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OF THE BROMELIAD SOCIETY

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### Covers

*Front*—*Alcantarea vinicolor* makes its first appearance in the Journal, photographed by Birgit Rhode in her Auckland, New Zealand, garden.

*Back*—*Alcantarea* Tarawera in Dick Endt's 'Landsend' nursery in Auckland. Photographed by Birgit Rhode. Mt. Tarawera erupted on June 10, 1886 near Rotorua, NZ, killing several hundred people and destroying the famous pink and white terraces.

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## In this Issue

### Scientific

*Racinaea pattersoniae* is described by José Manzanares on page 198, a new species first discovered in flower by an expedition in 1998. The plant was named for one of the expedition members Elizabeth Patterson (then Vice-President of the Bromeliad Society of Dallas) who may not have overly fond memories of the trip since she fell and broke her ankle, needing to be airlifted immediately back to the USA. The stream of new *Orthophytums* from Brazil continues with the description by Elton Leme, page 204, of another from the dry “Caatinga” region of northeast Brazil: *Orthophytum catingae*.

Recently, David Benzing reviewed the current state of the art in plant taxonomy for us<sup>1</sup>. He outlined how recent advances in computer calculation power coupled with the ability to decode DNA are combining with the older methods based on visual inspection of plant anatomy. The visual inspection methods have been largely directed at dried herbarium specimens, however on page 208 of this issue Elton Leme makes the case for a greater use of living specimens. He demonstrates how work in Brazil with *Alcantarea* has been giving additional insight into evolutionary relationships by the inspection of plant characters not available to the botanist when reviewing dried specimens. Floral parts such as anthers and stigma and the the long, delicate petals, in *Alcantarea* are examples of characters hard to detail when dried.

### Cultivation

Cultivar Registrar Derek Butcher is back on the case, this time stirring up problems caused by promiscuous name changes infiltrating the group of cultivars in the “*Neoregelia* Takemura Grande Group.” He has apparently been worrying about this since 1978 when he read the first issue of *Grande*, the magazine for bromeliophiles published by the fledgling Florida Council of Bromeliad Societies.

Theresa M. Bert from Florida introduces readers to the cultivation of *Alcantarea*, plants particularly suited to sub-tropical gardens. We have been fortunate to obtain from Auckland photographer Birgit Rhode garden photos of a number of *Alcantarea* to illustrate Dr Bert’s article. I am particularly interested in the plants on our covers this issue: *Alcantarea vinicolor* on the front cover is a particularly nice species, and *A. Tarawera* on the back cover is the only “hybrid” *Alcantarea* registered with the BSI Cultivar Registry. *A. Tarawera* has an interesting history, being one of a shipment of about 20 “*Alcantarea imperialis* X *vinicolor*” sent to Aucklander Dick Endt about 1998, from David Fell in Hawaii. Mr Endt selected a plant from Mr Fell’s shipment, and later registered it with the BSI as *A. Tarawera*, the registration noting it “...seems to have more links to *vinicolor* than *imperialis*” which is interesting given that *A. imperialis*

1 Benzing, David (2006) “What is it that plant taxonomists do?” J. Bromeliad Soc. 56(4) 156-162

is named as the mother (seed) parent. But is it? I had a look on the internet and found a David N. Fell listed at Hawaiian Sunshine Nursery Inc. in Hilo - on that nursery's website<sup>2</sup> there is a nice photograph of *Alcantarea* 'Merlot' that appears to be a dead-ringer for the plant registered by Dick Endt as *A. Tarawera*. However, the parentage of *A. 'Merlot'* in Hawaii is listed as "*A. vinicolor* X *imperialis*" ie., the reverse of *A. Tarawera*, here giving the mother as *A. vinicolor*. Has there been confusion? Even more dreadful: could *A. Tarawera* be a cultivar of *A. vinicolor*? Sounds to me like a warm case for our intrepid cultivar registrar!

### General Interest

In these days of internet and digital photography, it is hard to imagine a time when there was no photography at all. Yet in the early days of botanical investigation in the west, not really that long ago, illustration was totally reliant on drawings! On page 222, Leo Dijkgraaf begins a new series of investigations into the origins of bromeliad illustration in Europe.

Our Webmaster Ken Marks has been out in the field again, this time taking us on a trip to the bromeliads native to the Rara Avis eco-sanctuary in Costa Rica. Starting on p. 227 we have the first part of the story, just getting to the place!

In the last section we welcome two new BSI Directors, Bonnie Boutwell representing Louisiana and Leslie Graifman for the Northeast region. Past BSI Director and Treasurer Clyde Jackson died June 14, 2007 and Odean Head provided us with the obituary on p. 235. Finally we have a report on the Bromeliad Society of Central Florida Mothers Day Show last May, and the calendar of events on p. 238.

### Notes from BSI Board Meeting, July 2007.

President Joyce Brehm was re-elected unopposed. Jay Thurrott replaces retiring First Vice-President Jack Reilly. The position of Second Vice-president was abolished, leaving Jay as the Vice-President. In the member-apaty department, there were no nominations for BSI Director received for the 2008-2010 term (requested in the Nov-Dec 2006 Journal). The vacancies have been filled by current directors co-opting replacements. There have been no nominations for the Wally Berg award 2008.

The BSI library is being housed at Marie Selby Botanic Garden in Florida, and has been catalogued by Bruce Holst and his interns. Terri Burt is checking the condition of library books, and managing the purchase of new books as available.

Affiliated Shows Chair Carolyn Schoenau is retiring at the end of the year and Terri Burt will take over. The bromeliad collection at the BSI Identification Centre had been suffering due to the breakdown of Marie Selby Gardens reverse-osmosis plant, and a grant of \$7,500 was made to encourage the Gardens to repair the system.

A number of increased benefits for members were agreed on, together with a rationalisation of the subscription structure. We hope to have these in place early next year so we can bring you the exciting details in the March-April 2008 Journal.

**A plea! If you have internet email please look at page 215....**



## **Affiliates News**

The Caloosahatchee Bromeliad Society reports the passing of member Kiti Wenzel, 4 months from her 100th birthday. A renowned artist for more than 75 years, Kiti Wenzel's depictions of bromeliads were known and appreciated worldwide. Her art featured in this Journal in March-April 1986 and a reproduction in May-June 1992 of her poster for the 1992 World Bromeliad Conference of 1992 in Tampa, Florida.

The Bromeliad Society of Queensland has re-instated their "BSQ Study Group" with a meeting of 20 members at President Trevor's home last June. They concentrated on discussions and demonstrations of seed-raising, and plant judging. Later, while Len Trevor stoked the fire, they had a trial judging session. Study groups can be very useful for societies as an educational adjunct to the more structured general meetings.

The Bromeliad Society of New South Wales report that member Mark Paul's landscaping company has completed massive "greenwall" projects in Qantas Airlines VIP lounges in Sydney and Melbourne. These permanent wall-covering arrangements contain 5 genera of bromeliads amongst about 200 other species.

The Florida Council of Bromeliad Societies 2007 Bromeliad Extravaganza in September was reportedly a "blazing success." Plant sales were huge, and more than 240 attended the banquet. The event was advertised in our Journal, and a little bird told me they ran a survey at the registration desk asking how folks heard about the event: "BSI" was the answer given most often. Advertising in the Journal pays off, folks!

Beaumont, Texas was the site of the 10th International Cryptanthus Show held during September in conjunction with the 33rd SW Bromeliad Guild Show, hosted by the Golden Triangle Bromeliad Society. Visitors from Puerto Rico, Florida, Alabama, Louisiana and Texas joined in a successful southern barbecue following the exhibitions and plant sales. Ray and Cynthia Johnson and Brian and Wendy Holst organized.

"Bromeliads Beachside" the 14th Australian National Bromeliad Conference was reportedly one of the friendliest and relaxing Conferences my spies have attended. Held in September near Sydney, the Conference was organized by BSI Australian Director Lynn Hudson who is also organizing the WBC World Conference in Cairns next year. Surprisingly, there were only two members of the New Zealand Society at this Conference - we hope they are just saving their pennies to attend Cairns 2008...

### **18th World Bromeliad Conference • Cairns 2008**

**Check it out now at [www.bromeliadsdownunder.com](http://www.bromeliadsdownunder.com)**

registration forms online, or by mail from BSI Membership Secretary  
- Dan Kinnard, 6901 Kellyn Ln, Vista CA 92084-1243, USA.

# A New Species of *Racinaea* (Bromeliaceae) from the Province of Loja, in Southern Ecuador

José M. Manzanares and Walter Till

**Abstract.** The authors describe and illustrate *Racinaea pattersoniae* as a new species of Ecuadorian Bromeliaceae, and also provide morphological data that distinguishes it from *R. michelii* (Mez) M.A. Spencer & L.B. Sm. and from *R. tripinnata* (Baker) M.A. Spencer & L.B. Sm. The most important morphological characteristics of *R. pattersoniae* vs. *R. michelii* are the abaxially glabrous leaf sheaths and the glabrous leaf blades, the imbricate peduncle bracts, the primary bracts which are longer than the stipes, the somewhat smaller flowers with floral bracts that are slightly shorter than the sepals and covered with ferruginous indument; vs. *R. tripinnata* are the erect rosette, the attenuate and recurved apex of the leaf blades, the long peduncle, the brown inflorescence, the small 4 mm long sepals ovate with a round and apiculate apex, and the small cream petals.


**Key words:** Ecuador, Bromeliaceae, *Racinaea*, new species.

**Resumen.** Los autores describen e ilustran *Racinaea pattersoniae* como una nueva especie de Bromeliaceae ecuatoriana, también proporcionan la información morfológica que la distinguen de las especies *R. michelii* (Mez) M.A. Spencer & L.B. Sm. y de la *R. tripinnata* (Baker) M.A. Spencer & L.B. Sm. Las características morfológicas más importantes que se presentan en la *R. pattersoniae* contra la *R. michelii* son: el asiento de la hoja abaxial glabro, la lámina de la hoja glabra, las brácteas del pedúnculo imbricadas, la bráctea primaria superior al pedículo, flores pequeñas con brácteas florales ligeramente inferior a los sépalos cubiertas con un indumento ferrugíneo; contra *R. tripinnata* son: la roseta erecta, ápice lámina de la hoja atenuado y recurvado, su largo pedúnculo, la inflorescencia marrón, los pequeños sépalos, 4 mm de largo, ovados con un ápice redondo y apiculado, y los pequeños pétalos cremas.

Palabras clave: Ecuador, Bromeliaceae, *Racinaea*, nueva especie.

**Introduction.** In 1998 PROBONA (Programa de Bosques Nacionales Andinos) together with the Fundación Arcoiris (Rainbow Foundation) of Loja financed the study of the Bromeliaceae of Uritusinga, a community close to Loja, with the idea of selecting the most ornamental bromeliads, cultivating and selling them. The intention was to protect the cutting of the primary forest and provide the community with the necessary income to live.

The participants of the expedition were: Elizabeth Patterson (Vice-president of the Bromeliad Society of Dallas), Eduardo Cueva (botanist with Fundación Arcoiris), Pablo Ochoa (botanist with Fundación Arcoiris),

**Figure 1.**  Paratype of *Racinaea pattersoniae* in habitat. Photo by José M. Manzanares



Gustavo Tapia (chief of logistics), and José Manzanares. On March 5, we hiked into a pasture with some remnants of forest where we found this special *Racinaea*, unfortunately in fruit.



**Figure 2.** Detail of the inflorescence of the Paratype of *Racinaea pattersoniae*. Photo by José M. Manzanares

The next day, Saturday March 6, while exploring the páramos Elizabeth fell and broke her ankle, and, thanks to the Military Hospital of Loja, her ankle was put in a cast (see “Behind the scenes” second picture on inside back cover of Manzanares (2005)). The severity of the break made it necessary for her to return to the U.S.A. as soon as possible. Monday was the first flight out of Loja to Quito and luckily it connected to a flight to Miami and Dallas. The remaining participants were: Eduardo Cueva, Pablo Ochoa, and José Manzanares. On March 15 we decided to explore the adjacent area, the Podocarpus National Park, to study the endemism and the distribution of the species. We discovered the same *Racinaea* found in Uritusinga, this time in flower.

In this area we also studied *Racinaea tripinnata* (Baker) M.A. Spencer & L.B. Sm., *R. euryelytra* J.R. Grant, and *R. penlandii* (L.B. Sm.) M.A. Spencer & L.B. Sm., along with species of *Guzmania*, *Mezobromelia*, *Puya*, *Tillandsia*, and *Vriesea*.

José Manzanares’s first impression of this *racinaea* was to classify it as *Racinaea euryelytra*, because of the morphology of the flowers. In 2003 Walter Till visited the



National Herbarium of Quito (QCNE) and clearly decided that it was not *R. eurylehtra* but probably a new species. After studying the type of *R. eurylehtra* and the new specimen very carefully, we decided that this is a new species.

*Racinaea pattersoniae* Manzanares & W. Till, sp. nov.

**TYPE:** Ecuador, province of Loja: Parque Nacional Podocarpus, 04°07'S 79°10'W, 3124 m, 15 March 1998, J.M. Manzanares, E. Cueva, & P. Ochoa 6626 (holotype: QCNE).

A *Racinaea michelii* (Mez) M.A. Spencer & L.B. Sm., cui versimiliter affinis, foliis majoribus, vaginis foliorum extus glabris, laminis glabris, bracteis pedunculi imbricatis, bracteis primariis stipitem superantibus, floribus paulo minoribus, bracteis florigeris sepalis paulo brevioribus et indumento ferrugineo differt; a *R. tripinnata* (Baker) M.A. Spencer & L.B. Sm. rosula erecta (vs. patento-infundibuliformia), apicibus foliorum attenuatis et recurvatis (vs. acutis et erectis), pedunculo 50-60 cm longo folia multo superante (vs. pedunculo brevi, 30 cm longo, folia paulo superante, inflorescentia brunnea (vs. rubra), sepalis parvis, 0.4 cm longis, ovatis, apicibus rotundis, apiculatis et subasymetricis (vs. 0.8 cm longis, ovato-ellipticis, obtusis et perasymetricis), et petalis parvis, 0.6 cm longis, cremeis (vs. 1 cm longis, flavis) recedit.

**Plant** stemless epiphyte, in flower 60-80 cm long. **Foliage** dense, leaves few, coriaceous, erect, glabrous, external leaves dry and blades involute; **leaf-sheaths** 15 cm long, 8.5 cm wide, elliptic, adaxially brown-castaneous and slightly lepidote, abaxially brown and glabrous, conspicuous, forming a large ellipsoid pseudobulb; **leaf-blades** 15-20 cm long, 4-4.5 cm wide, sublingulate, apex attenuate, recurved, green with red-violet spots, glabrous, close together, erect. **Inflorescence** 18-30 cm long, 7-10 cm wide, 2-branched, cinereous during anthesis and brown in fruiting period, axis violet-black, erect, pyramidal, lax, densely covered with cinereous indument and the spikes with ferruginous indument, losing the indument with age, 8-12 branches 1.5-4 cm apart, at the apex 3-6 spikes; **peduncle** longer than the leaves, 50-60 cm long, 0.5 cm wide, erect, violet-black; **peduncle-bracts** bracteiform, 5-7 cm long, 1.5 cm wide; **sheaths** elliptic, apex triangular, imbricate, amplexicaul, brown, longer than the internodes; **primary-bracts** 0.3-3 cm long, 0.8 cm wide, elliptic, apex attenuate, spreading, shorter than the branches, longer than the stipe, brown, adaxially lepidote, abaxially densely covered with cinereous indument, nerved; **branches** 4-10 cm long, stipes 1-3.5 long, 2-7 spikes 1 cm apart, the lower branches with small secondary branches, branches with 1-3 spikes, brown, axis violet-black covered with cinereous indument, spreading, ascending; **spikes** 1-1.5 cm long, 0.5 cm wide, hanging, stipes 0.2-0.5 cm long, rachis geniculate, axis angled, dense, with 6-10 flowers 1 mm apart, brown, axis covered with ferruginous indument; **floral-bracts** 4 mm long, 4 mm wide, ovate, apex apiculate, adaxially glabrous, abaxially covered with ferruginous indument, brown-castaneous, not imbricate, rachis exposed, shorter than the sepals, nerved. **Flowers** sessile, not

second; **sepals** 4 mm long, 3 mm wide, ovate, apex obtuse and apiculate, ecarinate, free, slightly asymmetric, adaxially glabrous, abaxially covered with ferruginous indument; **petals** 6 mm long, cream; **ovary** round, 2 mm long, style and stigma 1 mm long; **filaments** 1 mm long, anthers 2 mm long, forming a circle around the stigma. **Fruit** a short capsule.

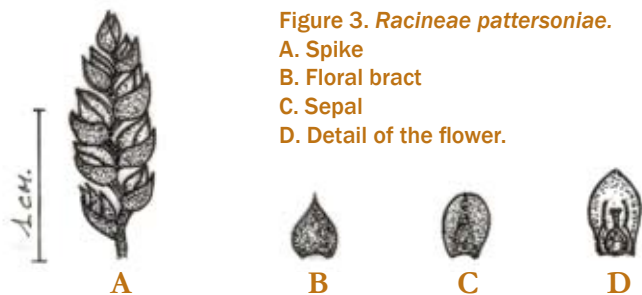


Figure 3. *Racinaea pattersoniae*.

A. Spike

B. Floral bract

C. Sepal

D. Detail of the flower.

PARATYPE: Ecuador, province of Loja: Uritusinga, 04° 06' S 79° 14' W, 3010 m, 5 March 1998, J.M. Manzaneres, B. Girko, E. Cueva, P. Ochoa & G. Tapia 6559 (QCNE).

Using the key of Smith & Downs (1977) this new species keys out to *Racinaea tripinnata*, but it can be distinguished from it by the erect rosette (vs. spreading), the attenuate and recurved apex of the leaf blades (vs. acute and erect), the 50-60 cm long peduncle, much exceeding the leaves (vs. a short peduncle, 30 cm long, slightly exceeding the leaves, the brown inflorescence (vs. red), the small sepals, 4 mm long, ovate with a round and apiculate apex, slightly asymmetric (vs. 8 mm long, ovate-elliptic, obtuse, and strongly asymmetric), and the small petals, 6 mm long, cream (vs. 10 mm long, yellow). It differs from *R. michelii* (probably its nearest relative) by: larger leaves which are mainly glabrous, the imbricate peduncle bracts, the primary bracts that are longer than the stipes, the somewhat smaller flowers, and the ferruginous indument of the spikes. *R. pattersoniae* can also be related to *R. penlandii* and *R. euryelytra*, but can be distinguished by its lingulate leaf blades (vs. narrow triangular) and its ferruginous inflorescence (vs. slightly lepidote).

This new species is only known from the type and paratype localities, south of the city of Loja, province of Loja, growing epiphytically on shrubs in the Andean Forest at about 3000 m. The inflorescence of the type was collected during anthesis and of the paratype in the fruiting stage.

**Etymology.** In honor of Elizabeth Patterson (1942-), Texas, U.S.A., participant of the expedition that discovered this *Racinaea*.

**Acknowledgments.** The authors thank Elizabeth Patterson for the revision and

translation from Spanish.

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## Studies on Orthophytum - Part VII

## A New Species from “Caatinga” of Northeast Brazil

Elton M. C. Leme. Illustrations by the author.

The ecosystem known as “Caatinga” shelters various types of sclerophyllous vegetation in the semi-arid region of Brazil and is characterized by a long dry season that may stretch over nine months or more. It is observed in the Northeastern States, like Bahia, Pernambuco, and Alagoas, and in part of Minas Gerais State. Despite most of the species of *Orthophytum* live in the region of the Atlantic Forest or more often in the grasslands on rocky soil (“Campos Rupestres”), on quartzite and sandstone outcrops that form the usually high-altitude landscape of Serra do Espinhaço range, in Brazil (Leme 2004) recently a new species was encountered in the heart of the “Caatinga” domain, as described below:

*Orthophytum catingae* Leme, sp. nov. Type: Bahia, Jeremoabo, Raso da Catarina, APA da Arara Azul de Lear, on sandsoil, May 2003, S. Linhares 1224, P. Lima, S. & D. Tütken, fl. cult. Febr. 2005, E. Leme 5717 (Holotype, HB).

Ab O. lucidum Leme & H. Luther, cui affinis, laminis foliorum spinis uncinato-retrorsis, scapo albo-lanato, inflorescentia elongata, bracteis floriferis majoribus, altitudinem sepalorum distincte superantibus, sepalis longioribus et petalis longioribus differt.

**Plant** terrestrial on sandy soil in caatinga vegetation, stemless, 50-75 cm high at anthesis, propagating by slender stolons 10-15 x 0.5-0.6 cm, shoots originating from the inflorescence not seen at anthesis. **Leaves** 12-15 in number (at anthesis), subdensely rosulate and forming a distinct rosette before anthesis and afterwards, at anthesis the upper leaves not distinguishable from the scape bracts due to the elongation of the stem; **sheaths** inconspicuous but broader than the blades, 3.5-5.5 cm wide at the base; **blades** narrowly subtriangular-attenuate, long acuminate-caudate, pungent, 25-64 cm long, 3-4.3 cm wide at and ca. 2.5 mm thick near the base, strongly coriaceous, suberect to suberect-arcuate, strongly U-channeled toward the apex, light green to reddish, lustrous adaxially (in green leafed specimens) to opaque (in reddish specimens), distinctly nerved on both sides, inconspicuously and sparsely white-lepidote mainly abaxially under a lens, becoming glabrous afterwards (in green leafed specimens e.g., the holotype), or abaxially densely adpressed white-lepidote throughout with the trichomes concentrated in the midnerve zone and partially obscuring the leaf color with the costal zone visible only, and adaxially subdensely to laxly adpressed white-lepidote to glabrescent with the trichomes not obscuring the leaf color (in reddish leafed specimens e.g., the paratype #2), margins suberect to erect, densely (near the base) to laxly (toward the apex) spinose, spines narrowly triangular, flattened toward the base, light green or reddish near the base, castaneous toward the apex, strongly retrorse-uncinate, the basal ones 2-3 mm

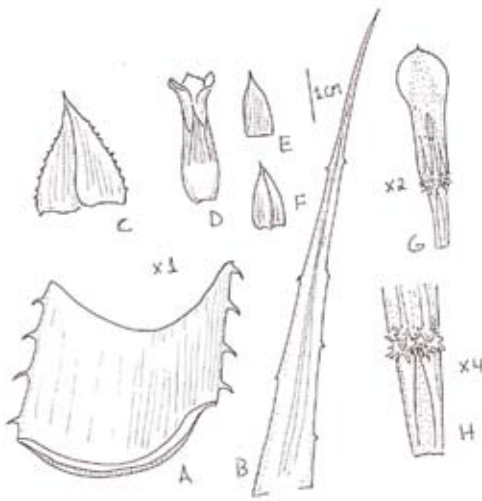




**Figure 1**

**Habit of *Orthophytum catingae* Leme which flowered in cultivation.**

long, ca. 1.5 mm wide at the base, 5-12 mm apart, the apical ones ca. 1.5 mm long, ca. 1 mm wide at the base, to 18 mm apart. **Scape** erect, light green, finely, subdensely (in green-leaved specimens e.g. the holotype) to densely (in reddish specimens e.g. the paratype #2) white-lanate to glabrescent with age, smooth, terete, 20-30 cm long, ca. 1.5 cm in diameter at the base and ca. 1.2 cm in diameter at the apex; **scape bracts** foliaceous and not distinguishable from the leaves, subspreading-arcuate. **Inflorescence** bipinnate except for the simple extreme apex, cylindrical, erect, 20-31 cm long, flower fascicles laxly arranged toward the base and subdensely to densely arranged near the apex, 2-4 cm apart, rachis 0.8-1.1 cm in diameter, straight to flexuous toward the apex, smooth to inconspicuously sulcate, terete, light green, finely and densely white-lanate at anthesis to glabrescent afterwards; **primary bracts** spreading or nearly so, distinctly U-channeled, the basal ones foliaceous to subfoliaceous and resembling the upper scape bracts, gradually reduced in size toward the inflorescence apex, the upper ones narrowly triangular to ovate-triangular, long acuminate, pungent, 5-15 x 2.5-3 cm, 2 to



**Figure 2.** *Orthophytum catingae* Leme: A) segment of the basal leaf blade; B) leaf apex; C) floral bract; D) flower; E) abaxial sepal; F) adaxial sepal; G) petal with stamen; H) details of the petal appendages

5 times longer than the flower fascicles, light green to reddish toward the apex, distinctly nerved on both sides, densely and finely white-lanate near the base and glabrous toward the apex (in green leafed specimens e.g., the holotype), or abaxially densely white-lanate near the base and densely adpressed white-lepidote toward the apex, and adaxially laxly white-lepidote to glabrescent (in reddish leafed specimens e.g., paratype #2), densely to subdensely spinulose toward the base, spines narrowly triangular, retrorse-uncinate, 1-2 mm long, ca. 0.5 mm wide at the base, 2-6 mm apart, laxly spinose to entire near the apex; **flower fascicles** 9-10, polystichously to subdistichously disposed, suberect, sessile, laxly head-like rosulate,

2.5-3 x 2.5-3 cm (including the floral bracts), 3- to 7-flowered; **floral bracts** broadly ovate-subtriangular to subtriangular, acuminate, pungent, carinate or the lateral ones alate-carinate, thinly coriaceous, exceeding the sepals, suberect, light-green, distinctly nerved, glabrous (in green leafed specimens e.g. the holotype) or inconspicuously white-lanate (in reddish leafed specimens e.g. paratype #2), 20-23 x 14-18 mm, margins densely spinulose, spines ca. 0.5 mm long, distinctly retrorse-uncinate, yellowish toward the apex, floral bracts of the simple part of the inflorescence resembling the upper primary bract but shorter, ecarinate, distinctly exceeding the flowers. **Flowers** 23-25 mm long (with extended petals), sessile, subdensely arranged, odorless; **sepals** lanceolate to ovate, apex acuminate-spinescent, 13-14 x 5 mm, free, entire, distinctly nerved, yellowish-green, thin in texture mainly toward the margins, glabrous (in green leafed specimens e.g. the holotype), or inconspicuously white-lanate at anthesis (in reddish leafed specimens e.g. the paratype #2), the adaxial ones alate-carinate with keels decurrent on the ovary, the abaxial one ecarinate; **petals** spatulate, rounded to obtuse and inconspicuously and slenderly apiculate under a lens, slightly cucullate, 18-20 x 5 mm, free, erect at anthesis and forming a tubular corolla except for the suberect apex, white toward the apex, greenish-white in their central portion, bearing 2 irregularly, long digitate-lacerate, downwardly oriented appendages 5-6 mm above the base, as well as 2 conspicuous longitudinal callosities shorter to nearly equaling the filaments; **filaments** terete, pale greenish, 13-15 mm long, the antepetalous ones adnate to the petals for 6-7 mm, the antesepalous ones free and slightly exceeding the antepetalous ones; **anthers** green, ca. 2 mm long, laterally complanate, base sagittate, apex acute and apiculate, dorsifixed near the base; **stigma** simple-erect, ca. 1 mm in diameter, blades obovate, obtuse, white, suberect, finely and shortly fimbriate; **ovary** 5-6 mm long, 5-7 mm in

diameter at the apex, trigonous, glabrous to inconspicuously white-lanate at anthesis, white to greenish-white; epigynous tube inconspicuous; placentation apical; **ovules** stipitate, obovate, obtuse. **Fruits** greenish-white, enlarged from the ovary.

Paratypes: (1) Alagoas: Olho D'Água do Casado, Serra da Múmia, Faz. Capelinha, 9°31'51"S, 37°50'32"W, 230 m elev., 28 Jun. 2000, R. P. Lyra-Lemos 4675 (MAC). (2) Bahia: Jeremoabo, Raso da Catarina, APA da Arara Azul de Lear, May 2003, S. Linhares 1225, P. Lima & D. Tütken, fl. cult. Febr. 2005, E. Leme 6549 (HB)

*Orthophytum catingae* is a member of the “subcomplex disjunctum” of the “complex with scapose inflorescence” (Leme, 2004). It morphologically most resembles *O. lucidum*, but the new taxon differs from it by the leaf blades with uncinata-retrorse spines (vs. antrorse), white lanate scape (vs. glabrous), longer inflorescence (20-31 cm vs. ca. 5 cm long), larger floral bracts (20-23 x 14-16 mm vs. ca. 14 x 12 mm) exceeding the sepals (vs. shorter than the sepals), longer sepals (13-14 mm vs. ca. 10 mm long) as well as by the longer petals (18-20 mm vs. ca. 11 mm long).

This new species was found in the “Caatinga” domain in the States of Bahia and Alagoas, not far from the border with the State of Sergipe. In Bahia, it was growing terrestrially on sandy soils, forming small populations protected by shrubby vegetation. The two known sites of collection are distant from each other by about 84 km and are ecologically similar.

## Acknowledgments

I would like to thank the bromeliad collector Sandra Linhares and the ornithologist Pedro Lima, who kindly provided the living material used in this study.

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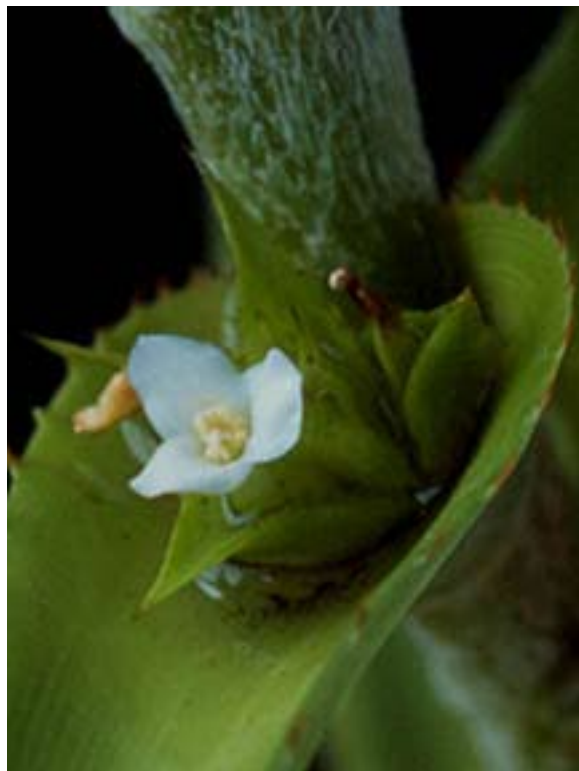


Figure 3. Details of the basal flower fascicle of *Orthophytum catingae* Leme

# Improving Taxa and Character Sampling to Support Generic and Infrageneric Status of *Alcantarea*

Elton M. C. Leme<sup>1</sup> photographs by the author.

## Introduction

Historical difficulties encountered in defining species and generic units in Bromeliaceae was documented by Brown & Leme (2000) on the basis of sampling (i. e., “methodological”) related problems: loss or modification of some important structures in herbarium specimens in post-collection preparation steps and under collection and the consequent poor documentation of morphological variation in wild populations. Other related problems are “historical”: missing morphological data on most currently known species; “instrumental”: reduced number of well documented living collections; “biological”: high homoplasy in morphological characters; and “conservational”: local and global species extinction.

Recent studies, however, using improved data mainly based on living specimens (e. g. Vieira, 1999; Forzza, 2001; Costa, 2002; Tatagiba, 2003; Souza, 2004; Faria et al., 2004; Leme & Siqueira-Filho, 2006) demonstrate that better taxon sampling combined with careful attention to character sampling can result in a much clearer understanding of taxonomic and phylogenetic relationships within Bromeliaceae.

A short-term investigation was conducted with the purpose of verifying how much improved morphological data based on living material may influence *Alcantarea* delimita-



**Figure 1:** The typical habitat of *Alcantarea* on inclined rock surfaces in Espírito Santo State, portraying *A. extensa*.

<sup>1</sup> Herbarium Bradeanum, Rio de Janeiro - RJ, leme@tj.rj.gov.br





**Figure 2:** Population of an ornamental *Alcantarea* aff. *extensa*, in Espírito Santo near the border of Minas Gerais.



**Figure 3:** The large habit and bulky compound inflorescence of *A. imperialis* are common characters in *Alcantarea*, but not an exclusive feature in the genus.

tion and its species circumscription in comparison to *Vriesea*. So, during 2004 and the first semester of 2005, in situ and ex situ observations were carried out with careful selection and documentation (i. e., descriptions, sketch drawings and photographs) of sub-utilized characters provided by living specimens only. The ex situ observations took place in the author's living collection, Refúgio dos Gravatás, at Teresópolis, Rio de Janeiro, covering 15 of the 18 known species (Luther, 2006). *Alcantarea hatschbachii* (L. B. Sm. & Read) Leme is considered extinct and was excluded from this study, as were *A. brasiliiana* (L. B. Sm.) Grant and *A. regina* (Vell.) Harms, both considered here to be dubious taxa. The results were presented in the Bromeliaceae Symposium, during the 17th International Botanical Congress, in Vienna, Austria, in July, 2005 (see Grant & Till, 2005).

### Taxonomical history

*Alcantarea* (E. Morren ex Mez) Harms was originally conceived in 1894 as *Vriesea* subg. *Alcantarea* E. Morren ex Mez. In 1929, Harms elevated it to generic status, but in 1935 Mez re-established its subgenus position, which was kept until 1995, when Jason R. Grant resurrected its genus status on the basis of the following highlighted characteristics: (1) geographical distribution restricted to southeastern and northeastern Brazil, in the states of Rio de Janeiro, Espírito Santo, Minas Gerais and Bahia; (2) plants



**Figure 4:** The adventitious offsets produced at the old elongated portion of stem are one of the unusual characters of *Alcantarea*.



**Figure 5-:** *Alcantarea farneyi* is one of the species in the genus with small habit and simple inflorescence.

with generally large habit with bulky compound inflorescence; (3) petals linear-long, spiraliscient, ephemeral, flaccidescent, 10-15 times longer than wide; (4) stigma convolute-bladed type, and (5) seeds bearing both basal and apical comas (Grant, 1995).

### Improved data

After visiting large populations of *Alcantarea* in different areas, as well as examining many living flowering specimens, it was possible to confirm, improve and reevaluate some data mentioned by Grant (1995) to segregate *Alcantarea* from related genera.

The geographical distribution for the genus was confirmed and improved, extending its occurrence southward to the state of São Paulo, where *Alcantarea edmundoi* (Leme) J. R. Grant was found in Bertioga (Leme et al. # 3193), near seashore. The habit information was improved too: all members of the genus have a specialized rupicolous habit, living on vertical to nearly horizontal rocky surfaces and rocky outcrops, usually forming large populations associated with inselbergs in the domain of the Atlantic Forest and the Campos Rupestres, from near sea level to about 2,000 m elevation. They are never epiphytic, but can be accidentally terrestrial in the borders of rocky habitats.

Although 12 of the 18 known species present large habit with bulky compound inflorescence as mentioned by Grant (1995), four taxa have a median habit [*Alcantarea burlemarxii* (Leme) J. R. Grant, *A. duarteana* (L. B. Sm.) J. G. Grant, *A. hatschbachii* and *A. nevaresii* Leme], and two are small-sized [*A. benzingii* Leme and *A. farneyi* (Martinelli & A. Costa) J. R. Grant]. Although the bulky compound inflorescence is a common



**Figure 6:** *Alcantarea imperialis* with the typical linear-long, recurved, spiraliscent, ephemeral and flaccidescent petals.

feature in the genus, *A. hatschbachii*, *A. benzingii*, *A. farneyi* and another undescribed species (i.e. Leme et al. # 3658) have simple and sometimes comparatively short inflorescences, and so the character related to the presence of lateral branches can not be used to segregate *Alcantarea* from the related genera.

One of the improved characters is related to the unique vegetative propagation of *Alcantarea* by means of numerous hairy adventitious offsets produced at the old elongated portion of stem not covered by leaves, like some *Tillandsia* species. These hairy offsets assure the vegetative propagation mainly for some species [e. g. *Alcantarea imperialis* (Carrière) Harms] that very often do not produce any regular rosette-offset at anthesis or afterwards and can be considered an example of “pseudo-monocarpy”.

The data related to seed propagation was also confirmed and improved: *Alcantarea* seeds are fusiform, bearing both basal and apical plumose comas. However, the umbrella-like apical coma is relatively short and even shorter than the basal coma, which is responsible for its comparatively reduced flying capacity that may have important implications in the wind dispersal ability of their species and in the strategy for habitat colonization.



The unusual petal characters of *Alcantarea* was also confirmed: linear-long, re-curved, spiraliscent, ephemeral, flaccidescent, 10-15 times longer than wide. But characters related to the delicate petals appendages that are hardly observed in herbarium specimens were improved: they are comparatively longer (to 4.8 cm long), equaling 3/4 of the corolla length to exceeding it (exserted) in a undescribed species from Minas Gerais (i.e., Leme et al. # 3658). The appendages are adnate to the petals for 2/3 to 4/5 of their length.



**Figure 7. Seeds of *Alcantarea* with both basal and apical plumose comas. The umbrella-like apical coma is relatively short and even shorter than the basal coma.**

Other difficult-to-observe structures in dried specimens are the anthers and stigma. However, in living specimens, these floral parts can be easily studied and improved. The anthers of the *Alcantarea* are narrowly linear, filiform and narrower than the filaments, subterete to slightly laterally complanate and sometimes spirally twisted at anthesis; the dehiscence line prevailing lateral (vs. prevailing frontal in *Vriesea*); margin of the opposed pollen sacs touching to slightly overlapping each other at anthesis and completely hiding the connective area (vs. connective area completely exposed in *Vriesea*), with pollen release-area covering the whole anther (vs. prevailing frontal in *Vriesea*). These characters are much closer related to those observed in *Tillandsia* and some *Pitcairnia* than in *Vriesea*.

The same is true about the stigma, as the convolute-bladed type reported by Grant (1995), typical of *Vriesea* species, was not confirmed. On the contrary, the stigma type observed in *Alcantarea* is conduplicate-spiral, bearing suberect to spreading blades, which is shared by many *Tillandsia* species, as well as by most members of Bromelioideae.





Figure 8: The petals appendages of *Alcantarea* are comparatively well developed and can distinctly exceed the calyx at least in an undescribed species from Minas Gerais (Leme et al. # 3658).



Figure 12: Some *Alcantarea* species, like this unidentified taxon, may produce an abundant jelly-like mucilage before and at anthesis, which may be another useful character for species segregation.



Figure 9: The typical linear, filiform, sometimes spirally twisted anther of *Alcantarea* in pre-anthesis (front to lateral view), showing the prevailing lateral dehiscence line.



Figure 10: In back view, the opposed margins of the pollen sacs touch to slightly overlap each other at anthesis, completely hiding the connective area of the anther.



Figure 11: The conduplicate-spiral stigma type of *Alcantarea*, with spreading blades, showing densely papillose margins.

## Conclusions

The careful selection and documentation of sub-utilized characters provided by living specimens strengthened the generic status of the resurrected *Alcantarea* when compared to *Vriesea* and are potentially useful to segregate species and recognize new taxa. On the other hand, some of the improved characters (e.g., hairy adventitious offsets, anthers and stigma type) suggest in some unclear extent a closer relationship of *Alcantarea* to *Tillandsia*, which recommends a specific investigation. However, these results are not supported by the molecular study conducted by Barfuss et al. (2005), since *Alcantarea* (and *Werauhia*) was well-supported in *Vriesea* s. l., and the segregation of *Alcantarea* (and *Werauhia*) makes the remainder of *Vriesea* paraphyletic.

Besides all the advances provided by molecular systematic studies, improving taxa along with character sampling can be very useful for a morphological-based phylogenetic reconstruction within Bromeliaceae. Thus, the intensification of field activities and the establishment of well documented living collections have a strategic importance in the conduction of new taxonomic investigations in Bromeliaceae and to access and conserve biodiversity.

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## ***Neoregelia* 'Takemura Grande' - a Cold Case or is it?**

Derek Butcher, BSI Cultivar Registrar



"Grande" (1) 1, 1978. Illustration page 18.

This name came on the scene in the early 1960's when seed of a hybrid was sent to Mr Takemura in Japan from Walter Richter in Germany. Takemura in turn shared seed or seedlings with Ralph Davis in Florida.

Ever since 1978 when James Elmore wrote on the 'Fabled Takemuras' in Grande Vol. 1 #1, I have wondered what a 'true' Takemura Grande' should look like. It is a pity that after all that investigation, James Elmore did not bite the bullet so to speak. For example pages 18 and 20 show photographs without captions. What does the nicely laid out photo on page 18 represent? So, already there are questions.



In any cold case investigation you always return to the scene of the crime. Therefore all references outside Florida are considered to be anecdotal only.

While the searching for similar names is easy, the problem is in plants with wrong labels. Thus 'Takemura Grande' can be shortened to either 'Takemura' or 'Grande' or added to such as 'Takemura Grande Silverado' AND have been!

This whole exercise is just another example of the problems caused by changing names. How many times have you heard the cry "Why are the taxonomists changing names again?" AND yet here we have a system of registration of cultivars where it is unnecessary to change names but growers and sellers do so when they make on-the-spot judgements on identity without referring to the official record!



*Neoregelia 'Grande'*. Photo by Penny Bullard.

One big problem that will never be solved is where old nurseries are purchased and mistakes made in the past are inherited and passed on as gospel. For example at the Florida West Coast Show in October 2004, Penny Bullard from Orlando bought a plant just called 'Grande' whose photo is shown. My plea is that registration of hybrids should be at front of the mind of any hybridist, and especially those who are commercial.

This is just an abbreviated version of the whole story but if you are really keen you can read the full version under 'Uncle Derek Says' on fcbs.org with LOTS of pictures.

What is going to happen to the other 'Takemura' references in the register? Well, nothing! Remember that reported parentage is not expected to be completely accurate and as with humans, it does not matter what your parents are, you are what is on your birth certificate. Without photos it is hard to make decisions but I'll be using Takemura Grande Group in the register to link similar looking plants. This is the topmost box for those who do refer to the on-line Cultivar Register in Cultivar corner in <http://BSI.org>. At the moment these are 'Takemura Grande', 'Takemura Princeps', 'Deep Purple', 'Ninja', 'Silverado', 'Silver Heel' and 'Southern Pride'. If you have plants you cannot identify at cultivar level you can call them Takemura Grande Group.

## Growing Alcantarea

Theresa M. Bert. BSI Director, Florida. Photographs by Birgit Rhode.



- ▲ *Alcantarea Tarawera* (*A. imperialis* X *vinicolor*) flower. Hybrid by David Fell, Hawaii.
- ▶ *A. species* flowering in Jocelyn and Peter Coyle's garden, Auckland New Zealand

Bromeliads in the genus *Alcantarea* are native to eastern Brazil, where they grow terrestrially in open places. Most of them grow in full sun, on granite outcrops (inselbergs) that can soar up to 500 ft. above rivers, tropical forests, and cultivated fields in cracks where water percolates through the granite. Many of them were formerly in the genus *Vriesea*. Most are very large—3 to 5 ft. in diameter at full size—and have brightly colored, lightly colored, or white and green inflorescences that are spectacular. The inflorescences can be up to 7-8 ft. tall, with multiple branches; large, sometimes colorful bracts; and lovely, three-petaled, yellow or white flowers with long, protruding stamens. Many have flowers with long petals that curve backward and sideways, like lovely curls at the ends. Don't hold your breath waiting for these plants to flower—they can be 10 or more years old before they flower. But it's worth the wait!

You will need space to grow these plants. *Alcantarea* species can be grown in a loose mix of potting soil, a little charcoal, and perlite. Increase pot size as they grow.









A green form of *Alcantarea imperialis*, growing in Jocelyn and Peter Coyle's Totara Waters garden. Auckland photographer Birgit Rode writes "Gardeners down-under are increasingly drawn to the Alcantarea species because of their size, form, colour, majestic inflorescences, and toughness to the sun and coastal conditions. Their popularity is stimulating local hybridising efforts..."



They eventually become so heavy that the bases lean and press against the edge of the pot. At this time, they'll fall over when loaded with water unless some preventative measure is taken. I usually pot them in plastic pots and place those pots into heavy clay pots. Sometimes I also need to counterbalance the base of the plant by putting a brick or two in the plastic pot on the side opposite the plant base. Some species and varieties (e.g., *A. imperialis* 'Red') tend to rot at the base; to guard against this, grow those plants in pure perlite and porous rock (e.g., commercially available lava rock<sup>1</sup>), with lots of time-released fertilizer (avoid placing the fertilizer so that it touches the plant base).

They respond well to time-released fertilizer (I use 6-month time-released Nutricote, also available as Dynamite). They also do well in the ground. If covered with light frostcloth or sheets, they survive light frosts without damage. I grow them in my yard, in full sun or partial shade, and in a shadehouse sitting high above all other plants. Plant or place them in locations where you won't need to move them after they're full-grown. An alcantarea holding even a little water can weigh 80-100 lb.

The pups on alcantareas grow from the trunk. Small "grass pups" with thin leaves can appear beneath the leaves when the plant is small through full-sized. These can be removed when they're about 4-5 in. long and potted. They are not easily removed because the base is recurved into the trunk of the parent plant. To remove them, dig the potting mix away from the plant, grasp the pup by the base, and wiggle it from side to side while simultaneously pulling the pup a bit away from the mother plant. Very robust pups frequently appear after the plant has bloomed (cut off the inflorescence) if time-released fertilizer pellets are placed between the leaves. Sometimes it's possible to get a dozen or more pups by using this method. To remove those pups, I remove all leaves below them and use the same technique described above for the grass pups. The best way to get them to root is to insert them between the parent plant's trunk and a big remaining leaf until they develop roots, which takes a few months. For me, that works better than potting them.

Few bromeliad enthusiasts here seem to grow *Alcantarea* species, probably because they are so big, but if you want unique, interesting landscape, try plants of this genus. They can tolerate some leaf litter accumulation, but not acorns or rotting leaves left in their centers for months. Several large species available for cultivation are cold-tolerant, easy to grow, and spectacular (e.g., *Alcantarea imperialis*, *A. odorata*, *A. extensa*, *A. brasiliiana*, *A. vinicolor*, and *A. beloisae*). *A. imperialis*, the most popular species, comes in several colors. The broad, stiff, spineless leaves are green above and green or various shades of red or purple beneath. *A. odorata* can be purchased with varying degrees of trichome (scurf) coverage. Those with thick coverings (e.g., cultivar 'Silver') are fuzzy, or snowy-looking, and interestingly beautiful.

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1 also called "scoria" in some countries - Ed.

## Bromeliad Icons in Old Publications, Part 1.

Leo Dijkgraaf

Before the time of photography it was the coloured drawings made by skillful artists and craftsmen that gave us an impression of the morphology and colouration of things and life-forms. In the past there have been some articles in the *Journal* covering certain bromeliads in publications illustrated by such coloured plates. For instance, there was the series “*Icones Bromeliacearum*” by Robert Read (Read 1986)). And some of the drawings that Edouard Morren collected and are now in possession of the Kew Library were presented to us by Lyman Smith. This all was about 20 years ago and much remains hidden in the archives, although more and more can now be found on the internet (the Missouri Botanical Garden is doing a particularly good job with their digital library of botanical literature). My own investigations in this field were principally aimed at the horticultural magazines of the 19th century but were expanded to works that followed the same way of presentation, like albums. Much information about those I gathered from the standard works on taxonomic literature (Stafleu and Cowan 1976-1988).

At the end of the 18th and start of the 19th century Europe saw the rise of many horticultural magazines that would become best known for their colourful illustrations of plants. It was the time of exploration and the plant-hunters found many exotic new species, including spectacular bromeliads. In general the magazines in England, France, Belgium and Germany followed the same concept in publishing the plants: a colourplate on one page, sometimes as a foldaway, and one or more pages with text giving a description and information on habitat and culture.



**Figure 1 *Tillandsia stricta* Solander, engraving by Sydenham Teast Edwards, published in 1805.**

Although the texts present very interesting reading the main attraction is formed by the plates: therefore some explanation on how they were made is in place. In the period concerned, two methods are of interest. The first and oldest one is engraving: in a metal plate - mostly copper, also steel lines were engraved with a sharp metal tool. This could also be achieved with an acid, here a drawing was made first on the wax-covered metal, this etching was often combined with engraving. From the engraved metal plate, prints on paper could be made by filling the lines with ink, ensuring the surface of the plate was wiped clean.

The other technique is lithography, discovered in 1798 in Germany by Aloys Senefelder. It is based on the fact that water and fat repel each other and achieved by making a drawing on a slab of stone with a greasy substance, after which the stone is wetted with water. The water is rejected by the lines of the drawing and when ink is applied, this only sticks to the greasy drawing, not to the wet surface. Like a metal plate, the stone can be used to make many prints. After 1820 publishers tended to use lithography for the plates in books and magazines and especially Belgian lithographers reached the ultimate of craftsmanship in a relatively short period of time. In later times, instead of stone, also zinc and aluminium were used.

Both techniques produce a print on paper in black and white; colour was applied by the artist by hand, mostly using watercolour paint. From 1830 onwards colour prints appeared, made through a process of repeated printing with several print forms and with different ink colours. The process was made easier by offset printing, using a roller covered with rubber as an intermediate step, also having the advantage of avoiding a mirror image on paper.

The first magazine on horticulture, at least one that would also give ample attention to bromeliads, was started in England. In the year 1787 it was founded by William Curtis and for the first 14 volumes was entitled "The Botanical Magazine". The text on the title page tells us what it is all about: "The Botanical Magazine; or, flower-garden displayed: in which the most ornamental foreign plants, cultivated in the open ground, the greenhouse, and the stove, are accurately represented in their natural colours. To which will be added, their names, class, order, generic and specific characters, according to the celebrated Linnaeus; their places of growth, and times of flowering: together with the most approved methods of culture. A work intended for the use of such ladies, gentlemen, and gardeners, as wish to become scientifically acquainted with the plants they cultivate". Curtis died in 1799 after which John Sims took over as editor, later to be followed by William Jackson Hooker, John Dalton Hooker and William Turner Thistleton-Dyer, all directors of Kew Gardens. The name then became

"Curtis's Botanical Magazine" and today it is still published under that name, although from 1984-1994 it was labeled Kew Magazine. It is a publication of the Royal Horticultural Society. Over all those years some 11500 plates were produced, including 122 of bromeliads. About the artists that worked in the early years for the magazine one can read in an article in this Journal (Read 1986).





**Figure 2. *Aechmea lavandulacea* C. H. Wright, illustration published in 1905.**

da, one of the Windward Islands in the Caribbean. A citation from the description: “The species is very distinct and is characterized by the distichous arrangement of the panicle-branches and flowers. The broad lavender-coloured margins of the bracteoles, resembling in colour the flowers of some species of *Statice*, candied all over with white scurf, harmonize with the deep violet petals, and thus avoid that sharp contrast in colour so often found in the inflorescence of plants of this order”. Differences are given between this species and *A. pubescens*, *A. lingulata* and *A. dichlamydea*. However in 1896 Carl Mez had described a similar plant under the name *Aechmea smithiorum* and *A. lavandulacea* is now a synonym of that one. There has been an article on *A. smithiorum* with a photo, discussing its misidentification in the past, in the Journal (Luther 1995).

The next plate illustrated here (fig.3), number 8348 (vol.136, 1910), is of *Neoglaziova concolor* C. H. Wright, also newly described. It looks very much like *Neoglaziova variegata*, see the recent article about that species in the Journal (de Paula and Guarçoni 2007). The text with the plate

To make a choice from the illustrations I focused on some bromeliads that were newly described.

The first bromeliad illustrated in Curtis’s Botanical Magazine was *Pitcairnia bromeliifolia*, plate 824 (vol. 21, 1805). There were three more *Pitcairnia*s to follow before plate 1529 (vol. 37,1813) was published, depicting a member of some other bromeliad genus: *Tillandsia stricta* Solander, a “frosted stiff-leaved *Tillandsia*”, together with the description of this new species. The engraving (fig.1) was made by Sydenham Teast Edwards who a few years later was to start his own magazine but continued to work for the Botanical Magazine. The plant was found by Solander near Rio de Janeiro and first introduced into the European gardens by Lady Neale at Walhampton. The Swedish botanist Daniel Solander had already died in 1782, but the lengthy description of *T. stricta* in Latin is from his hand. He was an apprentice of Linnaeus and the librarian of Sir Joseph Banks, co-founder of the Royal Horticultural Society in 1804. With James Cook the two men had made a world trip collecting plants in the years 1768-1771.

After a century of time travelling we arrive at plate 8005 (vol.131, 1905) of *Aechmea lavandulacea* C. H. Wright. The illustration (fig.2) was made after a plant found on Grena-



reads: "The bromeliad here figured is a native of the northern portion of the State of Bahia in Brazil, where it is known as the Makimbeira; here it grows in association with the Caroá, a very nearly allied plant referred by Baker as *Dyckia glaziovii* but treated by Mez, perhaps more satisfactorily, as a member of a distinct genus *Neoglaziona*. From the Caroá (*N. variegata*) the Makimbeira (*N. concolor*) differs in its shorter stature and in having its leaves uniformly white-lepidote, the younger parts are indeed almost woolly; the leaves of *N. variegata* are glabrous or only very minutely lepidote, and when fresh are conspicuously marked with lighter transverse bars which in dried specimens become obscure or disappear entirely. The leaves of both species furnish fibre; that of the Caroá is well known and comes chiefly from the Queimadas District: it is made into ropes for binding packages of tobacco. These ropes have a breaking strain of 3 tons to the square inch; they are, however, very sensitive to attack by alkalis. The fiber of the Makimbeira is less well known and is of a softer and poorer quality". The plant flowered in 1909 after six years at Kew, it was slow growing.

The illustrations in the Botanical Magazine and also from other English horticultural magazines were often used by periodicals on the European continent, sometimes with slight alterations. An example is plate 2392 (vol.50, 1823) of *Bromelia alsodes* St. John, once reproduced in black-and-white in the Journal (Neighbours 1977). It is printed - w from the original - in "Sertum Botanicum - F 1828-1832 by Pierre Corneille van Geel, cler were made for this work, the hand-coloured installments. The format was twice as large or plate numbering. None of the 8 bromelia in French and in most cases also in Dutch ar are not given, but could have included van C Van Geel and Drapiez were the founders of Jardin Botanique of Brussels.



Figure 3. *Neoglaziova concolor* C. H. Wright  
Illustration published in 1910.

The plate from *Sertum Botanicum* is printed here in colour (fig.4). The original drawing of the plant in the Botanical Magazine, at the time named *Bromelia sylvestris*, was made at the Apothecaries' botanic garden in Chelsea, London.



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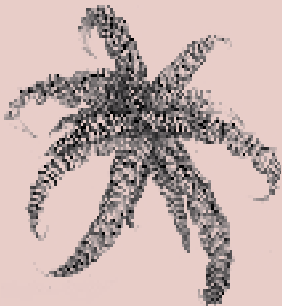
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**Figure 4, *Bromelia alsodes* St. John, published in *Sertum Botanicum*.**

### Author

Leo Dijkgraaf, The Netherlands. ldijkgraaf@tiscali.nl



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## Rara Avis, Part 1.

**Ken Marks, BSI Webmaster.** Unless noted otherwise, photographs by the author.

We ended up in Costa Rica by default. My wife Tammy had a couple of weeks of vacation that she needed to use up (an enviable situation). My friend Paul Humann who writes a popular series of underwater marine-life field guides was looking to take a non-diving vacation. Paul was keen on seeing some of the more remote Mayan ruins in Central America. The current wisdom was that touring the back country in a rented car was not recommended and we were advised to stick to the big cities. This wasn't what we were looking to do so instead we considered our options, examining most of the countries in Central and South America in turn. Many candidates, like the cross-country Argentina trip with side trip to Iguazu Falls, required more planning and more time in country than we had. We were looking for an exotic port of call but also some place that was safe and that had easily-arranged travel logistics. When Tammy suggested Costa Rica we knew at once that we had hit upon the perfect destination for our travel needs.

Tammy and I had been in Costa Rica once before, about ten years ago, when we attended an 8-day immersion Spanish course. I live far enough north of Miami that my Spanish gets little use between occasional trips to Spanish-speaking countries. In tourist-friendly Costa Rica, even my dismal attempt at a second language was never a hindrance.

We didn't see much outside of the classroom on our first visit but we made up for it big time on this trip. Paul contacted several friends who had been to Costa Rica recently and managed to put together a first-class itinerary featuring many of the gems in this treasure chest of a country.

We visited popular tourist spots like Monteverde and the area around Volcan Arenal. But we also went to more out of the way places like the Osa Peninsula. There we stayed in a small eco-resort on the tip of Cabo Matapalo overlooking the Pacific. Each of the places we visited gave a different glimpse of the incredible diversity of the photogenic wildlife and scenic vistas for which Costa Rica is famous. However, it was our first destination, Rara Avis Rainforest Lodge & Reserve, that stands out in my mind as the high point of the trip.

Rara Avis is Latin for "rare bird" and while it is a great birding destination (367 species have been spotted there) I suspect this was not the primary reason for its naming. The dictionary provided a better insight into the meaning behind this place's epithet.

rara avis \RAIR-uh-AY-vis\, noun; A rare or unique person or thing.

Amos Bien, an American population ecologist by academic training, fell in love with Costa Rica back in the 1980s and moved there. Somehow (I would love to have heard the story first hand) he managed to convince a Costa Rican lumber company that the mountaintop land that they held could not be logged profitably due to its inaccessibility and the rough terrain. Even more amazingly he managed to get the lumber company to sell the land to him instead of attempting to clear cut it. In 1983 Bien formed a publicly held Costa Rican corporation and purchased 409 hectares (1010



acres) of primary rainforest adjacent to Braulio Carrillo National Park and later found conservation buyers to purchase an additional 558 hectares (1379 acres).

Rara Avis became one of the first eco-lodges in Costa Rica. Rather than trying to provide 5-star accommodations and amenities in this remote setting, it followed a more sensible approach of allowing their guests to experience the rainforest with a minimum of human impact. Bien realized that in order to provide an economic alternative to chopping down the forest, the land had to be made profitable in other ways. The lodge currently employs 15 locals who earn about twice the average wage for the area. To further benefit the region, all supplies are purchased locally. In addition to eco-tourism, Rara Avis is experimenting with creative methods of low-impact, selective farming. One program involves raising butterfly larvae and various ornamental rainforest plants for export. Another is growing timber-tree seedlings for use in local reforestation projects and tree plantations.

### Getting There is Half the Fun (Maybe)

Getting to Rara Avis was an experience in itself. After spending our first night just outside of San Jose, we drove our rental car to the town of Las Horquetas. While that



may sound simple, it was more of an adventure than we had planned. We enquired at our hotel as to which would be the best route and how long it should take us. Since we needed to be at the Rara Avis office in Las Horquetas before 8 a.m. we wanted some local input. Receiving the estimate of an hour or maybe an hour and a half, we decided to leave promptly at 6 a.m. to make sure we had plenty of time.

We left our hotel on time and navigated the twisty little two-lane road northward,



**The “road” to Rara Avis**

around the Braulio Carrillo National Park, and toward our destination. As the designated navigator, I checked-off town after town as I tracked our progress on the map. The scenery tempted us to stop at each roadside waterfall and scenic vista but we pushed ahead since the map showed that we had a lot more territory to cover. We sped along at a rapid pace but always slowed down as we cautiously approached the many hairpin turns. Early on we discovered that oncoming trucks seldom keep to their side of the road instead preferring to make use of both lanes as they come around these tight bends. This was the first of our Costa Rican driving lessons that we would learn this day.

On arrival in the town of Puerto Viejo de Sarapiquí, the map indicated a turn toward the right but we could see no road sign confirming the proper road. We stopped, consulted the map again, and then retraced our steps a short distance to where Paul had seen something on the ground. Sure enough, lying there in the dirt on the side of the road was the sign pointing the way to Las Horquetas where it had apparently fallen over some time ago. Since everybody in Puerto Viejo apparently knew the way to Las Horquetas, nobody had bothered to fix the sign. Second driving lesson learned – don’t rely too heavily on road signs.

After Puerto Viejo the road straightened out and the speed limit increased which allowed us to make better time. This was helpful as it was approaching 8 a.m. and we were still not in Las Horquetas. We sped along trying to judge our progress on the map. There were not many towns along this stretch of road so all we could do was to drive fast and keep our eyes peeled. When we finally spotted a sign it was for a town that was just past Las Horquetas. We wondered how we could have overshot our destination since it looked on our map to be a large town. Turning around we sped back with mounting anxiety as the clock ticked on. It turned out that Las Horquetas did not lie on the main route as was shown on the map. Instead, it bordered the highway and was reached by a turnoff marked with a small sign visible only from the south. This led to our third driving lesson – towns may not be marked in both directions (apparently one sign was thought to be sufficient).

In Las Horquetas we quickly located the Rara Avis office and arrived at our destination about thirty minutes late. Our final driving lesson this morning was that we should ignore all time estimates given by locals (who either don't own watches or drive way too fast).

The reason for our haste and our (failed) attempt at promptness was the mode of transportation up to the lodge. At the office we parked the rental car and carried our things to the large, olive-drab, military-looking truck. Our suitcases were quickly slipped into large, plastic garbage bags and loaded onto the truck while we exchanged our shoes for rubber boots. Then we joined this morning's only other passengers, a Costa Rican honeymoon couple, on the two wooden bench seats that ran the length of the truck facing either side. Within minutes we were on our way, leaving the (well-hidden) town of Las Horquetas and our worries behind.

Just outside of town we crossed a river on a suspension bridge that looked like it was custom built for our truck. There were mere inches of clearance on either side as the truck crept across the rickety-looking, but apparently very sturdy, span. Once over the bridge we entered an area of lowland farms and cattle ranches. Only a few large trees, festooned with bromeliads and other epiphytes, remained as witnesses to the thick forests that once covered this area. We bumped along in the truck over a road which steadily faded from a concrete example to more of an abstract notion. The signs of human habitation also diminished and were slowly replaced with denser stands of forest. After more than an hour we stopped near a small, ramshackle building and pulled off to the side of the rutted mud path that was serving as a road and waited. Before long we saw the farm tractor pulling a cartload of visitors down the hill to its rendezvous with us.

This previous group of 15 from Oregon chattered on about how much fun we were going to have and what great things we were going to see while our mud-splattered,

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plastic-wrapped suitcases swapped places on the two vehicles. Before long the large group made its way down the hill in the truck while we continued upward by tractor. The reason for the transportation trade-off soon became clear. Our route quickly lost any chance of being classified a road as it disintegrated into an alternating series of impossibly deep, muddy ruts and huge boulders. At this point the warning on why pregnant women and people with back problems should not make this journey became plainly obvious. I managed to retrieve my camera from my backpack but I was unable to take pictures of the more amazing stretches. We were bounced around so fiercely that I had to hold on tight to keep from being tossed from the cart. The trip had become a cross between a mechanical bull ride and a monster-truck mud-bogging race.



When we finally arrived at the original Rara Avis facility, named El Plástico, we stopped to give our internal organs a chance to return to their rightful positions. This building was named for an abandoned jungle prison colony where the prisoners slept under plastic tarps. It is now owned by the Selvatica Biological Station which uses it as one of its bases for ongoing research and education projects. We were given the option of leaving our bags on the cart and hiking to the lodge, a further three kilometers up a steep and winding jungle trail, or remaining with the tractor to continue our imitation of life-sized bobble-head dolls. Surprisingly, we choose to stay with the devil we knew and saved this trail for the end of the trip when we could at least hike it while descending.  
*to be continued...*

**A taste of things to come... a rather soggy Ken with *Racinaea contorta* fallen from its perch. Photograph by Tammy Marks.**

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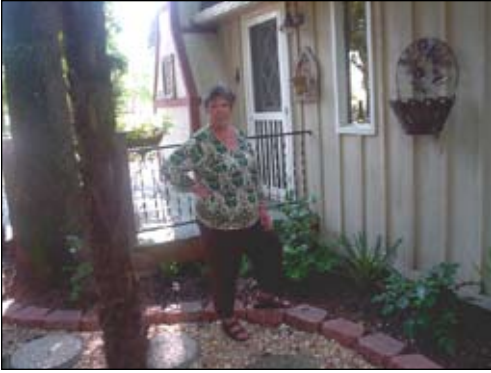
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## Welcome New BSI Directors

Bonnie Boutwell will be taking up the position of Louisiana Director for the 2008-2010 term.



Bonnie's infatuation with bromeliads began in the mid 1970's when she met and married Bob Boutwell who was deeply invested in bromeliads and orchids. At the time they owned several homes and built many greenhouses to accommodate his sizeable collection. They were also members of the Greater New Orleans Bromeliad Society (GNOBS), worked on World Conference committees and traveled to Mexico and Costa Rico on collecting trips. When they divorced in 1986, Bonnie moved into an

apartment and kept only a few bromeliads.

In 1997 Bonnie grew tired of living on the road and bought a home on an acre of land in Mandeville, Louisiana. Shortly thereafter she joined GNOBS, renewed old acquaintances and started to rebuild her collection. Today, Bonnie's career no longer requires extensive travel and she has time to enjoy her beautiful bromeliads. Although she says she is only a hobbyist and not a hybridizer, she has attended 3 of the last 4 World Conferences and enjoys finding new and unusual crosses. She has registered for the 2008 Australia Conference and looks forward to seeing bromeliads "down under." Bonnie believes that BSI has a place in the heart for every bromeliad enthusiast and welcomes the opportunity to contribute to the continued success and growth of this tremendous organization.



**Les Graifman at home, with Mr Pip.**

---

Leslie Graifman is the new Director of the Northeast Region. Stephen Catalano resigned because of personal reasons, and with the help of Herb Plevier, Les agreed to be the new Director to represent this region. Les is currently serving as President of the New York Bromeliad Society (NYBS), and has been a member of NYBS for over 30 years. Other Board positions served: Finance Officer of the Social Service Board of United Social Services, Inc. Prior to serving on the Social Service Board, Les was

the Board Treasurer of the New York Society for Ethical Culture, as well as Chair of the Society's Finance Committee and Liaison to the Society's Endowment Committee.

After serving in the Armed Forces during the Vietnam War Era, for which he received the coveted Army Commendation Award, Les continued his successful 30 year career in Wall Street. After leaving Wall Street, he was the Executive Director of the Well Spouse Association (WSA), an international not-for-profit which provides support groups for spousal caregivers. In that role, Les interfaced with the Board and a membership of 3,000 caregivers, and represented the WSA in London at the formation of a global consortium of international caregiving organizations. He also served the WSA as Treasurer, Vice-President and Co-President.

Presently, Les manages his own independent insurance brokerage, Careinsure, where he specializes in long term care and other forms of insurance for his national clients. His articles about long term care insurance have been published in Mainstay, the newsletter of WSA, and he has written for other publications as well.

Bromeliads continue to fascinate Les, and he grows almost 100 of them in his New York City apartment.

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## ***In Memorium. Clyde Jackson 1917 - 2007***



We are fortunate to have had so many great people to create and guide our Bromeliad Society over the years. Clyde Jackson was one of those people. He died June 14, 2007. He served in every facet of his life by accepting every worthwhile challenge that came his way. In the Bromeliad Society his major challenges included serving as Treasurer and Director of the BSI for many years. In the Cryptanthus Society, he was a charter member and served as Treasurer since its inception. He was the General Chairman of the 1990 World Bromeliad Conference in Houston. Clyde became one of the early Bromeliad Judges and judged shows throughout the U.S. He with his wife, Crystal, built a great bromeliad collection. My wife, Betty, and I spent many years with Clyde and Crystal judging shows, attending BSI meetings, visiting our great bromeliad friends, and of course, collecting plants. Crystal died in 1994 leaving Clyde (married over 50 years) and three children. He later married Arlette (she has five daughters) and had several good years with his extended family.

Without question, Clyde was a devout Christian, an honorable man and a great gentleman. It is my privilege to have known him. He would have been 90 in October. He completed all his challenges in good order and was ready to put his tired, hard-working hands to rest. We will miss him.

Odean Head, Houston, Texas

## Bromeliad Society of Central Florida Show May, 2007

### Carolyn Schoenau, Affiliated Shows Chair.

The Bromeliad Society of Central Florida, Inc., Orlando, held its 32nd annual bromeliad show and sale, May 11-13, 2007. The Co-Chairmen were Quylee Force and Bob Smedley.



Grant Groves won "Best of Show" with *Vriesea heiroglyphica X fosteriana*.

The Mulford B. Foster Best of Show Horticulture was won by Grant Groves of Winter Garden FL. Greenhouse grown *Vriesea heiroglyphica X fosteriana* was approximately 2 years old, 36" tall, 40" in diameter with a leaf length of 24"; the base of the leaf was 4" wide.

The Morris Henry Hobbs Best of Show Artistic was won by John Boardman of St. Cloud FL. The winner was a decorative container holding *Neoregelia* Pimiento which appeared to be painted and glazed exactly to match the foliage of the plant. John Boardman also won Show Sweepstakes. There were 17 exhibitors. Horticulture entries totaled 74, Artistic 11, with 47 Awards of Merit, 33 Blue Ribbons, and 15 Red Ribbons.

*Editor's note:* Volunteers are the lifeblood of all bromeliad societies. Show judges are depicted opposite - left to right: Steve Hoppin is President of the Cryptanthus Society International and member of Caloosahatchee Society. Carolyn Schoenau has judged every BSI World Conference since 1980 except 2006 when she was Show Chair, she was BSI Membership Secretary for 7 years and has been Affiliated Shows Chair for 3 years, retiring this year (to be replaced by BSI director Terri Burt, who takes over as Shows Chair in 2009). Vicki Chirnside was in the first group of Florida judging schools





and, has been Chairman of FCBS. Ron Schoenau was also in the first Florida judging schools, and has been a BSI Director. Dr. Larry Giroux is a current BSI Director, and is editor of the *Cryptanthus Society Journal*. Dr. Terri Burt (not shown) also judged.

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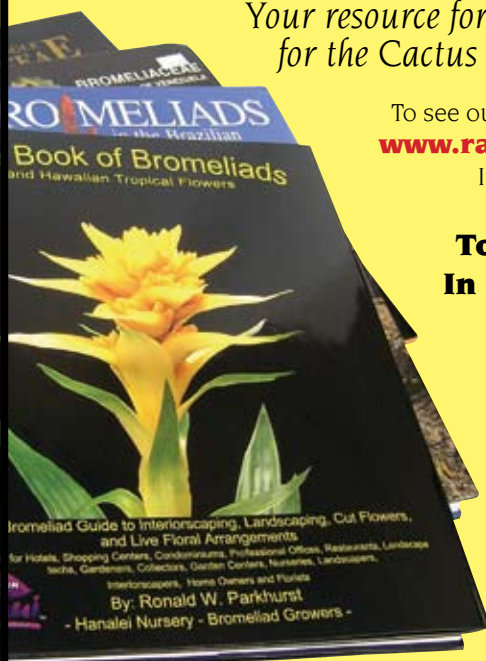
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June 24-29, 2008, BSI World Conference in Cairns (Australia.) Enquiries to Lynn Hudson, 47 Boden Street, Edge Hill QLD 4870 or [lynnie@ledanet.com.au](mailto:lynnie@ledanet.com.au)

### New Zealand

February 23-24, 2008. Bromeliad Society of NZ Fiesta 2008, Competitive Show & Sale. Mt. Eden War Memorial Hall. Contact Alan Cliffe (09) 479-1451

### United States of America

November 30-Dec. 2, 2007. Caloosahatchee Bromeliad Society Sale and Show. Terry Park, 3410 Palm Beach Blvd (SR80), Fort Myers. Contact Steve Hoppin at [SteveandLarry@comcast.net](mailto:SteveandLarry@comcast.net) or 239-997-2237.

July 26 - August 1, 2010. BSI World Conference to be held at the Astor Crowne Plaza in New Orleans.



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# The Bromeliad Society International

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

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