin pale margin, nerved, proximally very densely covered with asymmetrical and shaggy dark ferruginous trichomes; ***leaf blades*** linear, attenuate, 3—7mm wide, involute, inconspicuously and obtusely plicate, densely ferruginous lepidote toward the sheath especially abaxially becoming scattered dark punctate-lepidote toward the apex. ***Scape*** erect, stiff, 30—100 cm x 2—5 mm, sparsely punctate-lepidote; ***scape bracts*** erect, laxly imbricate and exposing the upper internodes, very narrowly elliptic, subfoliaceous, punctate-lepidote, the uppermost reddish. ***Inflorescence*** bipinnate to laxly tripinnate with 6 to 12 primary branches, the main axis flexuose; ***primary bracts*** elliptic, acute, 25—40 x 5—9 mm, somewhat cucculate, nerved, sparsely punctate-lepidote, red, all much shorter than the branches; ***primary branches*** with a slender 2—10 mm peduncle, the lowest primary branches rarely with up to 6 subsessile 2 to 10-flowered secondary branches, otherwise the primary branches cylindrical, 4–12 cm long, 8 to 15-flowered; ***floral bracts*** elliptic, acute, 13—17 mm long, somewhat cucculate, thin coriaceous, nerved, the proximal ones somewhat carinate, spreading at anthesis usually red or rarely red tipped white or yellow. ***Flowers*** opening during the day, spreading at ca 15° from the axis at anthesis, 2—4 mm pedicellate and polystichously arranged; ***sepals*** elliptic, acute, 10 mm long, the adaxial pair 2—3 mm connate and carinate, the keels extending into the pedicel; ***corolla*** spreading distally; ***petals*** 16–18 mm long, white, naked, conglutinated for ca 2/3 of their length. ***Fruit*** a dry capsule 14—16 mm long, seed coma brown.

Paratypes. PERU. Amazonas: Prov. Bagua, Imaza, Tayu Mujaji, 05°15’56”S, 78° 22’07”W, 900-1030 m elev., 17 Feb. 2002, R. Vasquez 27614 (SEL, MO). Same locality, Solado Oliva, road from Bagua to Imaza, 660 m elev., 7 Feb. 1999, C. Diaz,

M. Huaman, F. Salvador, O. Portocarrero & M. Medina 10657 (SEL, MO).

Tayu Mujaji, 05° 15'56"S, 78° 22'07"W, 1200 m elev., 21 Oct. 1997, R. Rojas, A. Peña, R. Apanu & J. Anag 367. (SEL, MO).

Figure 3. *Guzmania ferruginea*, base of plant.

This new guzmania at first resembles *Guzmania calamifolia* from Panama and Colombia (the only Ecuadorian record for *G. calamifolia* was based on a misidentified *G. madisonii*) but differs conspicuously by having the leaf sheaths and lower leaf blades covered by a dense layer of shaggy, rusty trichomes. In addition, the inflorescence of *G. ferruginea* may be tripinnately (vs. bipinnately) compound, and the bracts are usually solid bright red not red and yellow or rose and white. The habitat for this interesting plant is on or among rocks on white sandy soil.

I have designated a cultivated plant as the holotype because all of the field collected paratype collections are either at early pre or old post anthesis and fragmentary.

I thank the Missouri Botanical Gardens for their collections, Mr. Jeffrey Kent for the living material and Dr. Phil Nelson for the photography.

Revision of the Lithophytic *Vriesea* Species from Minas Gerais State, Brazil - Part IV.

Elton M. C. Leme, Thais Trindade-Lima & Otávio B. de C. Ribeiro. Illustrations by E.M.C. Leme.

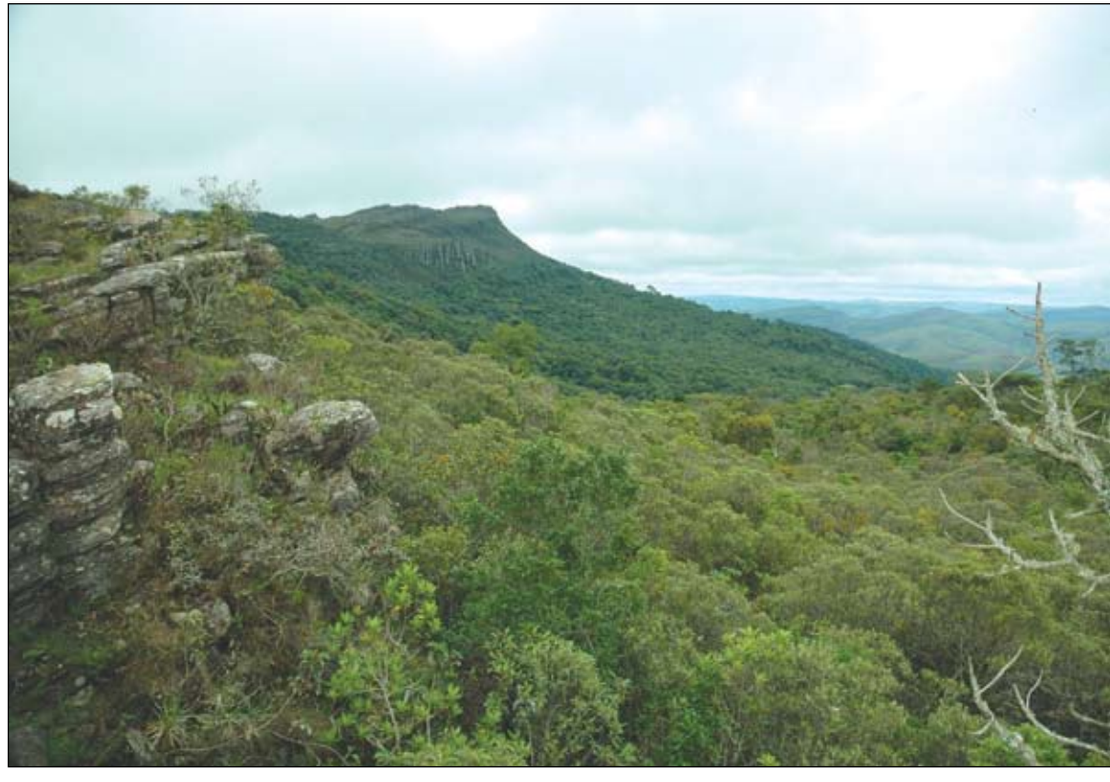

Figure 1: General view of Pico do Gavião, the type locality of *Vriesea claudiana*, situated at São Thome das Letras.

The genus Vriesea has about 260 species (Luther, 2008) and ranges from southern North America, through Central America, including the Antilles, and South America, especially Brazil, where the greatest number of species are found, from the Amazon region to the southern part of the country, from sea level to the mountain crests over 2,000 m high. In Brazil, its members usually grow as epiphytes in the Atlantic Forest, but some species thrive terrestrially in the sandy soils of the Restinga, while a very peculiar group of plants is specialized in lithophytic habitats, mainly in the domain of the Campos Rupestres of the states of Minas Gerais and Bahia.

Figure 2: Habit of *Vriesea claudiana* at the type locality.

In the study sequence of the lithophytic Vriesea of Minas Gerais State, a new species and its putative closest relative, which is a poorly known taxon now introduced in cultivation, are presented here.

Vriesea claudiana Leme, Trindade-Lima & O. B. C. Ribeiro, sp. nov. **Type**: Brazil, Minas Gerais, São Thomé das Letras, Sobradinho, proximidades do Pico do Gavião, 21°38.21'S 44°55.58'W, ca. 1,406 m elev. 22 July 2007, E. Leme 7283, T. Trindade-Lima & O. Ribeiro. Holotype: HB.

A V. saxicola L. B. Sm., cui affinis, laminis foliorum haud maculatis, inflorencentia dense et breviter paniculata, bracteis primariis altitudinem stipitum aequantibus vel vix superantibus, ramis lateralibus brevioribus stipitibus basalibus etiam brevioribus, ramo terminale subtriplo breviore etiam stipite breviore bracteis sterilibus binis ornatis, rhachidi ditincte breviore, bracteis floriferis brevioribus, petalis brevioribus, erectis vel suberectis et corollis tubulosis vel fere differt.

Plant saxicolous, flowering ca. 125 cm high. ***Leaves*** 18 to 23 in number, densely rosulate, suberect, forming a funnelform rosette; ***sheaths*** ovate-elliptic, ca. 16 x 10 cm, subdensely and minutely white-lepidote on both sides, thinly coriaceous, abaxially dark castaneous mainly toward the base, adaxially purplish at the apex and pale colored toward the base; ***blades*** sublinear, slightly narrowed toward the apex, 17-18 x 6-6.5 cm, not narrowed at the base, apex rounded to subacute and minutely apiculate, greenish-glaucous with darker green irregular cross-veins mainly by transmitted light, chartaceous, sparsely and inconspicously white-lepidote and covered on both sides by a thin layer of white wax, apical margins not revolute. ***Scape*** stout, 35-50 cm long, 0.7-0.8 cm in diameter, erect, glabrous, greenish, slightly sulcate mainly when dry; ***scape bracts*** the basal ones subfoliaceous, the upper ones narrowly-ovate, acute and apiculate, 3.5-6 x 2.5-3 cm, erect and enfolding the scape, distinctly exceeding the internodes, green, inconspicuously and sparsely white-lepidote inside. ***Inflorescence*** shortly paniculate, densely bipinnate, ca. 17 x 10 cm, erect; ***primary bracts*** broadly ovate to suborbicular, 20-28 x 20-23 mm, greenish-yellow to yellow, suberect, equaling to slightly exceeding the stipes; ***branches*** 4 to 5 in number (including the terminal one), the lateral ones 9-11 cm long, 3-4 cm wide (excluding the petals), suberect, densely flowered at anthesis, bearing 8 to 9 flowers, rachis geniculate, stout, ca. 0.5 x 0.4 cm, green, glabrous, obtusely angulose, partially covered by the bracts

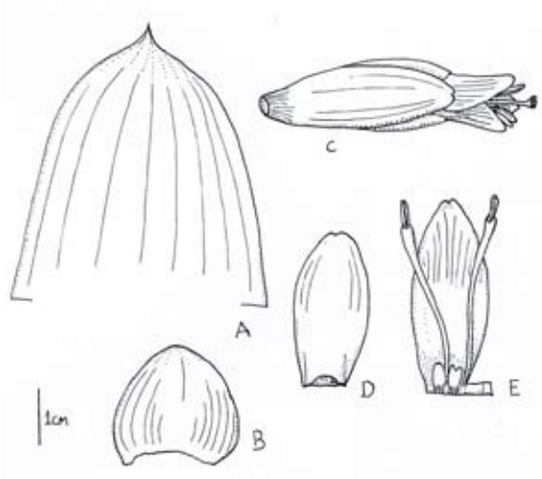

Figure 3: *Vriesea claudiana*: A) leaf apex; B) floral bract; C) flower; D) sepal; E) petal and stamens.

Figure 4. Details of the Inflorescence of *Vriesea claudiana*.

Figure 5: Close up of the flower of *Vriesea claudiana*.

mainly before anthesis, stipes 1-2 x 0.7 cm, subcomplanate, green, glabrous, bearing a single greenish-yellow sterile bract at the apex, the terminal branch erect, 12-14 cm long, 9- to 10-flowered, its stipe 3-3.5 x 0.7 cm, stout, straight, bearing ca. 2 sterile bracts almost completely covering the stipe; ***floral bracts*** suborbicular, 19-20 x 20-22 mm, apex obtuse-emarginate, yellow toward the apex, inconspicuously white-lepidote inside, lustrous and glabrous outside, not completely enfolding the sepals and about equaling 1/2 of its length, distinctly convex, unilaterally-secund with the flowers, bearing an apically protruded central nerve and appearing carinate toward the apex. ***Flowers*** distichous, anthesis duration from ca. 11 am to 19 pm, with a weak odor, strongly downwardly secund at anthesis (in lateral braches) to divergent (in the terminal branch), densely arranged, 42-43 mm long (not including the stamens); ***pedicels*** stout, 5-6 mm long, 7-8 mm in diameter at the apex, green, glabrous; ***sepals*** elliptic, apex obtuse and slightly emarginate, 27-28 x 13 mm, inconspicuously white-lepidote inside, glabrous outside, free, ecarinate, yellow, distinctly convex, thinly coriaceous toward the apex, thick at the base; ***petals*** narrowly elliptic, apex narrowly emarginate, 35 x 13-14 mm, yellow, erect to slightly suberect and forming a tubular corolla ca.10 mm in diameter at the apex, bearing at the base 2 suboblong to obovate, acute, subobtuse to obtusely and irregularly bidentate, ca. 5 x 1.7 mm appendages; ***stamens*** exceeding the petals by a fraction of the anthers; ***filaments*** subcomplanate and slightly dilated near the apex,

pale yellow, adnate to the petals for ca. 3 mm; ***anthers*** linear, ca. 4.5 mm long, base sagittate and apex obtuse, fixed near the base; ***pollen*** oblong-elliptic, sulcate, exine reticulate, lumina polygonal, muri narrowed; ***style*** exceeding the petals for ca. 5 mm; ***stigma*** convolute-bladed, densely papillose, yellow, ca. 1.5 mm in diameter; ***ovules*** long caudate. ***Capsules*** unknown.

This new species is closely related to *Vriesea saxicola*, but it differs from it by the leaf blades being greenish-glaucous and without spots (vs. prevailingly purple to wine-spotted), densely and shortly paniculate inflorescence (ca. 17 x 10 cm vs. 25-47 x 15-22 cm long), the primary bracts equaling to slightly exceeding the stipes (vs. distinctly shorter than the stipes), the lateral branches being shorter (9-11 cm vs. (10-)15-28 cm long) but bearing a rather similar number of flowers (8- to 9-flowered vs. 6- to 10-flowered), shorter stipes (1-2 cm vs. 3-9 cm long), the nearly three times shorter terminal branch [12-14 cm vs. (16-) 27-40 cm long] with the stipe shorter too (3-3.5 cm vs. 5-20 cm long), bearing ca. 2 sterile bracts (vs. 3 to 5 sterile bracts), distinctly shorter rachis (ca. 0.5 cm vs. 1-2 cm long), shorter floral bracts (19-20 mm (23-) 25-33 mm long), as well as by the shorter petals (ca. 35 mm vs. 55-58 mm long), being erect to suberect (vs. distinctly recurved toward the apex), and forming a tubular corolla (vs. campanulate corolla).

Vriesea claudiana was found growing as a saxicole in Campos Rupestres, at about 1,400 m elevation, partially protected from direct sunlight by shrubs and short trees. The studied population comprised a few individuals concentrated near the top of Pico do Gavião, in two rock outcrops distant from each other ca. 50 m. It was observed in full bloom during December.

In the neighborhood of the place where *Vriesea claudiana* was collected we observed several populations of *Dyckia* species, maybe representing at least three different taxa. Other bromeliad species observed in the area were: *Aechmea nudicaulis* var. *aureorosea* (Antoine) L. B. Sm., *A.* vanhouttei (E. Morren) Mez, *Billbergia distachia* (Vell.) Mez, *Cryptanthus regius* Leme, *C. tiradentesensis* Leme, Pitcairnia sp., *Tillandsia tenuifolia* L., *Vriesea* aff. *bituminosa* Wawra, and *V.* aff. *paraibica* Wawra.

According to Trindade-Lima (2008), despite being a county with the largest number of botanical collections in the Serra da Mantiqueira domain, the Bromeliaceae of São Thome das Letra is yet poorly known. In contrast, the whole region is greatly affected by intensive stone mining activities related to the extraction of the so called "Pedra de São Thomé", a very popular ornamental beige quartzite used wide in house decoration and on the edge pavement of swimming pools. The mining activities completely destroy the vegetation of the "Campos Rupestres" and create gigantic land scars which can be seen polluting the landscape and affecting tourism and the survival of the regional unique flora.

Figure 6: Flowering population of *Dyckia* sp. at Pico do Gavião.

Vriesea claudiana is named after the botanist and bromeliad specialist Claudio Coelho de Paula, coordinator of the "Unidade de Pesquisa e Conservação de Bromeliaceae" of the "Departamento de Biologia Vegetal", Federal University of Viçosa, Minas Gerais State, and responsible for the description of many new bromeliad species from Minas Gerais.

Vriesea saxicola L. B. Sm. Phytologia 16 (2): 83, pl. 2, fig. 14, 15. 1968. **Type**: Brazil, Minas Gerais, near São João Del Rey, Serra do Lenheiro, ca. 900 m elev., 27 Dec. 1895, Schwacke 12086. Holotype: RB. Isotype: US.

Plant saxicolous, flowering 90-150 cm high. ***Leaves*** 17 to 20 in number, densely rosulate, suberect, forming a funnelform rosette; ***sheaths*** ovate-elliptic, 13-18 x 10 cm, densely and minutely brown-lepidote on both sides, thinly coriaceous, dark castaneous on both side and mainly abaxially, except for the green and purple spotted apex, ***blades*** sublinear, slightly narrowed toward the apex, 25-30 x 4.5-5 cm, not narrowed at the base, apex rounded to subacute and distinctly apiculate, apiculus 0.7-0.8 cm long, green to glaucous and prevailingly purple to wine-spotted mainly toward the base, with inconspicuous darker green irregular cross-veins by transmitted light, chartaceous, sparsely and inconspicuously white-lepidote and covered on both sides by a thin layer of white wax, margins revolute at the apex. Scape stout, 60-90 cm long, 0.7-1 cm in

Figure 7. Details of the flower of *Vriesea saxicola* (Leme # 5236).

diameter, erect, glabrous, greenish, sulcate, ***scape bracts*** the basal ones subfoliaceous, the upper ones narrowly ovate-lanceolate, acuminate and apiculate, 5-7.5 x 3 cm, erect except for the slightly suberect apex, enfolding the scape but not completely masking it, about equaling to distinctly shorter than the internodes, purplish or purple spotted toward the base and green-glaucous near the apex, glabrous or nearly so. ***Inflorescence*** laxly paniculate, bipinnate, 25-47 x 15-22 cm, erect, ***primary bracts*** broadly ovate, 40-45 x 30 mm, greenish to slightly purplish, suberect, distinctly shorter than the stipes, ***branches*** 2 to 5 in number (including the terminal one), the lateral ones (10-) 15-28 cm long, suberect, densely to subdensely flowered at anthesis, 6- to 10-flowered, rachis slightly flexuous, 1-2 x 0.4-0.5 cm, green, glabrous, obtusely angulose, distinctly exposed by the bracts even before anthesis, stipes 3-9 x 0.6 cm, complanate, green, glabrous, bearing 1 to 2 yellowish-green sterile bracts near the apex, the terminal branch erect or nearly so, (16-) 27-40 cm long, 13- to 14-flowered, basal stipe 5-20 cm x 0.6 cm, straight, bearing 3 to 5 sterile bracts not completely covering the stipe, ***floral bracts*** broadly ovate to suborbicular, (23-) 25-33 x 30 mm, apex obtuse, greenish except for the pale yellowish-castaneous central-basal portion, inconspicuously and sparsely white-lepidote inside, glabrous outside, not completely enfolding the sepals and about equaling 1/2 of its length, convex, unilaterally suberect-secund, the basal

Figure 8 (opposite). *Cryptanthus tiradentesensis* near the type locality of *Vriesea claudiana*.

Figure 9. Land scars caused by stone mining in the neighborhood of São Thomé das Letras, which destroy the vegetation and pollute the landscape.

ones obtusely carinate near the apex, the upper ones ecarinate. ***Flowers*** distichous, anthesis nocturnal, with an odor, strongly downwardly secund at anthesis, densely to subdensely arranged, 65-70 mm long (not including the stamens), ***pedicels*** stout, 6-11 mm long, ca. 10 mm in diameter at the apex, green, glabrous, ***sepals*** oblong-elliptic, apex obtuse and slightly emarginate, 27-34 x 17-18 mm, inconspicuously and sparsely white-lepidote inside, glabrous outside, free, ecarinate, yellowish-green, distinctly convex, thinly coriaceous except for the thicker base, ***petals*** narrowly ovate, apex narrowly emarginate, 55-58 x 22 mm, pale yellow, connate at the base for 3-4 mm, suberect and distinctly recurved toward the apex, forming a campanulate corolla 30-40 mm in diameter at the apex, bearing at the base 2 sublinear, acuminate to bidentate, 12-13 x 2 mm appendages adnate to the petals for ca. 4 mm, ***stamens*** exceeding the petals by a fraction of the anthers, ***filaments*** subcomplanate, not at all delated toward the apex, pale yellow, adnate to the petals for 3-4 mm, ***anthers*** linear, 7-10 mm long, base sagittate and apex obtuse, fixed near the base, ***pollen*** oblong-elliptic, sulcate, exine reticulate, lumina subrounded, muri narrowed, ***style*** exceeding the petals for ca. 10 mm, ***stigma*** convolute-bladed, densely papillose, pale yellow, ca. 2 mm in diameter, ***ovules*** long caudate. ***Capsules*** unknown.

Figure 10 (opposite). *Vriesea saxicola* in fruit at the type locality, Serra do Lenheiro.

Material examined:

Brazil: Minas Gerais, São João Del Rey, Serra do Lenheiro, 21°07.88'S 44°18.21'W, ca. 1,179 m elev. 31 July 2008, E. Leme 7496 & T. Trindade-Lima (HB); ibidem, 21°07.75'S 44°17.94'W, ca. 1,122 m elev. 31 July 2008, E. Leme 7502 & T. Trindade-Lima (HB); Tiradentes, Serra de São José, 21°05'S 44°08'W, 1,350 m elev., 1 Oct. 1989, R. Alves & J. Kolbek 226/89 (RB); ibidem, trilha subida da serra em direção ao pico mais alto, 21°04'47.5"S 44°08'42.5"W, 1,260 m elev., 23 Jun. 2001, B. R. Silva 730 (HB); ibidem, B. R. Silva 726, fl. cult. E. Leme 5236, Jan. 2009 (HB).

*Vriesea saxicol*a is only known from the type-region, which includes the nearby Serra de São José facing the town of Tiradentes (see figure 7 in Leme, 2007). Its holotype was collected in 1895 in the lower parts of the Serra do Lenheiro, at about 900 m elevation. Today this species is confined to the higher parts of the mountains, at above 1,100 m elevation, where the vegetation of Campos Rupestres is well preserved, in contrast to the lower parts, which are heavily affected by frequent fire and by the expansion of the urban zone.

According to the protologue (Smith, 1968), which is based on the information provided by the collector in the holotype´s label, the bracts, sepals and petals of this species are whitish. However, this information was not confirmed in the specimens recently collected at the type locality, nor in the individuals that flowered in cultivation, as indicated in the description above.

Figure 12. *Vriesea saxicola* which flowered in cultivation (Leme # 5236).

Figure 11 (opposite). *Billbergia elegans* at the summit of Serra do Lenheiro, near São João Del Rey, Minas Gerais.

Vriesea saxicola is closely related to *V. hoehneana* L. B. Sm., but can be distinguished from it by its smaller size when in bloom (90-150 cm vs. over 200 m tall), leaf blades narrower (4.5-5 cm vs. 6-8 cm wide), scape slender (0.7-1 cm vs. 1.4-1.8 cm in diameter), lateral branches bearing 1 to 2 sterile bracts (vs. usually ebracteate or seldom with a single bract), and by the narrowly ovate petals (vs. oblanceolate to subspathulate).

Vriesea saxicola grows as a saxicole in Campos Rupestres vegetation, in the domain of the Cerrado, usually in sites more or less protected from the direct sun light, like near shrubby vegetation or close to the protection of the natural, very irregular rock sculptures of the terrain. It can be found living side by side with Billbergia elegans Mart. ex Schult. & Schult. f., Cryptanthus regius (at Serra do Lenheiro), C. tiradentesensis (at Serra de São José), Dyckia sp., and Tillandsia streptocarpa Baker. In contrast, V. hoehneana is a typical inhabitant of the Campos de Altitude vegetation, in the domain of the Atlantic Forest, from Santa Catarina to Rio de Janeiro, crossing the border of Minas Gerais state in the region of Lima Duarte, as observed in the State Park of Ibitipoca (Leme & Marigo, 1993), reaching the region of the State Park of Itacolomi, Ouro Preto (Coser, 2008).

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Authors

Elton M. C. Leme: Herbarium Bradeanum, Rio de Janeiro, Brazil e-mail: leme@tj.rj.gov.br.

Thais Trindade-Lima: Instituto de Botânica, Pós-graduação em Biodiversidade Vegetal e Meio Ambiente, São Paulo, SP, Brasil.e-mail: bio_thais@yahoo.com.br

Otávio B. de C. Ribeiro: Unidade de Pesquisa e Conservação de Bromeliaceae - UPCB, Departamento de Biologia Vegetal, Universidade Federal de Viçosa, CEP 36570-000, Viçosa, MG, Brazil. e-mail: otaviocacto@vicosa.ufv.br

Guzmania pseudodissitiflora.

Harry E. Luther[1].

Figure 1.*Guzmania pseudodissitiflora* clonotype flowering at Marie Selby Botanical Gardens. Photo by Dr Phil. Nelson.

Harry Luther sent us this photo, a nice addition to the record of this recently described new, small species native to Ecuador (Luther & Norton, 2008).

Reference

Luther, H. E. and K. F. Norton (2008). "A New Guzmania from Southeastern Ecuador." *J. Bromeliad Soc.* 58(6): 255-256.

1 Gardens By The Bay, National Parks Board Headquarters, 1 Cluny Road, Singapore 259569. email harry_luther@nparks.gov.sq.

Framed Bromeliads

Bridget Magney[1]

Thank you for allowing me to share my introduction to the wonderful world of Bromeliads and how they made a vision become a reality.

It all started in September 2009 when I had neglected my trees which consists of Camphor, Brachyciton and multiple other evergreens. A massive infestation of root and leaf chewing insects invaded my property when I was involved with my Mother's health care. The battle I chose against the insects resulted in a great deal of harm to my upper appendages. When the war of the insects ended, I was left to recuperate for many days.

As I was sitting in my living room resting and healing, I was looking at my framed Artwork and noticing my evergreens out of the corner of my eye then noticing my own interior plants and thought "Why are plants always in pots on floors and tables and not displayed in frames to be admired as framed art?" Not as the living walls that I have built, but truly framed in beautiful ornate or bohemian (funky) frames. I decided at that moment I will create what I was visualizing. My 'ahha' moment.

Realizing I had down time, I began to research the possibility of framed planted art. On one of my long days at the Library, I saw a beautiful picture of a moss covered log in a rainforest with a strange plant growing on it. Not only did I think it was odd but I thought it was so beautiful. I was captivated with that picture and it resulted in setting my design in order. My beautiful discovery was a Cryptanthus 'Pink Starlight' which opened a whole new world of bromeliads for me. Well I was hooked and determined to make my idea a reality.

While researching cryptanthus, my study took me into epiphytes, tillandsias and other bromeliads mainly. I was truly amazed at their leaf colors. Remember my evergreens? For me it is the color, shape and texture of the leaf. While researching I made a personal discovery. I had acquired a plant many years ago that was neglected of the proper care. Over the years she has produced multiple off shoots and blooming a really strange spiny pink flower. I learned it was an Aechmea fasciata and also learned how to correctly care for 'her'. With 5 almost full grown independent pups, I am making up for the neglect with multiple spa treatments for her. As of right now, she is thanking me with her second bloom which I am enjoying very much.

Now the real work began. I got my State Business License and City License in Dec. '09 which allowed me to buy wholesale. Botanical Framed Creations was started.

1 botanical@cox.net

Bromeliad frame, 9 inch x 12 inch tabletop or wall-hanging, indoors/outdoors.

The hunt for a unique mounting material took a few days. As I looked at my bamboo split fencing around this time an idea came to me. Going inside to the computer I looked at fence material online and saw that heather fencing was a perfect material. It is organic, airy, and able to be cut to the shape and size of a frame. Also, I had not seen it used in the books I had or in the 70 plus websites pertaining to epiphytes and terrestrial plants I had saved in my daughters lap top as a reference library, bless her heart

In March 2010 I felt confident in my research that I was able to place my first order with Rain Forest Flora since they had mini neos with great leaf color, tillandsias and the beautiful cryptanthus. I finally narrowed down my order and spoke with co-owner Jerry Robinson who was very helpful and allowed an adjustment to my needs. I can not tell you of the excitement I felt when my shipment arrived. To finally see and touch the plants I could only read about was very thrilling.

I purchased a home business license from my city and the back patio is my studio. My husband went out and bought me shelves and I modified the area with places to hang my completed work. Since the sun direction changes I placed the shelves with my newly acquired stock on a dolly so I can keep them out of the sun and away from any other plants that can contaminate them. In my purchasing quest I have found some growers stock Cryptanthus in "full sun" and that is a sad sight due to the burning and wash-out of their leaves.

Frames for mounting.

My design building materials are all organic or fine/thick plastic. I choose to add an orchid mix that has leaf mold to the peat for my Crypts. My tillandsias are housed in an open canvas hanging shoe bag at the end of the shelves. When I got my mini neos delivered, I took them out of the peat soil the next day and adapted them in sphagnum moss which they have flowered and produced lots of pups. When I spoke to Paul Isley of Rainforest Flora to get his permission to name his company, he was a little surprised that my T's only get misted with bottled water, not soaked, every other day with a little food and that I have not lost a one or any leaves from drying. I told him they 'must come from good stock'. He gave me kind words of encouragement. Because of the watering needs, I do not use thick leafed T's nor allow water to settle on them.

Bridget watering outdoor arrangement

I was fortunate to encounter a woman selling some of her Tillandsias and misc. Bromeliads. She had so many that she was unable to name a few of them. I bought them for what else, the leaf color. I found out how really difficult it is looking them up according to leaf and size not knowing what their flowers look like. I did not want to show too much ignorance by calling her to ask about the flowers so I did my own inquiry of my personal library. Thank you BSI! The information is an amazing help in learning Bromeliads. I increased my business collection with Billbergia nutuns and Billbergia chlorostcta, of which I love the matte purple green with mottling.

I spent 3 days assembling my first framed design. After a couple of weeks I had 3 framed to hang in my living room. Each Tillandsia and Neoregelia had been attached with brown coated steel wire, hidden in the Heather with moss at the bases for a little extra moisture. The log had minimal soil and lined with the one material I will keep a secret with sphagnum moss for my ferns and Crpyts. Working with the stream spray was perfect to water the soil areas with no dripping also to fill the neos cup. I practiced spraying them on the wall as they hung or over the floor for the table top display but realized they need a light shake and less moisture on the carpet. I found that spraying over the sink is easier. I also left them where they are displayed using a hand towel to

catch the fine mist, keeping the spray on the outside leaves away from the base and the middle of the Tillandsias. I tried a T.neglecta from the same woman and had it rot from too much moisture even though I wired it tilted down.

After two months observing how well they did, I took pictures of them and called our local Nursery to ask if I could send them photos of my work which they said yes. I was a little intimidated because this Nursery carries very high end botanicals and plant gifts. I figured it was a 50/50 chance. After a week I called to ask if there was an interest to buy my designs. I was surprise when I was told 'yes bring everything you have for us to buy!' The order included other types of arrangements along with my framed Bromeliads. How happy I am to get the framed Bromeliads into homes so others can enjoy pups and leaf color changes. The directions that accompany the Botanical Framed Creations are very specific to the do's: water with filtered water, food, change cup water, air, light and the don'ts: no copper contact, stagnant air, tap water, copper contact in plant food or wire, pulling off pups etc.

I am looking forward to finishing my website, which I will use only for advertisement. Since each design takes approx.3 days to complete, this is not an Internet venture of mass production and I hope to work with local Designers. I am looking forward to integrating fabrics and hydroponics as an addition to the Bromeliads in my work. I won't ship them yet until I can safely pack them and provide moisture which will involve more research.

I was very leery in sharing my design with others. I felt if I shared my design then it would not be original if copied. I have a request and this is it. If you see a business in this for yourself please sell outside Orange County Calif. It's a jungle of competition out there and if you are fluent in Bromeliese I won't have a chance. I am happy to share this new adventure with the members and hope your wonderful Bromeliads get a chance to be viewed as works of art.

Once again I want to thank the Bromeliad Society for the detailed information on the website that was so important in the beginning stages of my new business adventure. Thank you to the Bromeliad Society International Journal for the education I will gain as a Bromeliad student.

Looking for Bromeliads in the Peninsula of Paria In Sucre State, Venezuela.

Francisco Oliva-Esteva and Bruno Manara

In 1966, the late Dr. Julian Steyermark discovered a new bromeliad (later to be described as Guzmania membranacea Smith & Steyermark) in the wet forest of Cerro de Humo (Smoky Hill) and Las Pavitas (Small turkeys Hill), at 1250-1270 m altitude, in Sucre State. Since 1978 this area has been included in the Paria National Park. This bromeliad was photographed by Steyermark in 1966 and two of his photos were included in the book "The Bromeliaceae of Venezuela" (Oliva & Steyermark 1987).

After 43 years, the senior author, in company of Prof. Bruno Manara, decided to go to the type locality in order to find again the same species and make a botanical sample for the Herbarium (VEN). An additional reason for this trip was that in Cerro Jefe in Panama a bromeliad was found that looked similar to *Guzmania membranacea*, and was named *Guzmania cinnabarina* H. Luther& K. Norton, closely related to *Guzmania stenostachya* L.B. Smith, also from the wet cloud forests of Panama. This puzzle needed to be solved, and we decided to make a trip to the "type locality" of this species. For that, we contacted an old Steyermark guide, named Victoriano Carreño, now 72 years old; he was the guide who accompanied Mr. Steyermark on that first trip to Cerro de Humo.

We left Caracas on Tuesday, July 27, 2009. We started early in the morning for Peninsula of Paria, the extreme eastern portion of the Coastal Range of Venezuela, which geologically and botanically is related to the central range of Aripo, on the island of Trinidad. At noon we were at Cumana City, the "first born" of the mainland Spanish cities (founded 1525), and from there on we were entering into terra incognita for the senior author, and terra almost so for the junior. Four hours later we reached the city of Carupano, at present an active and busy city, which in the XVIII-XIX centuries was one of the most active ports of Venezuela, from where cacao was shipped to Europe, to be known as one of the finest and best cacaos in the world. Carupano was the first city in the country to have a submarine telephone cable, joining this city with Marseille in France.

From here we moved south-east to a small town called El Pilar. Our main purpose was to find a shelter for the night. Since there was no hotel, we entered a bakery store and asked if they could direct us to find a place to spend the night. A very active and loud-speaking woman suggested us to ask the man of the shop at the next corner. Said shop was a small food store; and although in distress we asked the owner if he could indicate a place for us to spend the night. He gently answered that his father was building a small tourist motel, and that several rooms were already available to spend the night, so we found shelter!

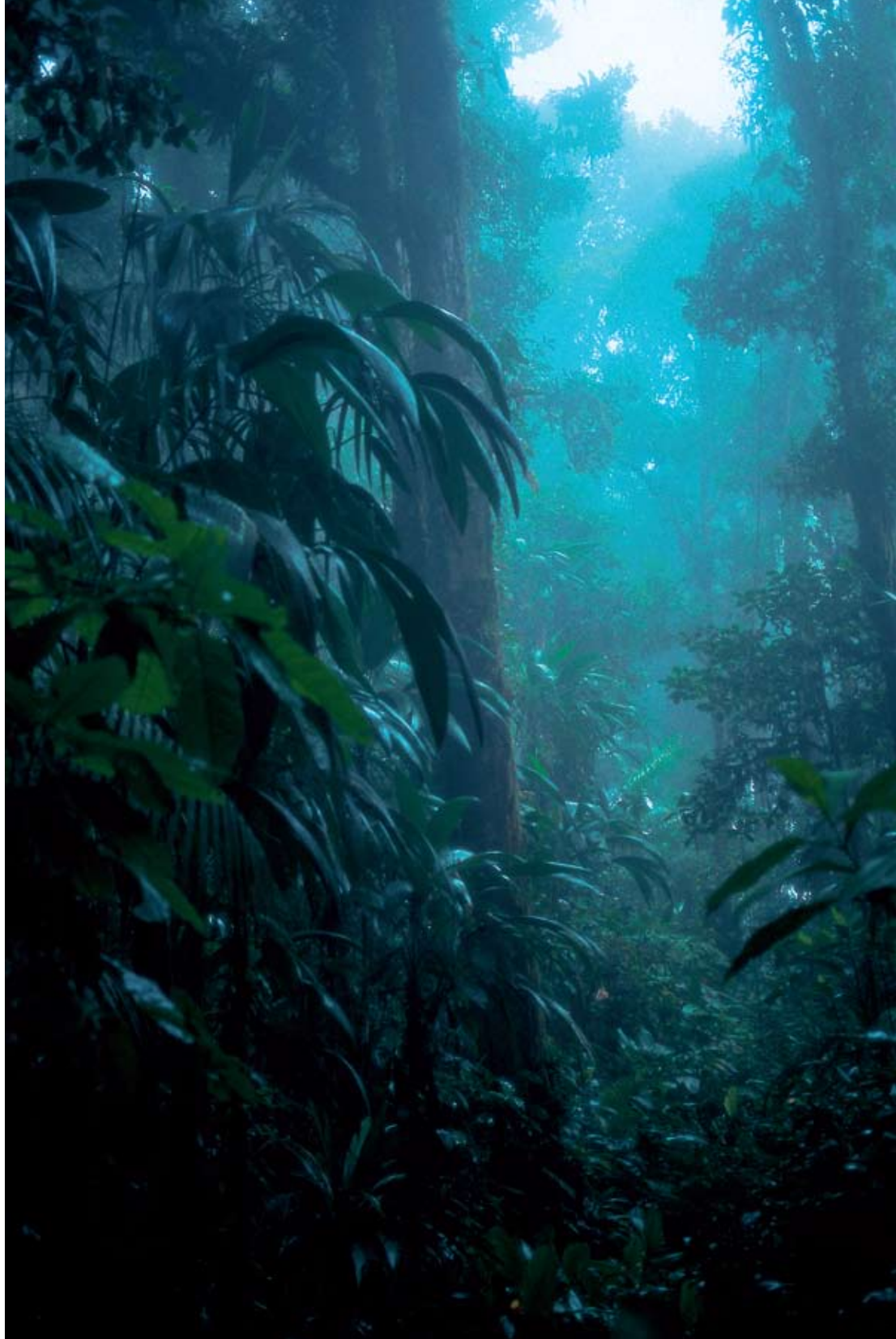

Figure 1 (opposite. Rain forest on top of the Cerro de Humo (The Smoking Hill), 1200 m, with dominance of the bifid leaves of the palm *Asterogyne ramosa*. This is the habitat of *Guzmania membranacea*.

From here on to the east the Peninsula of Paria begins and we were interested in any bromeliad that was sighted. Geographically, the mountain range is closer to the northern border of the peninsula so the southern slopes are longer and more accessible and leave a short strip of flat land, where a rudimentary agriculture is practiced after the traditional method of cut and burn. The northern slopes fall abruptly toward the sea, leaving almost no space for human activity. Anyway, several beautiful beaches exist, where marine turtles reproduce and people meet to enjoy the sea and the tropical sun.

Along the road ther many gigantic trees, with wide crowns and long horizontally spreading branches, such as Ceibas (*Ceiba pentandra*), Caro-caro (*Enterolobium cyclocarpum*), Samán or Rain trees (*Pithecellobium saman*), a Rubber tree (*Castilloa elastica*), a number of wild Figs (*Ficus* spp.) and Cannon-ball-trees (*Couroupita guianensis*) shade the cacao plantations. Their branches and trunks were covered with bromeliads such as: *Aechmea aquilega*, *Aechmea nudicaulis, Tillandsia juncea*, and the most common of all, *Tillandsia elongata* var. *subimbricata*, *Tillandsia fasciculata, Catopsis nutans, Vriesea platynema*, together with small orchids, and a great amount of the epiphytic drooping Cactaceae: *Rhypsalis, Epiphyllum* and *Hylocereus*. Festoons of "barba de palo" or Spanish moss (*Tillandsia usneoides*), and "Uña de murciélago" or bat-claws (*Macfadyena unguiscati*) hung from the branches of the trees, while the Tiña (*Tillandsia recurvata*) packed the electric wires.

Other trees commonly used to shade the Cacao plantations (*Theobroma cacao*) were: Mahogany (*Swietenia macrophylla*), Cedar (*Cedrela odorata*), Coral tree (*Erythrina poeppigiana*), Pardillo (*Cordia alliodora*), Sandbox tree (*Hura crepitans*) and plentiful Apamate or Pink poui trees (*Tabebuia rosea*). Coconut palms (*Cocos nucifera*) are ubiquitous.

Along the road from place to place there were houses shaded with Mangoes (*Mangifera indica*), Taparo (*Crescentia cujete*), Pomalaca (*Syzygium malaccense*), Muco or Mamón (*Melicoccus bijugatus*), Jobo (*Spondias mombin*) and Plum trees (*Spondias purpurea*), Papaya trees (*Carica papaya*), Avocado trees (*Persea americana*) and an occasional Cotton shrub (*Gossypium barbadense*). In many places in front of the houses local people exposed exquisite fruits and tortillas to the tourists. The air was wet; and although the morning had started clear, now the sky was becoming clouded. Anyway, we didn't worry, we were looking at the branches and crowns of the trees and taking photos of the most interesting items.

At nine we arrived at the village of Río Grande-Abajo, where the road forked and started climbing to the left. We followed it and a quarter-hour later we reached Río Grande-Arriba, crowning the shoulder of a narrow hill, that allowed only one main road, flanked by a row of humble houses on both sides. This was the home of Victoriano Carreño, and following his directions, and asking people, we soon arrived at the house of Vidal Torres, 77 years old, a relative of his.

The old man was enthusiastic, when we told him that Victoriano had directed us to him, in order to know how to reach Cerro de Humo, or Smoky Hill, and offered to

Figure 2. *Aechmea aquilega* var. *aquilega*, in full bloom on a tree trunk.

accompany us as a guide to Las Melenas (The Manes), the last village, where the protected area of the National Park of Paria begins. We had to climb about ten kilometers through a tortuous and terribly eroded dirt road, covered with cement or macadam only in the steeper places, and so after half an hour or so reached Las Melenas; but in the last steep stretch the junior author had to get out of the car in order that our Trooper 442 could make it to the park ranger's house. The air was chilly, since we were at almost 1000 m high.

The ranger had left the day before, but his grandson wrote down our data, and offered us the guest room, in case we needed to stay there that night. We refused his offer, since we had planned to go on till Macuro, the easternmost place of Paria, where Christopher Columbus arrived in 1498 during his third voyage from Spain, calling Paria the "Land of Grace" (actually, he guessed he had arrived at the biblical Paradise on Earth). Meanwhile, the sky had become darkly clouded, the wind was blowing and some drops of rain started to fall. We decided to hike up anyway, along the trail which

Figure 3. Caracuey (*Bromelia humilis*) carpets the understory of the bush, till the border of the sea.

entered into the forest, and left our guide Mr.Vidal at the ranger's house. Here too, everywhere the huge trees were covered with bromeliads, but cacti were lacking, the wet trunks were dressed with moss and small ferns, and the understory was luxurious with herbs, shrubs and many kinds of lianas. Since our interest was concentrated on bromeliads, we had eyes just for these plants. Yumara (*Guzmania lingulata*) and the German flag (*Guzmania monostachya*), together with a huge Canareque (*Vriesea platynema*) were frequent in the lower portion of the forest; only some of them were blooming, but we could easily identify them from the size and shape of the leaves. As we climbed, the unmistakable zebra leaves of Planare pluma (*Vriesea splendens* var. *splendens*) became very common and dominant, although only one of them was in bloom. We were intrigued by the huge size of a bromeliad more than one meter in diameter, with leaves at least five fingers wide. Maybe it was the Planare piña (*Glomeropitcairnia erectiflora*): no other bromeliad this large is known from the area nearby.

As we climbed higher, we started to see another medium-size bromeliad attached to the lower portion of the tree trunks. As usual, it was not blooming, but a mature old spike was on the ground and from its size and tipped leaves, we guessed it was a *Guzmania membranacea*, endemic to the rain forests of the Paria peninsula, and was the species we were looking for. We picked up the old fruiting inflorescence and several samples of this bromeliad, in order to have them grow in Caracas to be compared with the recently described *Guzmania cinnabarina*, and we started our way back.

Some rain had begun to fall, but soon the rain became a stormy shower; we were obliged to look for a shelter under huge inclined trees and where some wide-leaved Malanga (*Araceae*) *Monstera deliciosa* grew, but with little success. Anyway, we got completely wet and had time to observe a kind of slender palm with bifid leaves (*Asterogyne ramosa*),

very common in the understory, and several tree ferns; and when the rain ceased, we decided to return to the car, to find our poor guide, Mr. Vidal almost freezing in the wind. We returned down to Río Grande-Arriba, through the very slippery dirt road with terrible deep gorges and commented that should it have started raining half an hour earlier, we could not have reached Las Melenas and Cerro de Humo.

We said good-by to Vidal Torres and his kind daughter-in-law, returned to the main road of Paria, and continued our voyage east to the town of Irapa, where Christopher Columbus had to turn south and then back towards Trinidad, since he convinced himself that Paria was not an island, but part of the mainland. On this point he had to agree with the local Galibi Indians, who called Paria "Barohui enetale", i.e., Mainland's Nose. There we were hosted in a small motel close to a swamp, and passed the night lulled by the croaking of frogs and toads, and were awakened by the cries of dozens of small parrots and other birds flying across.

The following day we went on, and reached Güiria, a large fishing port, and from here proceeded our trip eastward, hoping to reach the village of Macuro, although people said that it was not possible to arrive there by road, since, due to the hard raining of the days before, there were some places impossible to go through. We went on, anyway, on a road that was a kind of "roller coaster". Now the high range with clouded tops had become a series of low hills, and the vegetation had changed completely, since the area was dry; the tall luxuriant trees covered with bromeliads and other epiphytic plants had vanished, and were substituted by an uniform bushy and spiny vegetation about 3-4 m high, spattered by frequent cacti, and where a different kind of bromeliads existed. The most common was the Caracuey (*Bromelia humilis*), which carpeted great areas almost as the only understory, and the bigger, although much rarer Chigüichigüe (*Bromelia chrysantha*); and the only epiphytic one was *Tillandsia flexuosa*.

Just to compensate our frustration, we made a small trip with a boat or "peñero" in the very small port of Juan Diego, and convinced ourselves that *Bromelia humilis* was ubiquitous. Then we started our way back, after visiting a friend in Carupano city; and the only variation in our bromeliad research, was to admire a flock of flamingoes feeding in a lagoon close to the road and the seashore.

Acknowledgement

I want to express my gratitude to Prof. Stephen Tillett, of the Venezuela Central University, for his collaboration in the english language.

Reference

Oliva-Esteve, F. and J. A. Steyermark (1987). *Bromeliaceaes of Venezuela: Native and Cultived* [original spelling] Caracas, Gráficas Armitano, C.A.

Misnamed Bromeliads in My Books.

Francisco Oliva-Esteve

In the last few years, many new Bromeliads has been discovered and classified and old ones have changed names; for that reason, in all of my Bromeliad books there is a list of changed names, or misnamed bromeliads and wrong or corrected names.

BOOK: *Bromeliaceae of Venezuela, Native and Cultivated* (1987)

Wrong	Correct	Page
Nidularium burchellii	*Canistropsis burchellii*	158
Nidularium seidelii	*Canistropsis seidelii*	160
Streptocalyx poeppigii	*Aechmea vallerandii*	169
Streptocalyx longifolius	*Aechmea longifolia*	170
Guzmania squarros	*Guzmania gloriosa*	204
Guzmania eduardii	*Guzmania conglomerata*	186
Guzmania venamensis	*Guzmania sphaeroidea*	205
Tillandsia andreana	*Tillandsia funckiana*	214
Tillandsia caribaea	*Racinaea tetrantha* var. *caribaea*	220
Tillandsia denudata	*Tillandsia francisci*	226
Tillandsia fendleri	*Tillandsia francisci*	234
Tillandsia seemannii	*Racinaea seemanni*	248
Tillandsia spiculosa	*Racinaea spiculosa*	249
Tillandsia stenoglossa	*Racinaea spiculosa* var. *stenoglossa*	250
Tillandsia stipitata	*Tillandsia biflora*	252
Tillandsia tetrantha var. *aurantiaca*	*Racinaea tetrantha* var. *aurantiaca*	258-9
Tillandsia tetrantha var. *scarlatina*	*Racinaea tetrantha* var.*scarlatina*	260-1
Vriesea cowellii	*Werauhia cowellii*	278
Vriesea gigantea	*Werauhia gigantea*	280
Vriesea imperiales	*Alcantarea imperiales*	284
Ayensua uaipanensis	*Brocchinia uaipanensis*	305
Brocchinia gilmartini	*Brocchinia gilmartiniae*	316
Navia hohenbergioides	*Brewcaria hohenbergioides*	342
Pitcairnia altensteinii var. *altensteinii*	*Pitcairnia altensteini* var. *gigantea*	361
Pitcairnia caricifolia	*Pepinia caricifolia*	366
Pitcairnia corallina	*Pepinia corallina*	364
Pitcairnia ctenophylla	*Pepinia ctenophylla*	366
Pitcairnia punicea	*Pepinia punicea*	377
Pitcairnia uaupensis	*Pepinia uaupensis*	379

BOOK: *Bromeliads*(2000)

Pitcairnia sp	*Pitcairnia oliva-estevae* (bottom-right)	18
	Pitcairnia maidifolia	19
Pitcairnia maidifolia forma *lutea*	*Pitcairnia albo-lutea*	19
	Tillandsia fendleri (bottom centre-left)	21
	Tillandsia francisci (top-left)	22
	Tillandsia fendleri (bottom)	22
	Guzmania squarrosa (bottom-left)	37
Aechmea tessmanni	*Aechmea manzanaresiana*	77
Aechmea vanhoutteana	*Aechmea bocainensis*	78
Aechmea fulgens	*Aechmea fulgoramosa*	88

Billbergia brasiliensis	*Billbergia kuhlmannii*	96
Billbergia sanderiana	*Billbergia elegans*	103
Hohenbergia disjuncta	*Aechmea disjuncta*	126
Nidularium angraense	*Canistropsis microps*	139
Nidularium microps	*Canistropsis elata*	140
Nidularium microps	*Canistropsis microps* f. *pallida* (center)	140
Orthophytum supthutii	*Lapa duartei*	260-1
Portea petropolitana var. *extensa*	*Portea orthopoda*	278
Wittrockia camposportoi	*Nidularim camposportoi*	158
Witttrockia coralline	*Nidularim corallinum*	158
Wittrockia paradoxa	*Aechmea paradoxa*	159
Guzmania calimifolia	*Guzmania calimifolia* var. *rosacea*	170
Guzmania dissitiflora	*Guzmania sprucei*	342
Guzmania fusispica	*Guzmania lingulata* var. *lingulata*	178
Guzmania lingulata var. *minor*	*Guzmania lingulata*	179
Guzmania lingulata var. *splendens*	*Guzmania besseae*	182
Guzmania sprucei	*Guzmania sp*	188
Guzmania mitis	*Guzmania sp* (small pic., bottom-left)	192
Aechmea fulgens	*Aechmea fulgoramosa*	194
Tillandsia sp	*Tillandsia santieusebii*	198-269
Tillandsia acostae	*Tillandsia rhomboidea*	200
Tillandsia argentea	*Tillandsia fuchsii*	202
Tillandsia clavigera	*Tillandsia francisci*	211
Tillandsia ionochroma	*Tillandsia stipitata*	224
Tillandsia multicaulis	*Tillandsia deppeana*	237
Tillandsia sp	*Tillandsia santieusebii*	269
Vriesea johnstonii	*Mezobromelia capituligera*	279
Alcantarea regina	*Alcantarea geniculata*	284
Ayensua uaipanensis	*Brocchinia uaipanensis*	300
Lindmania smithiana	*Connellia varadarajanii*	321
Lindmania sp	*Lindmania brachyphylla* (bottom)	322
Lindmania sp	*Lindmania brachyphylla* (bottom-right)	323
Navia hechtioides	*Brewcaria hechtioides* (top)	323
Pitcairnia agavifolia	*Pepinia agavifolia*	371
Pitcairnia alexanderi	*Pepinia alexanderi.*	371
Pitcairnia andreetae	*Pitcairnia alata*	374
Pitcairnia armata	*Pepinia armata.*	375
Pitcairnia bulbosa	*Pepinia bulbosa*	379
Pitcairnia cuatrecasana	*Pepinia catrecasana*	380
Pitcairnia filispina	*Pepinia filispina*	382
Pitcairnia pruinosa	*Pepinia pruinosa*	388-389
Guzmania squarrosa f. *lutea*	*Guzmania gloriosa*	453

BOOK: *Bromeliaceae* III (2002)

Aechmea beeriana	*Aechmea vallerandii*	13
Guzmania virescens var. *laxior*	*Guzmania flagellata*	88-89
Puya butcheriana	*Puya humilis*	230
Puya bromadnikii	*Puya tuberosa*	233

BOOK: *Mountain Plants of Venezuela, the Coastal Range, the Andes and Tepuis Bromeliads* ((2006)

Aechmea fendleri	*Tillandsia fendleri*	XXV
	Wittrockia gogantea (bottom-left)	160
Ayensua uaipanensis	*Brocchinia uaipanensis*	244

EVENTS CALENDAR

Australia

September 11-12, 2010. Illawarra Bromeliad Society Show. Uniting Church Hall, Russell Street, Corrimal

October 9-10, 2010. Bromeliad Society of Australia Spring Show. First floor, Burwood RSL Club, 96 Shaftesbury Road, Burwood, NSW. Free Entry.

October 23-24, 2010. Bromeliad Society of New South Wales Spring Show. Concord Senior Citizens Centre, 11 Wellbank Street, Concord. Contact (02) 9876-8222.

April 7-10, 2011. 16th Australasian Bromeliad Conference "Broms on Arafura" Holiday Inn, 116 The Esplanade, Dawin.

United States of America

August 14-15, 2010. Seminole Bromeliad & Tropical Plant Society Sale. Garden Club of Sanford.

October 1-3, 2010 Tropiflora Fall Festival, 3530 Tallevast Road, Sarasota. Contact 941-351-2267

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Wrong	Correct	Page
Aechmea berriana	*Aechmea vallerandii*	251
Nidularium longifolium	*Nidularium longiflorum*	273
Aechmea skotakii	*Guzmania skotaki*	284
Werauhia hygrometrica var. *angustifolia*	*Vriesea cacuminis*	297
Vriesea sp	*Vriesea apeckmaieri* (bottom-left)	300
Vriesea sandrae	*Vriesea noblickii*	300
Aechmea berriana	*Aechmea vallerandii*	311
Aechmea mexicana	*Aechmea latifolia*	313

Editor's Note:

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If you don't have computer access, write to me and I'll mail you a printout. (my address is on the inside front cover)

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.