JOURNAL

OF THE BROMELIAD SOCIETY

Volume 59(1): 1-48 JANUARY-FEBRUARY 2009

Journal of the Bromeliad Society

Volume 59(1): 1-48 January-February, 2009

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
Printed April 2009 by Fidelity Press, Orlando, Florida, U.S.A.

© 2009 by the Bromeliad Society International ISSN 0090-8738

CONTENTS


p. 10


p. 22


p. 23

Covers

Front—Dyckia velazcana and Trichocereus terscheckii in the Pipanaco Basin , Catamarca. Photo by Alfredo Grau. For comparative size, see mother goat and kid at top-right of hill.

Back—Tillandsia species (probably *T. zecherii*) growing on cactus 18 km north of Salta on Route 9. Photo by Andrew Flower.

note: both covers were photographed in northwest Argentina - see article on page 35.

Publication Information: The Journal is published bimonthly by the Bromeliad Society International. All scientific articles are peer reviewed, and author guidelines are available from the Editor. Authors are requested to delare any article they have already, or intend to, publish elsewhere.

Editorial Advisory Board: David H. Benzing, Gregory K. Brown, Jason Grant, Elton M.C. Leme, Thomas U. Lineham Jr., Harry E. Luther, Walter Till.

Permission is granted to reprint articles from the Journal, in whole or in part, provided credit is given to the author and to the Bromeliad Society International.

Editorial

This Issue

Scientific

Vriesea cipoensis, an attractive new species from Serra do Cipó National Park in Brazil is our first new description, on page 7. Following this, Elton Leme describes for the first time *Alcantarea mucilaginosa*, also from Brazil.

Eric Gouda adds some useful new data to the original description of *Pitcairnia longissimiflora* based on a new specimen collected in Peru by T. Kromer (p. 16). Elton Leme concludes the scientific section with another new species, *Alcantarea vasconcelosiana* - this is one of the more attractive Alcantarea species - lucky for it, the steep granite walls on which it grows should protect it from predation, as has been the case with its neighbour *A. roberto-kautskyi* for which additional character descriptions are provided in this article. Also included is an up-to-date listing of all 28 *Alcantarea* species described to date.

Cultivation

"Quilling" is a problem many of us face in cultivation, where the inner leaves roll up into a tube. Page 28 we re-print an article by Jerry Raack discussing this problem, and how to fix it. The Editor tried out the cure, and shows some photos of the result on page 29. We also have a recipe from Len Trotman for a potion that not only deals to quilling, but also take out mosquitos, slugs, snails and other insects!

Alcantarea plants are becoming increasingly popular for landscaping in sub-tropical gardens and, on page 30, Diane Timmins from Auckland discusses the pros and cons of removing the dead leaves that accumulate at the base of these bromeliads. The Cultivar Twins, Geoff Lawn and Derek Butcher, discuss the contuinuing difficulties finding the "true" *Neoregelia punctatissima* in cultivation and expose one contender from Australia as an imposter, renaming it *Neoregelia* 'Perdita' (meaning "lost").

On page 35 we reprint an article by David Christiano descibing his trip to northwest Argentina to seek out the natural habitat conditions of the bromeliads who grow in that area. Based on this trip, he found that his problems with cultivating these species in Missouri (tillandsias, especially) can be traced back to over-watering, and letting the cultivated plants stay wet overnight. An interesting observation of his is the prevalance of freezing temperatures and frost where many of the bromeliads grow in nw Argentina. This does not necessarily translate to frost-hardiness in cultivation, and we have an interesting insight into frost tolerance in habitat in some notes Chris Larsen emailed me, see page 38. I would be very interested in any comments other members have on their experiences growing these bromeliads in near-freezing temperatures or out in the frost.

General Interest

We have a discussion on digital camera photos on page 39, a new way for acknowleding donations from Joyce Brehm on p. 40, then we introduce two new officers and a new director.

NEWS

Leonard Kent M.D., founder of Kent's Bromeliad Nursery Inc. in California, died on December 28 2008 at the age of 90. Dr Kent began his work with bromeliads as a hobby in the 1960's, an interest that grew into todays million square foot bromeliad wholesale business now managed by his three sons.

As this issue went to press, we heard of the sudden death of Brazilian taxonomist Teresia Strehl of Rio Grande do Sul. Dr Strehl was deeply interested in bromeliads, and at the time of her death was preparing a work on the bromeliads of her home State.

Amazing bromeliad development in Singapore

The Singapore Botanic Garden is reported to be embarking on a new 133 acre garden to incorporate a $2 million collection of bromeliads due to open in 2011. According to a report by Martha Goode in the Bromeliad Society of Greater Chicago News, as of November 2008 one Florida nursery sold them 22,000 plants and had already made seven shipments of bromeliads and some other tropical plants (the last one 8.25 tons of bare root plants). Four of that nursery's staff were already in Singapore working on the project with the Singapore Botanic Gardens staff. According to the Garden's assistant horticulture director, "It will be the first time that these plants are being used in such a large-scale way in a landscaped garden in southeast asia. He said bromeliads were chosed for this project, "Gardens by the Bay," because they are a relatively low maintenance plant providing a wide range of attractive textures, foliage and flowers. It is being built by the National Parks Board, and when completed it is expected to attract 2.7 million visitors per year.

New Affiliates

We have a new affiliate already in 2009, the Northern Territory Bromeliad Society in Australia. During 2008 we had two new affiliates from the USA, see article in our next issue. Welcome, folks!

Guided bromeliad tours in South America

Members of the Saddleback Valley Bromeliad Society in California are especially keen on professionally guided tours into bromeliad homelands. They have highlighted some exciting tours coming up this year:

Guillermo Rivera has taken a number of Saddelback members, and is offering the following (for information & contact details see www.cactusexpeditions.com.ar)

Central Brazil (cactus and bromeliads) June 20-July 7, 2009. "We will be repeating our successful itinerary that we completed in 2007 - a great opportunity to see cactus and bromeliads, besides some beautiful birds and incredible scenery." (Hohenbergia, Dyckia, Orthophytum, Aechmeas, Bromelia etc.)

Peru (cactus and bromeliads) September 8 - 24, 2009

Northwestern Argentina (cactus and bromeliads) November 4-21, 2009. "We will see over 50 species of bromeliads (Tillandsias, Dyckia, Deuterocohonia, Aechmea, Bromelia) NB this trip may include Chile covering both sides of the Andes.

Lorraine Kaminsky Martins will be hosting three Amazon trips this year (contact by email to lorraine13@terra.com.br):

Margaret Mee's Centennial Amazon Trip (17th trip) May18-24, 2009
Dulce Nascimento's Eleventh Botanocal Illustration trip, May 25-31, 2009
Eco Tour with river snorkeling - an Amazonian Adventure. July 20-August 2, 2009.

Specials for Australian Members

Last issue we ran a book review of acclaimed botanical illustrator Margaret Mee's latest collection, *Margaret Mee's Amazon: Diaries of an Artist Explorer*. We have found a specialist horticultural bookseller in Glebe that has two Margaret Mee works on special (Ozzie dollars):

Margaret Mee's Amazon: Diaries of an Artist Explorer - was $80, now $49.95

Flowers of the Amazon Forest: the Botanical Art of Margaret Mee - was $50, now $35. Contact Gil Teague, floregium@tpg.com.au

BIC turns 30

The Bromeliad Identification Centre was founded 30 years ago by Harry Luther. The remarkable success of this operation has been primarily the work of Harry, and on behalf of all BSI members we congratulate him on his wonderful achievement over the years.

New email for Francisco Oliva-Esteva

For those interested in Francisco's bromeliad books, he has a new email address: bromeliabooks@hotmail.com

Passwords for BSI Website members-only section

We have stopped the old practice of printing passwords in the Journal. From now on, members can access the member's area as follows:

username: your bsi membership number (this is printed in the first line of your journal mailing label)

password: bsi

New Personnel at BSI

Carole Richtmyer has replaced Rusty Luthe as Secretary. Carole is from Texas, and has been Secretary of the Cryptanthus Society for many years so we welcome the experience she will bring the the role. Nick Bethman from Boca Raton, Florida has replaced Ken Marks as Webmaster. Ken did a wonderful job upgrading our website over the years, and we wish Nick well in following those footsteps. Short biographies of these two are printed on pages 42 and 43.

Geoff Lawn has taken over from Derek Butcher as Cultivar Registrar, and we hopem to bring you a biography of Geoff soon. Joining re-elected directors, new directors elected to the Board for the 2009-2011 season were: Greg Aizelwood and Olive Trevor for Australia, Holly Mena for California; Steven Provost, Gary Lund and Vicky Chirnside for Florida; LuizFelipe Nevares de Carvalho for International. A biography of Greg Aizelwood is on p. 44, others to follow.

Corrections Department.

The Editor accidentally printed the old membership dues in the previous Journal. What can I say? At least no-one appeares to have taken advantage of the "sale" prices! Correct rates shown below, my apologies for the mistake.

Bromeliad Society International. Membership Rates

United States Membership (includes bulk mail rate—first class add $5 per year)

	1 Year	3 Years
Individual	$40	$110
Dual	$40	$110
Affiliate Society	$25	$75
Institutional	$45	$125
Commercial	$60	$170
1st class mail	+$5	+$15

International Membership (includes Airmail delivery)

	1 Year	3 Years
Individual	$45	$125
Dual	$45	$125
Affiliate Society	$30	$90
Institutional	$50	$140
Commercial	$65	$185

Life Membership (*one time only fee*) $900.

Payment by check or money order payable to The Bromeliad Society International, USA members US Banks and US funds only. International members US funds only; US domestic checks, international money order, or foreign bank cheques. Credit card payments and sign-ups/renewals may be made online at www.bsi.org.

Please send mail transactions to: Dan Kinnard, BSI Membership Secretary, 6901 Kellyn Ln, Vista, CA 92084-1243, USA.

A new *Vriesea* species from Serra do Cipó National Park, Minas Gerais, Brazil

Otávio B. C. Ribeiro, Cláudio Coelho de Paula & Elidio E. Guarçoni

Figure 1: General view of the "Campos Rupestres" in the National Park of Serra do Cipó, Minas Gerais State. (photo by C.C. Paula)

Serra do Cipó National Park is a 33,800 hectare public conservation unit established on 25 September 1984 by the Federal Decree nº 90.223 (official website), located in Minas Gerais State, covering the municipalities of Jaboticatubas, Santana do Riacho, Morro do Pilar and Itambé do Mato Dentro, It is situated in Espinhaço Range, with a predominance of "Campos Rupestres" (grasslands on rocky soils) vegetation. The park shelters a peculiar bromeliad flora, including unusual endemic species originally described from the area (i.e., type locality), including *Encholirium heloisae* (L. B. Sm.) Forzza & Wand., *Orthophytum mello-barretoi* L. B. Sm., *Vriesea atropurpurea* A. Silveira and *Vriesea stricta* L. B. Sm.

Despite the existence of some specific botanical investigation on the Bromeliaceae in the boundaries of the Serra do Cipó National Park by Wanderley & Martinelli (1987), Forzza&Wanderley (1998) and the master's dissertation conducted by Coffani-Nunes

Figure 2: Habit of *Vriesea cipoensis* (Ribeiro 93 et al.) at type locality. (photo by C.C. Paula).

(1997) who listed seven species of *Vriesea* for the area, there are new taxa yet to be discovered in this conservation unit, as shown by the new species proposed below:

Vriesea cipoensis O. B. C. Ribeiro, C. C. Paula & E. E. Guarçoni, sp. nov. ***Type***: Brazil, Minas Gerais, Jaboticatubas, Serra do Cipó National Park, near the office of IBAMA, saxicolous in quartzite outcrops of Campos Rupestres, 19º30'48"S 43º30'40"W, 1.281 m elev. Aug. 2007, *O. B. C. Ribeiro 93, C. C. Paula* & *E. E. Guarçoni* (**Holotype**, VIC).

A Vriesea minor (L. B. Sm.) Leme, *cui affinis, sed planta florifera breviora, laminis foliorum apicem versus manifeste purpureo-maculatis, inflorescentia breviora, bracteis floriferis altitudinem sepalorum distincte brevioribus, purpureo-maculatis, apice apiculatis, floribus reflexis, appedicibus petalorum subduplo brevioribus differt.*

Plant saxicolous, flowering 80-90 cm high; ***leaves*** 15 to 20 in number, suberect, forming a broally funnelform rosette; ***sheaths*** elliptic, ca. 15 x 10 cm, dark castaneous and minutely brow-lepidote on both sides; ***blades*** subligulate, canaliculate, 30-32 x 4-5 cm, yellowish-green, minutely white-lepidote on both sides, densely purple spotted throughout apex apiculate. ***Scape*** erect, stout, 70-75 cm long, 0.7-0.8 cm in diameter, distinctly exceeding the leaves; ***scape bracts*** the basal ones foliaceous, the upper ones narrowly ovate, 3-4 x 2-3.5 cm, erect and enfolding the scape, distinctly exceeding the internodes, yellowish-green densely purple-spotted, apex apiculate. ***Inflorescence*** simple, linear in outline, 15-20 cm long, rachis geniculate, stout, ca. 12 x 0,5 cm, brownish-green, intenodes ca. 0.6 cm, densely flowered, completely covered by a translucent glutinous substance; ***floral bracts*** ovate, 15-18 x 12-15 mm, ecarinate, not exceeding 1/2 of sepals length, not completely enfolding the sepals, yellowish-brown at base, brown toward the apex, purple spotted throughout, completely covered by a translucent glutinous substance, apex apiculate; ***flowers*** anthesis nocturnal, with a weak odor, distichous, reflexed at anthesis, 40-43 mm long (not including the stamens), pedicels stout, 8-9 x 6-7 mm, green; ***sepals*** elliptic, 26-27 x 15-16 mm, free, ecarinate, yellow except for the purple apex an margins, distinctly convex, thinly coriaceous toward the apex, completely covered by a translucent glutinous substance, apex obtuse; ***petals*** elliptic, 35 x 17-18 mm, yellow, apex emarginate, forming a campanulate corolla ca. 45 mm in diameter at apex, bearing 2 distinctly triangular appendages ca. 7 x 3 mm; ***stamens*** not exceeding the petals, filaments free, subcomplanate, slightly dilated near the apex, pale yellow; ***anthers*** linear, fixed near the base, ca. 10 mm long, base sagittate, apex acute; ***ovary*** ca. 0.5 x 0.3 mm, white; ***style*** pale yellow, exceeding the petals for ca. 4 mm; ***stigma*** convolute-bladed, densely papillose, yellow, ca. 1.5 mm in diameter. ***Capsules*** unknown.

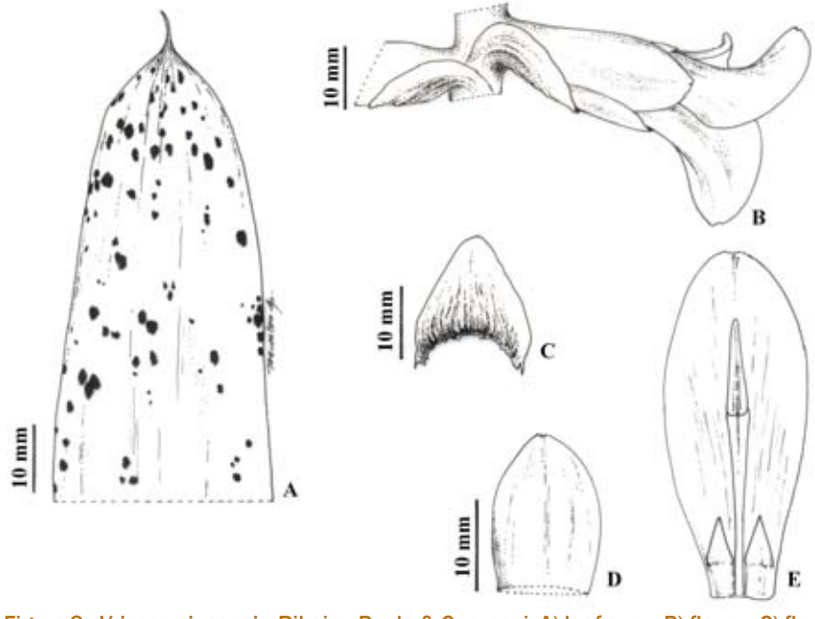


Figure 3: *Vriesea cipoensis*. Ribeiro, Paula & Guarçoni: A) leaf apex; B) flower; C) floral bract; D) sepal; E) petal. (ilustration by Reinaldo Pinto)

Figure 4. Inflorescence details. Photo O. Ribeiro

Figure 5. Flower details on side view . Photo O. Ribeiro.

This new species is morphological related to *Vriesea minor*. However, *V. cipoensis* differs from it by the flowering plant shorter (80-90 cm vs. 120-150 cm high), the leaf blades subligulate, canaliculate, yellowish at base and reddish toward the apex, purple spotted, scape bracts yellowish–green, densely purple-spotted, apex apiculate, inflorescence shorter (15-20 mm vs. 20-30 mm long), floral bracts not completely enfolding the sepals, yellowish-brown at base and brown toward the apex, purple-spotted, apex apiculate, about equaling 1/2 of sepals length, distinctly shorter (ca. 15 mm vs. ca. 25mm long), flowers reflexed at anthesis, with a weak odor, shorter (ca. 40 mm vs. ca. 55 mm long), sepals yellow except for the purple apex and margins, petals elliptic, shorter (ca. 7 mm vs. ca. 13 mm long), apex emarginate, and petal appendages triangular.

Figure 6. Flower details on front view. Photo O. Ribeiro

Vriesea cipoensis was found growing as a saxicole in association with *Velloziaceae* species on quartzite outcrops forming a comparatively small remaining population. Its name is an allusion to its typical location.

Acknowledgements:

The authors thank the taxonomist Elton M. C. Leme for help with the identification and Unidade de Pesquisa e Conservação de Bromeliaceae (UPCB/UFV) for technical support.

Literature Cited:

Coffani-Nunes, J. V. (1997). Estudo florístico e fenomorfológico de Tillandsioideae-Bromeliaceae na Serra do Cipó,MG. *Instituto de Biociências*. São Paulo, Universidade de São Paulo. **MSc:** 132.

Forzza, R. C. and M. G. L. Wanderley (1998). "Pitcairnioideae (Bromeliaceae) na Serra do Cipó, Minas Gerais, Brasil." *Boletim de Botânica da Universidade de São Paulo* **17**: 255-270.

Wanderley, M. G. L. and G. Martinelli (1987). *Bromeliaceae. Flora da Serra do Cipó, Minas Gerais: caracterização e listas das espécies*. A. M. Giulietti, N. L. Menezes, J. R. Pirani, M. Meguro and M. G. L. Wanderley. Sao Paulo, Boletim de Botanica da Universidade de São Paulo. **9:** 106-108.

Guia serra do cipó http://www.guiaserradocipo.com.br

Authors:

Unidade de Pesquisa e Conservação de Bromeliaceae – UPCB, Departamento de Biologia Vegetal, Universidade Federal de Viçosa, CEP 36570-000, Viçosa, MG, Brazil. otaviocacto@vicosa.ufv.br, ccpaula@ufv.br and elidioguarcone@oi.com.br

Advertising Rates ***Journal of The Bromeliad Society***

	One issue	Additional issue	One year
full page (b&w/color)	$125/200	$100/150	$625/950
half-page	$70/100	$55/75	$350/475
quarter page	$45/60	$35/50	$220/310
eight-page	$25/40	$20/30	$125/190

Send bookings to
The Editor, Bromeliad Society International,
P.O. Box 57-021, Mana
PORIRUA 5247, NEW ZEALAND. email: editor@bsi.org.

You are invited to join

The Cryptanthus Society

The largest affiliate of the Bromeliad Society International.

Learn to grow the dazzling Earth Stars and make new friends all over the world.

Membership: International $25, Dual $30 - USA $20, Dual $25, Affiliates $30 .

Write to Carole Richtmyer, 18814 Cypress Mountain Dr., Spring, TX 77388, or planobrom@aol.com

Alcantarea mucilaginosa, a new species from Espírito Santo, Brazil

Elton M. C. Leme.[1] Illustrations by the author.

The intensification of field collecting in the inselbegs of Rio de Janeiro, Espírito Santo and Minas Gerais States is bringing to light new and unusual bromeliad species that are exclusive inhabitants of the granitic scarps of these peculiar environments. Besides *Dyckia* spp, *Orthophytum* spp., *Pitcairnia* spp, and *Vriesea* spp. of the *V. appariciana* complex, very often the large *Alcantarea* spp. found in theses niches prove to be completely new to science, like the curious species presented below.

Alcantarea mucilaginosa Leme, sp. nov. Type: Espírito Santo, Conceição do castelo, near Venda Nova dos Imigrantes, rupiculous along BR 262, ca. 700 m elev., 29 Apr. 1995, *E. Leme 3086* & *R. Kautsky,* fl. cult. Dec. 2007 (Holotype, HB. Isotype RB).

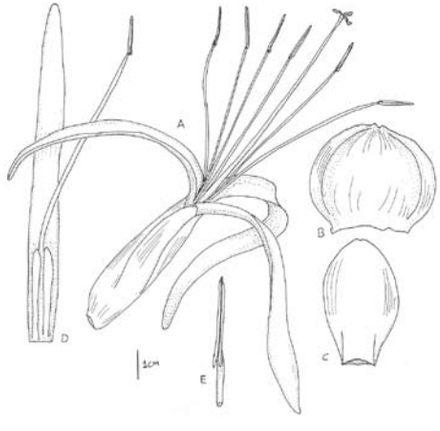
A *A. extensa* L. B. Sm, cui affinis, sed foliis albocretaceis, bracteis primariis albocretaceis, ramis lateralibus brevioribus, rachibus duplo brevioribus, floribus per anthesim densioribus, prope basin manifeste mucilaginosis differt; *A. turgida* Versieux & Wand., laminis foliorum latioribus (13 cm vs. 7.5-11 cm wide), viridibus et albocretaceis (wine colored and without a dense layer of white wax), bracteis scapalibus et primariis albocretaceis, apice acutis vel abtusis, floribus densioribus, prope basin manifeste mucilaginosis differt.

Plant rupicolous, flowering ca. 210 cm high. ***Leaves*** 25 in number, densely rosulate, suberect, forming a broadly crateriform rosette; ***sheaths*** broadly elliptic-ovate, ca. 19 x 15 cm, inconspicuously and minutely brown-lepidote, pale colored; ***blades*** sublinear, not narrowed at base, 59-62 x 13 cm, coriaceous, green, inconspicously and sparsely white-lepidote abaxially to glabrescent, abaxially densely covered by a dense layer of white wax, apex acuminate, shortly caudate, recurved. ***Scape*** stout, ca. 100 cm long, 3-4 cm in diameter, erect, glabrous, wine colored; ***scape bracts*** the basal ones subfoliaceous, the upper suborbicular, acute and apiculate to acuminate, suberect with recurved apex, its basal portion enfolding the scape and with distinct water-holding capacity, distinctly exceeding the internodes but not hiding the scape, green except for the sometimes reddish-wine adaxial apex, densely covered by white epicuticular wax almost completely obscuring its color. ***Inflorescence*** paniculate, bipinnate, ca. 90 cm long (including the terminal branch), ca. 60 cm in diameter, erect, rachis stout, reddish-wine; ***primary bracts*** distinctly shorter than the stipes, the basal ones resembling the upper scape bracts but smaller, the upper ones suborbicular, apex obtuse, 5-10 x 5-8 cm, suberect, wine colored toward the apex; ***branches*** 8 to 19 in number (including the terminal one), 4-5 cm apart, the lateral branches 28-30 cm long (upper ones) to 35-45 cm long (basal ones), suberect-spreading, densely flowered at anthesis and afterwards,

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

Figure 1. Habit of *Alcantarea mucilaginosa* Leme which flowered in cultivation.

12 (upper ones)- to 20 (basal ones)-flowered, rachis geniculate, subterete, slightly if at all angulose, 1-2.5 x 0.6-0.8 cm, glabrous, wine colored to green, stipes 8-15 x 0.9-1 cm, terete, greenish to winish, glabrous, bearing 2 (upper ones) to 3 (basal ones) sterile bracts exceeding the internodes and arranged at the apex of the stipes, obtusely if at all carinate, the terminal branch erect at base and turning suberect-recurved toward the apex, ca. 70 cm long, ca. 39-flowered, stipe ca. 7 cm long, bearing ca. 2 sterile bracts; ***floral bracts*** suborbicular, 35-40 x 42-43 mm, apex obtuse-emarginate, pale-castaneous-yellow except for the wine colored apex and apical margins, glabrous, almost completely enfolding the sepals and equaling 2/3 of its length, strongly convex and slightly gibbous, irregularly longitudinally sulcate at near the basal margins, ecarinate or the basal ones obtusely if at all carinate, the upper ones densely imbricate at anthesis. ***Flowers*** distichous, divergent, suberect, not secund, slightly fragrant, densely arranged toward the apex before and at anthesis, 12-13 cm long (with petal extended, including the stamens), producing at base a large quantity of mugilagenous, translucent material that hangs mainly in rainy and wet days and dry out in drier and sunny days, pedicels stout, 8-10 mm long, 10-12 mm in diameter at apex, green, glabrous; ***sepals*** elliptic to obovate, apex narrowly obtuse to marginate, 42-43 x 24-25 mm, inconspicuously and sparsely white-lepidote inside, glabrous outside, free, ecarinate, green toward the base and yellowish-green near the apex, thick-coriaceous near the base, thinly coriaceous toward the apex; ***petals*** linear or nearly so, apex narrowly obtuse, 113 x 9-10 mm, yellow, near the apex and mainly abaxially bearing inconspicuous and densely arranged irregular wine spots, strongly twisted recurved at anthesis, completely exposing the stamens, becoming pendent-flaccidescent afterwards, bearing at base 2 linear, obtuse to subacute, entire, 33 x 3-3.5 mm appendages adnate to the petals for ca. 24 mm; ***stamens*** completely exposed by the recurved petals at anthesis, radially disposed; ***filaments*** terete, white, the antesepalous ones free, the antepetalous ones shortly adnate to the petals; ***Anthers*** linear, 13-15 mm long, base sagittate, apex obtuse, fixed near the base, slightly shorter than the petals; ***Pollen*** narrowly ellipsoid, sulcate, exine reticulate, lumina rounded, muri slightly thickened; ***style*** exceeding the petals, white; ***stigma*** conduplicate, blades spreading-contorted, densely papillose, white, ca. 3.5 mm long. ***Capsules*** unknown.



The name chosen for this species is a direct reference to the unusual production at the base of the flowers of a large quantity of mugilagenous, translucent material that hangs mainly on raining days, and dry out in sunny condition. The profusion of this substance is unique in *Alcantarea mucilaginosa*, although this feature is seen in other *Alcantarea* species (e.g., *A. extensa*) but in a much less pronounced quantity.

Figure 2: *Alcantarea mucilaginosa* Leme. a) flower; b) floral bract; c) sepal; d) petal; e) anther.

Figure 3: Floral details of *Alcantarea mucilaginosa* Leme, highlighting the profusion of the mucilaginous substance produced in the base of the flowers mainly during wet and raining days.

The other morphological characteristics that distinguish *Alcantarea mucilaginosa* from *A. extensa* are: the leaves and primary bracts densely covered by a dense layer of white wax, lateral branches shorter (30-45 cm vs. to 65 cm long), rachis about twice shorter (1-2.5 cm vs. 2-4 cm long), and flowers densely disposed at anthesis. This new species can be also compared to *A. turgida*, differing from it by the broader (13 cm vs. 7.5-11 cm wide), green and densely white-cretaceous leaf blades (vs. wine colored and without a dense layer of white wax), scape bracts and primary bracts also white-cretaceous and acute to obtuse apex (vs. acuminate), and by the flowers more densely arranged.

Alcantarea mucilaginosa was found growing on steep granitic walls along the road BR 262, in the county of Conceição do Castelo, near Venda Nova dos Imigrantes, at an elevation of about 700 m. It flowered in cultivation, after a being kept in culture for about 12 years.

Some notes on *Pitcairnia longissimiflora*

Eric J. Gouda[1]. Photographs by the author.

Pitcairnia longissimiflora from Bolivia: Santa Cruz, La Paz (N.Yungas) was described by Ibisch, Vásquez & Gross (1999). Unfortunately only a short description was given and the picture of the plant in its habitat hardly shows anything. This makes it difficult to identify a plant to this name.

In 2007 we got a young plant named "*Pitcairnia crassa* L.B.Sm." from the Botanic Garden Berlin-Dahlem (Germany), collected by T. Kromer with number 8664 from Bolivia, Dept Cochabamba, Prov. Chapaie, Parque Nacional Carrusco, Alt.300 m. Last year it was flowering (see figure 1) with huge hanging flowers over 15 cm long, which is extremely large for a Pitcairnia. In the Monograph of Smith & Downs it did key out to *P.crassa*, but at the same time there were many differences with the description. So what was it, could it be a new species?

Figure 1. *Pitcairnia longissimiflora* (T. Kromer 8664) plant.

At Brom-L (virtual Bromeliad Society on internet) a "Casus Pro Diagnosi" was created http://florapix.nl/Brom-L/identification/128/ and Harry Luther replied "Seems to be new but related to *Pitcairnia longissimiflora* from Dept. Santa Cruz. *P. crassa* is bigger and crasser". Reading the short description mentioned above, I got the impression that it must be *P. longissimiflora*, although there were some important differences with the description, like the plant not (yet) forming a stem, an at least half-superior ovary and glandular indumentum. The drawing of the flower in figure 17, p. 128 in the original description (Ibisch et. al. 1999) does

1 Univ. Utrecht Botanic Gardens

fit the characteristics of our plant, T.Kromer 8664, and you can clearly see a half superior ovary. We are not dealing with a new species, but with the in species *Pitcairnia longissimiflora* described in 1999. An extended description of the species is given below.

Figure 2. *Pitcairnia longissimiflora* (T. Kromer 8664) inflorescence.

Plant flowering up to 140 cm high. Stem erect, stout, ringed with leaf scars. ***Leaves*** to 80 cm long, deciduous along a straight line in about 70-90 mm from the leaf base, the apex of the remaining rest incurving; ***sheaths*** to 50 mm wide, to 25 mm high, abaxially brown-castaneous, adaxially light brown, entire; ***blades*** grass-like, 7-17 mm wide, linear, long attenuate, entire, strongly canaled at the base, adaxial glabrous and abaxail pubescent of simple hears. **Inflorescence** simple, laxly many-flowered, fertile part to 35 cm long, glandular puberulent, green.; ***peduncle*** suberect to curved, 80-110 cm long, 5-7 mm wide, glandular puberulent, green (drying with a pale midsection); ***peduncle bracts*** long attenuate, the lower ones foliaceous, gradually changing to floral bract size; ***axis*** 5 mm in diameter; ***floral bracts*** ovate, sub-auriculate, acuminate to apiculate in the upper ones, 15-50 mm long, (7-)12-15 mm wide, spreading or reflexed, green to papyraceously when dry, entire, finely nerved, ecarinate, glandular, all longer than the pedicels. ***Flowers*** pendent, to 16 cm long; ***pedicels*** slender, green, glandular, 12-20 mm long; ***sepals*** free, 34 mm long, 1 cm wide, narrowly subtriangular attenuate then obtuse and apiculate, green, abaxial glandular, coreaceous in lower part, ecarinate; ***petals*** (turbinate-)ligulate, 12.7-13 cm long, 13-16 mm wide, white or pale green, abaxial sparsely glandular, naked, broadly rounded and then obtuse, strongly involute at 2/3 from base, imbricate and incurving toward the apex showing the anthers and stigma below it, recurved at apex; ***stamens*** to 13 cm long, equal in length; ***filaments*** slender, sub-

terate, hyalin-whithish; ***anthers*** ca. 2 cm long, linear-saggitate, yellow, basifixed, apiculate and 2 with short slips at the base ; ***pollen*** yellow. ***Gynoeceum*** including style and stigma to 13.3 cm long; ***ovary*** more than 1/2 superior, inferior part 7x9 mm, obconic; superior part 9x6 mm, placentae mainly in this part, green, attenuate into the slender pale green style; ***ovules*** small with short appendix; ***stigma*** 7x3 mm, together ovoid, conduplicate-spiralized type.

Figure 3. *Pitcairnia longissimiflora* (T. Kromer 8664) *typical flower showing the glandular hairs on the petals.*

Pitcairnia longissimiflora is not difficult to grow, but I do not expect much enthusiasm for growing this plant inside a greenhouse in spite of the large and interestingly formed corolla (see figure 3). The corolla opens up near the middle and afterward the petals are clasping each other again, forming a curving tube around the stamens and pistil, before opening up again. It is a typical syndrome for larger pollinators, like hummingbirds. The pollen will be deposited on the back of the head of the pollinator, instead of on the beak or nose.

Literature Cited

Ibisch, P. L., R. Vásquez, et al. (1999). "New Species of *Puya* and *Pitcairnea* (Bromeliaceae) from the Amboró National Park and Vicinities (Santa Cruz, Bolivia): A Neglected Corner of Diversity and Endemism of Pitcairnioidea." *J. Bromeliad Soc.* **49**(3): 124-135.

Notes on *Alcantarea*: a New Medium-sized Species and Additions to *A. roberto-kautskyi*

Elton M. C. Leme[1]

Figure 1 *Alcantarea vasconcelosiana* in habitat (photo R. Vasconcelos).

The inselbegs of the northeastern region of Minas Gerais State and the north-western of Espírito Santo State shelter countless botanical novelties, as in the genus *Alcantarea*, where large populations can be seen from a distance. In most cases it is very hard to reach such localities due to the inaccessibility of the steep terrain and the breathtaking abysms. However, when it is possible to find the a way to the top of the mountains, in most cases new species can be discovered.

Two examples of species from these difficult sites are presented here: a new medium-sized *Alcantarea* from Minas Gerais and the unusual *A. roberto-kautskyi* Leme that is rarely seen in cultivation.

1 Herbarium Bradeanum, Rio de Janeiro - RJ, Brazil leme@tj.rj.gov.br

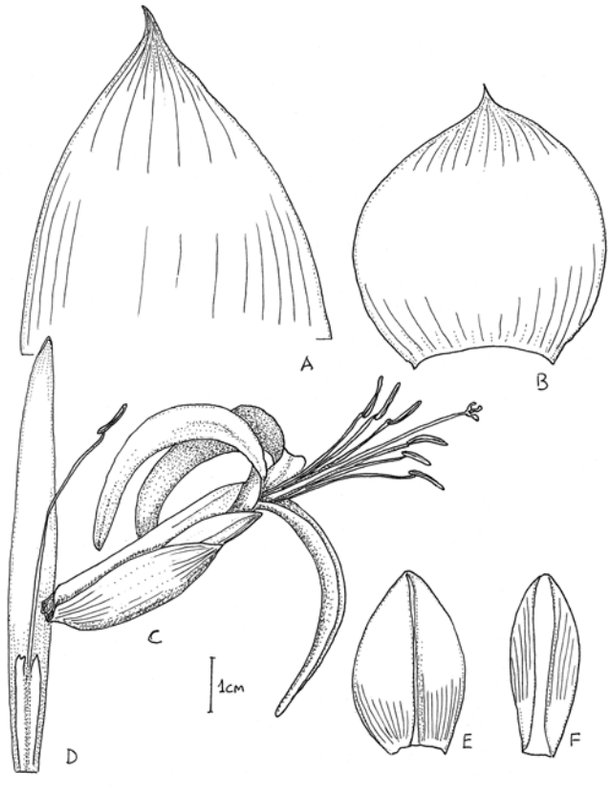


Figure 2. *Alcantarea vasconcelosiana*. a) leaf apex; b) median primary bract; c) floral bract; d) flower; e) sepal; f) petals. Drawing E. Leme.

Alcantarea vasconcelosiana Leme, sp. nov. Type: Brazil, Minas Gerais, Itabirinha de Mantena, Serra do Pitengo, Pedra da Baleia, saxicolous, ca. 1,000 m elev., 20 Nov. 2008, R. *Vasconcelos Leitão s. n.,* cult. *E. Leme 7650* (Holotype, HB. Isotype RB).

A *A. nevaresii* Leme, cui affinis, sed vaginis foliorum utrinque apicem versus atrocastaneis, laminis foliorum brevioribus et latioribus, bracteis scapi suberectis et totaliter rubris, inflorescentia breviore et densiore, stipitibus ramorum basalibus bractea singula ornatis, bracteis primariis orbicularibus obtusisque, bracteis floriferis per anthesin imbricatis et sepalis longioribus differt.

Plant saxicolous in herbaceous to shrubby vegetation, stemless or nearly so, flowering 80-90 cm high. ***Leaves*** 20 to 25 in number, densely rosulate, suberect, forming a funnelform rosette much narrowed at the base and broader above; ***sheaths*** suborbicular, ca. 15 x 16 cm, inconspicuously and minutely brown-lepidote, dark castaneous mainly toward the apex on both sides, strongly coriaceous; ***blades*** ligulate, slightly narrowed toward the apex, not narrowed at the base, 20-25 x 8.5-9.5 cm, strongly coriaceous, green, inconspicously and sparsely white-lepidote adaxially but appearing glabrous, abaxially glabrous, suberect, apex acute and apiculate to abruptly acuminate to shortly caudate, slightly recurved. ***Scape*** stout, 30-40 cm long, 1-1.2 cm in diameter, erect,

Figure 3: Inflorescence of *Alcantarea vasconcelosiana* in habitat. Photo R. Vasconcelos.

glabrous, red; ***scape bracts*** the basal ones subfoliaceous, the upper ones orbicular or nearly so, acuminate to broadly acute and distinctly apiculate, suberect, its basal portion enfolding the scape and with distinct water-holding capacity, exceeding the internodes and the upper ones almost completely concealing the scape, 5.5-8 x 5-5.5 cm, red, glabrous, covered by a oleaginous substance. ***Inflorescence*** shortly paniculate, densely once branched, 12-20 cm long (including the terminal branch), 15-18 cm in diameter, erect, rachis stout, slightly flexuous, red, glabrous, 0.8-1 cm in diameter, internodes 1.5-3 cm long; ***primary bracts*** distinctly exceeding the stipes but shorter than the branches, with water-holding capacity, the basal ones resembling the upper scape bracts, the upper ones orbicular, apex obtuse and stoutly apiculate, 4-5.5 x 4-5 cm, suberect, strongly convex, glabrous outside, inconspicuously and sparsely white lepidote inside, red; ***branches*** 8 to 11 in number (including the terminal one), 1.5-3 cm apart, the lateral branches 8-11 cm long, suberect-spreading, densely flowered at anthesis at least toward the apex, 3 to 8-flowered, rachis geniculate, subterete, slightly if at all angulose, 7-10 x 4 mm, glabrous, green, stipes 25-40 x 6 mm, suberect, slightly complanate mainly toward the apex, light green, glabrous, the basal ones each bearing 1 sterile bract arranged at the apex of the stipes, red toward the apex, greenish-yellow near the base, sharply carinate,

the upper ones naked, the terminal branch erect or nearly so, similar to the upper lateral branches, subsessile; ***floral bracts*** ovate to broadly ovate, 31-33 x 22-27 mm, apex subacute, incurved, greenish-yellow with reddish margins except for the reddish basal one, glabrous, almost completely enfolding the sepals and equaling 2/3 of their length, distinctly imbricate mainly at early anthesis, afterwards slightly if at all imbricate except for the basal ones, strongly convex, carinate. ***Flowers*** distichous, divergent, suberect, not secund, fragrant, densely arranged before anthesis and afterwards, 8.5-9.3 cm long (with extended petals including the stamens), distinctly fragrant, pedicels stout, ca. 9 x 7 mm, subcylindrical, green, glabrous; ***sepals*** slightly asymmetrical, subelliptic-obovate, apex subacute, 35-36 x 12-13 mm, glabrous, free, ecarinate, yellowish-green, thin in texture; ***petals*** sublinear, apex narrowly obtuse-cucullate, 81-82 x 7-8 mm, bright yellow, strongly recurved at anthesis, completely exposing the stamens, becoming pendent-flaccidescent afterwards, bearing at the base 2 linear, prevailingly acuminate, but sometimes subobtuse or bidentate, entire, ca. 22 x 2 mm appendages adnate to the petals for 18-19 mm, (the distal margins free, the proximal margins adnate to petals for 18-19 mm), the free lobes ovate, 3-4 mm long, apex slightly recurved; ***stamens*** completely exposed by the recurved petals at anthesis, suberect; ***filaments*** terete, white, the antesepalous ones free, the antepetalous ones shortly adnate to the petals; ***anthers*** linear, 7-8 mm long, base sagittate, apex obtuse, fixed near the base, shorter than the petals; ***pollen*** narrowly ellipsoid, sulcate, exine broadly reticulate, lumina rounded, muri narrowed; ***style*** exceeding the petals, white; ***stigma*** conduplicate, blades subspreading, densely papillose, white, ca. 1.5 mm long. ***Capsules*** unknown.

Figure 4: Details of the flower of *Alcantarea vasconcelosiana*. Photo E. Leme.

The name chosen for this new species honors *Reginaldo de Vasconcelos Leitão*, a bromeliad and orchid enthusiast from Governador Valadares, Minas Gerais, who originally found this new species. Reginaldo´s field investigations have brought to light many rare bromeliad species from the region where he lives.

Alcantarea vasconcelosiana is closely related to *A. nevaresii*, but can be distinguished from it by the leaf sheaths being dark castaneous on both sides and toward the apex (vs. pale colored), leaf blades shorter and broader (20-25 x 8.5-9.5 cm vs. ca. 55 x 7 cm),

Figure 5. *Alcantarea nevaresii*, the closest morphological relative of *Alcantarea vasconcelosiana*. Photo E. Leme.

forming a more compact and robust rosette, scape bracts suberect and completely red (vs. suberect with distinctly recurved apex and green toward the apex), inflorescence distinctly shorter (12-20 cm vs. ca. 45 cm long) with branches densely arranged, basal branches bearing a single sterile bract (vs. ebracteate), primary bracts orbicular and obtuse (vs. broadly ovate and acuminate), floral bracts imbricate at least at early anthesis (vs. not imbricate even in early anthesis), and by the longer sepals (35-36 mm vs. 30 mm long).

This new species was found growing on inclined granitic surfaces covered by herbaceous to shrubby vegetation in inselbergs of the region of Itabirinha de Mantena, Minas Gerais State, where it forms sparsely distributed groups of plants. In contrast, its closest morphological relative, *A. nevaresii*, is a typical inhabitant of the mountains of Teresópolis and Nova Friburgo (Leme, 1995), where it forms quite large and dense populations.

The other species, *Alcantarea roberto-kautskyi*, was originally discovered in the region of Baixo Guandú, Espírito Santo State, about 11 years ago (Leme, 1999). Since then, a pup descending from the type specimen was maintained in cultivation in Refúgio dos Gravatás, Teresópolis, Rio de Janeiro, and finally flowered in November 2008, allowing additional observations mainly on its flower details, as indicated in the amended description presented below:

Alcantarea roberto-kautskyi Leme, *Harvard Pap. Bot. 4* (1): 148, fig. 10. 1999. ***Inflorescence*** branches 21 to 30 in number (including the terminal one), stipes bearing 2 to 6 sterile bracts. ***Flowers*** odorless, anthesis nocturnal, ca. 14.5 cm long (including the extended petals); ***sepals*** narrowly obtuse to subacute; ***petals*** 10.5-13.2 x 1.5-1.7 cm, pale cream colored before anthesis, white and spirally recurved at anthesis, basal appendages 1.2-1.4 x 0.4-0.6 cm, thick and slightly rigid, lobes suborbicular, subspreading and obstructing the corolla, apex truncate-crenulate or irregularly dentate. ***stamens*** 11-13 cm long; ***anthers*** sublinear, 1.3-1.6 cm long, base distinctly sagittate, apex obtuse, dorsifixed at 2/5 of its length above the base, versatile and hanging upside down at

anthesis, with the margins of the opposed pollen sacs only partially touching each other at anthesis and not completely clasping the connective area; ***pollen*** ellipsoidal, sulcate, exine broadly reticulate, lumina rounded, muri narrowed; ***stigma*** conduplicate-spiral, ellipsoidal-capitate, blades 0.4-0.5 cm long, densely papilose, white.

Alcantarea roberto-kautskyi is a large species, a typical inhabitant of inaccessible vertical rock walls, which explains why it is rarely seen in cultivation. The position of the inflorescence at an angle of ca. 90º in relation to the main axis of the plant suggests an adaptation to its preferable vertical rocky habitat, allowing branches to avoid touching the rocky walls and facilitating pollinator activities. It was recently identified from the county of São Roque do Canaã, Espírito Santo State (material deposited in MBML), broadening its known distribution area.

Besides the unusual general appearance of this species due to the leaves being densely covered by a dense layer of white epicuticular wax and the branches bearing long stipes with the bracts and flowers densely arranged on its distal portion, other striking characteristics now observed are related to anthers and stigma. While most *Alcantarea* species presents anthers dorsifixed near the base, rigidly fixed and following the same orientation of the filaments, with the margins of the opposed pollen sacs touching to slightly overlapping each other at anthesis and completely clasping the connective area (Leme, 2007), the anthers of *A. roberto-kautskyi* are versatile and dorsifixed at 2/5 of its length above the base, hanging loosely upside down at anthesis. The margins of the opposed pollen sacs only partially touch each other at anthesis, not completely clasping the connective area.

This anther characteristic now observed in *Alcantarea* may contribute to understanding the phylogeny of the group, as well as its pollination biology. According to D'Arcy (1996), versatile anther seems to have evolved in response to generalist flying animal pollinators (e. g., insects, birds, bats), but it can shift with little or no modification to anemophily. In some plants, rigidly fixed anthers may have evolved from versatile anthers as bees replaced generalist visitors, being versatile anthers commonly found in both monocots and dicots, in some basal taxonomic groups as well as many advanced ones (D'Arcy, 1996).

In addition, the stigma of *A. roberto-kautskyi* is conduplicate-spiral and ellipsoidal-capitate, but not bearing suberect to spreading blades as most congeners. All these features reinforce the suggested closer morphological proximity of *Alcantarea* to *Tillandsia* in an unclear extent (Leme, 2007). An example of very similar anthers and stigma morphology is *T. viridiflora* (Beer) Baker, the type species of *Tillandsia* subgenus *Pseudalcantarea* Mez, suggesting at least an equivalent pollination syndrome when compared to *A. roberto-kautskyi*. It is interesting to mention that in the investigation based on DNA sequence data conducted by Barfuss et al. (2005), *T. viridiflora* is sister to the rest of *Tillandsia*, *Racinaea* and *Viridantha*, despite this relationship has only weak bootstrap support.

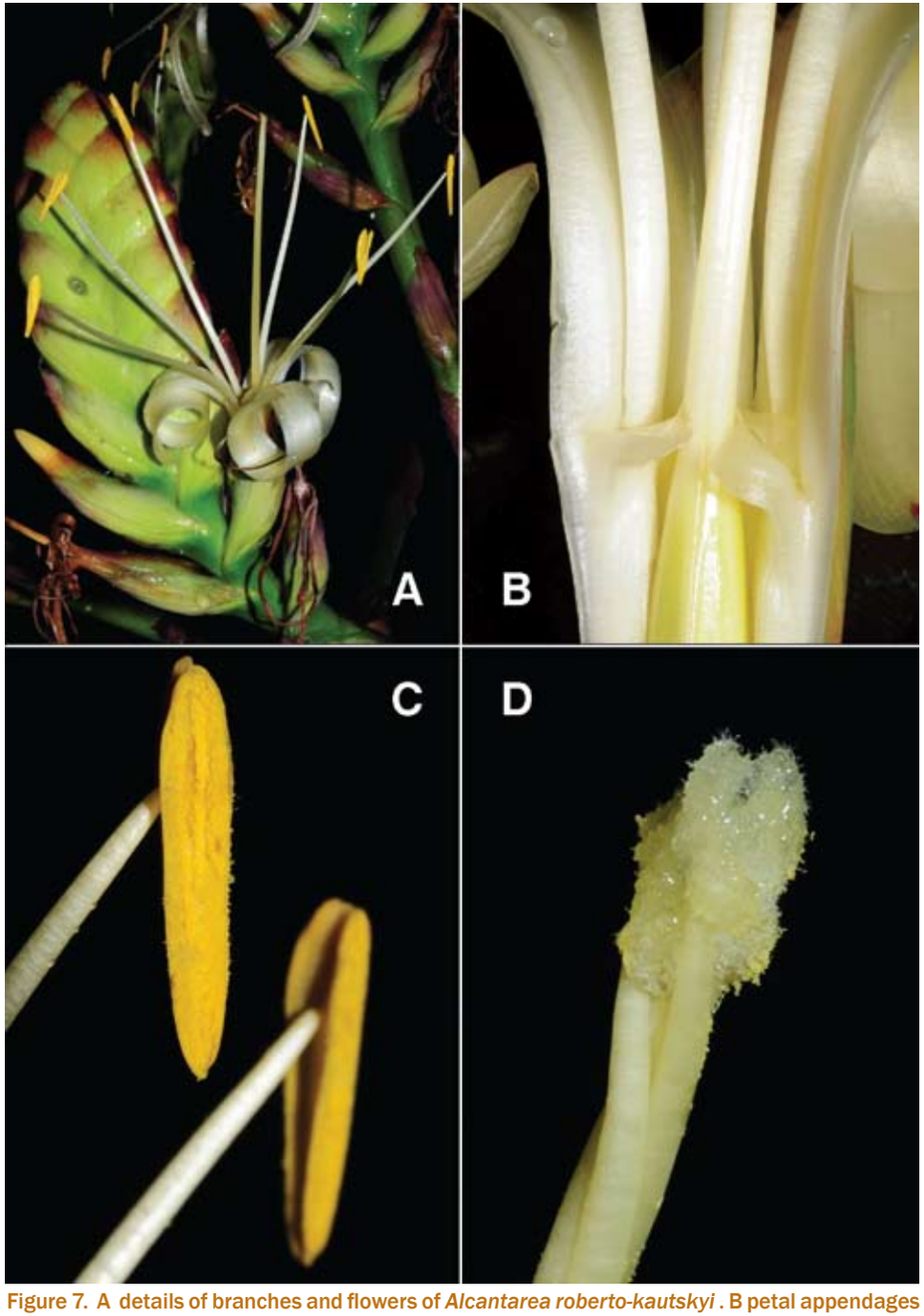


Figure 7. A details of branches and flowers of *Alcantarea roberto-kautskyi* . B petal appendages of *Alcantarea roberto-kautskyi* which obstruct the corolla. C versatile anthers of *Alcantarea roberto-kautskyi* loosely hanging upside down at anthesis, a feature first reported for the genus. D elipsoidal-capitate, conduplicate-spiral stigma of *Alcantarea roberto-kautskyi*. Photos by E. Leme.

Figure 8. Similar flower morphology of *Tillandsia viridiflora*, suggesting equivalent pollination syndrome. Photo by E. Leme.

Acknowledgements

We thank Walter Till for reviewing the manuscript and for his valuable comments and suggestions.

References

Barfuss, M. H. J., R. Samuel, et al. (2005). "Phylogenetic relationships in subfamily Tillandsioideae (Bromeliaceae) based on DNA sequence data from seven plastid regions." *Am. J. Bot.* **92**: 337-351.

D'Arcy, W. G. (1996). Anthers and stamens and what they do. *The Anther - form, function and phylogeny*. W. G. D'Arcy and R. C. Keating. Cambridge, U.K., Cambridge University Press**:** 1-24.

Leme, E. M. C. (1995). "Contribuição ao estudo do gênero Alcantarea – I/ Contribution to the study of the genus Alcantarea - I." *Bromelia* **2**(3): 15-23.

Leme, E. M. C. (1999). "New Species of Brazilian Bromeliaceae: A Tribute to Lyman B. Smith." *Harvard Papers Bot.* **4**(1): 135-168.

Leme, E. M. C. (2007). "Improving Taxa and Character Sampling to Support Generic Status of *Alcantarea*." *J. Bromeliad Soc.* **57**(5): 208-215.

Luther, H. (2008). *An alphabetical list of bromeliad binomials. Eleventh Edition*. USA, Bromeliad Society International.

Based on the binomials accepted by Luther (2008) and the more recent additions, the genus *Alcantarea* currently includes 28 recognized species, as listed below:

Alcantarea benzingii Leme
Alcantarea brasiliana (L. B. Sm.) J. R. Grant
Alcantarea burle-marxii (Leme) J. R. Grant
Alcantarea distractila Leme & Paula
Alcantarea duarteana (L. B. Sm.) J. R. Grant
Alcantarea edmundoi (Leme) J. R. Grant
Alcantarea extensa (L. B. Sm.) J. R. Grant
Alcantarea farneyi (Martinelli & A. F. Costa) J. R. Grant
Alcantarea geniculata (Wawra) J. R. Grant
Alcantarea glaziouana (Lem.) Leme
Alcantarea hatschbachii (L. B. Sm. & Read) Leme
Alcantarea heloisae J. R. Grant
Alcantarea imperialis (Carrière) Harms
Alcantarea longibracteata Leme & Fraga
Alcantarea lurida Leme
Alcantarea mucilaginosa Leme
Alcantarea nahoumii (Leme) J. R. Grant
Alcantarea nevaresii Leme
Alcantarea nigripetala Leme & L. Kollmann
Alcantarea odorata (Leme) J. R. Grant
Alcantarea patriae Versieux & Wand.
Alcantarea regina (Vell.) Harms
Alcantarea roberto-kautskyi Leme
Alcantarea simplicisticha Leme & A. P. Fontana
Alcantarea tortuosa Versieux & Wand.
Alcantarea turgida Versieux & Wand.
Alcantarea vasconcelosiana Leme
Alcantarea vinicolor (E. Pereira & Reitz) J. R. Grant

Quilling

Jerry Raack. Additional photos by Andrew Flower.

What's that, your bromeliad is growing up looking like a soda straw? It is probably the victim of what is commonly known as "quilling". Quilling is the cementing of the leaves caused by lack of good moisture while the plant is in an active growing period.

I have found through my years of growing that certain genera are more susceptible to quilling than others. These genera are *Vriesea* and *Guzmania*. Rarely do aechmeas quill, although I have seen *Aechmea racinae* var. *tubliformis* and *Aechmea* 'Foster's Favorite' quill. Within the genus *Vriesea*, certain hybrids and species are notoriously consistent in quilling. Among these are *V*. X *morreniana*, *V*. *ensiformis*, and unfortunately, *Vriesea* 'Viminalis Rex' X *V*. *hieroglyphica*, which is a superb hybrid with nicely banded foliage and a fantastic, long-lasting, branched, blood-red inflorescence with, of course, yellow flowers. Within the genus *Guzmania*, the most likely to quill are *G*. 'Ferun,' *G*. Fantasia,' and occasionally *G*. 'Exodus.' In addition other species of *Guzmania* and *Vriesea* will quill if grown very dry.

Besides dry conditions, some plants, both species and hybrids, are more susceptible because the leaves secrete a very sugary, sticky substance which, if not washed off regularly and thoroughly, causes the leaves to cement together.

To prevent quilling then, one must maintain high humidity, or, quite regularly flush the plant with water to thoroughly wash it off. There is no better way to do this than in a long, hard summer rain, but that is not possible in the winter in the northern [USA] states. Therefore taking a plant to the shower with you may sound silly, but an equivalent bathing procedure is very beneficial. Bathing a bromeliad? Maybe it sounds crazy but it works not only to prevent quilling, but cures it. If you have a plant which has already quilled, take a mild liquid detergent or soap and put several drops into the tight center and fill with water to overflowing. Let this mixture remain for half an hour, then add more water to overflowing. This procedure should produce lots of suds. The soapy water will dissolve the hardened glue substance, and then with the gentle use of a flat but blunt object, such as a plant marker, the leaves may be loosened from the outer-most to the inner-most. Make sure after loosening the leaves that all traces of soap are flushed off the leaves with lots of water. This procedure leaves the plant clean and free to continue to grow by absorbtion of nutrients through not only the roots, but the leaves as well.

If you have quilling problems, or encounter them in the future, try my prevention and cure. It works!

Gahanna, Ohio, USA.

Text reprinted, with minor punctuation updates, from The Journal of the Bromeliad Society, Vol. 32 No. 6 (November-December 1982).

I tried Mr Raack's method on a *Tillandsia wagneriana* hybrid seedling (above left - note the center leaves rolled up in a tight tube). Two drops of Shell 'Dobatex' detergent were put down the center of the rolled up leaves, water added, then 30 minutes later the plant was thoroughly flushed with water. I was then able to pull apart the rolled up leaves (above, right). Note that occasionally young vriesea seedlings "quill" (right) - I discard these because they will be highly likely to repeat the problem when they grow up! - *Ed*

The Bromeliad Society of Australia recently reported a "soapy water recipe" to prevent quilling, supplied by respected Auckland grower Len Trotman. This recipe is in the form of a concentrate, to be used on the bromeliads at 2 to 4 tablespoons per litre of water. Instructions are: "Note that although it will cause foaming in the centre of the plant it can be left in without any harmful effects. It's also effective against mosquitoes, slugs, snails and other insects."

Len Trotman's recipe is 500 mls Sunlight Liquid (dish washing liquid), 200 mls of household cloudy Ammonia and 100 mls of Citronella or Pine-O-Clean disinfectant in 5 litres of cold water. (This is the concentrate - dilute as above when applying to plants).

Alcantarea "skirts".... better on or off?

Diane Timmins. Photos by the author. *Reprinted from "Bromeliad" Vol. 49 No. 2*

Cutting off the lower leaves or 'skirts,' or leaving them on in their natural state, this is a dilemma associated with the ongoing care of one of the most rewarding bromeliads - *Alcantarea imperialis*. Known as the "Giant of Bromeliads," its longevity, enormous size and grand towering inflorescence leads the caregiver of such a plant to develop quite an attachment to each indiidual specimen.

However, throughout their development there are decisions that have to be made to ensure their ongoing good health and attractive form. Deciding to plant alcantareas up into pots as opposed to planting directly into the ground means taking on an obligation to maintain them in their stressful artificial environment.

One of the reasons I enjoy bromeliads is their low-maintenance nature. So my plan was to follow a care plan for alcantareas in pots that involved doing as little as possible. This included leaving on their "skirt." My reasons were: "Look at the pretty 'petticoat'... that is how nature intended them to be....', or "Once you start trimming lower leaves, that's it - you have to carry on with it regularly...." However, the major effect of keeping the "skirt" was that watering became an issue. The lower canopy of drooping brown leaves provided a cover around the entire edge of the pot that deflected water. Neither the sparse and erratic manual watering, nor (perhaps more significantly) the rain water that was their lifeline to survival got through. Even when cascading from the centre and upper leaves down through the plant, water never reached the roots as it ran off the lower leaves. This, in turn, led to greater die-off of lower leaves to the detriment of the beauty of the plant.

Eventually, I decided to give them a 'haircut'; this has led to happier and more attractive plants. Now I've definately decided that plants in the ground should keep their "skirt" on as they are able to still draw water from the broader source of the ground, but all my potted alcantarea will be getting a regular trim from the word go.

BROMELIADS in the Big Easy

Catch the Fun . . . . July 26 – August 1, 2010

19th World Bromeliad Conference

Hosted by BSI & GNOBS

Astor Crowne Plaza Hotel
New Orleans, LA USA

For Conference Schedule and Registration Information visit our website: GNOBromeliads.com

For Hotel reservations contact the Astor Crowne Plaza at (504) - 962-0500 or visit www.astorneworleans.com.

Neoregelia 'Perdita'

Derek Butcher and Geoff Lawn. Past and Present Cultivar Registrars.

The search for the true *Neoregelia punctatissima* continues. Oh, what a tangled web we weave when trying to identify current collections with 'old' names! *Neoregelia punctatissima* is just one. This is a long name and easily mis-spelt but continues to be used to breed all sorts of small neoregelias

It all started in 1954 when Ruschi described this species originally as a *Nidularium*!

Problem one: In 1974 there was a *Neoregelia punctatissima* based on the photograph in the Journal of the Bromeliad Society 24(6):197. 1974 that had been taken by W. W. G. Moir of Hawaii. In 1979 in Flora Neotropica Lyman Smith says 'doubtfully in cultivation' In 1983 in J. Brom Soc 33(5)191-4, 223-4. 1983 Harry Luther said "All cultivated material is referred to *N. ampullacea.*

Prior to 1984 plants started coming from the USA to Australia as *N. punctatissima* and as Bill Morris pointed out in the Australian Journal - Bromeletter #2 p.8 (1984) there appeared to be no similarity between this plant and. the formal description in Lyman Smith's Monograph. This misidentification remains to this day as evidenced by photographs sent to http://fcbs.org for the Photo Index. All claims to having used this 'species' in hybrids has been covered in the Bromeliad Cultivar Registry by putting a ?punctatissima as the parent. You cannot even use the Cultivar convention by using single quotes and starting with the name with a capital letter such as 'Punctatissima' because of homonym problems. This is why it was recorded in the Register as 'Punctate' from 2006 and appeared in J. Brom Soc 58(1): 20-21. 2008. There was also a 'Punctatissima Black' from those days in the 1980's. Again it could be better linked to *N. ampullacea* and is in the records as 'Punctate Black'

Problem two: Everyone growing *N.* 'Hannibal Lector' assumes that *N. punctatissima* was used as one parent – wrong! The plant used by Chester Skotak had been received from Rafael Oliveira in Brazil and appears to be yet another form of *N. ampullacea.* This particular clone is now known as 'Rafa'

Problem three: Just before 2000 Elton Leme acquired a plant from near Santa Teresa (Espirito Santo, Brazil) which he believed to be *N. punctatissima* and this got to the USA via Karl Green, then in turn got to Wally Berg and thence to Marie Selby Gardens. It was recorded as Selby 2000-089A with the provisional name from Wally Berg of 'punctatissima black'. The problem was that the plant did not seem to be the long lost *N. punctatissima* and is being treated by Selby Gardens as *Neoregelia* sp. In 2004 Geoff Lawn, our new Cultivar Registrar, was in the US for the World Conference and on the lookout for authentic species plants he could bring back to Australia. He

brought home a Selby 2000-089A which survived the rigors of treatment and quarantine AND I was able to acquire an offset from him.

Figure 1. *Neoregelia* species MSBG 2000-0089A. Photo courtesy Marie Selby Botanic Gardens.

In December 2008 my plant flowered. I could see no link to the sparse information and drawing we had on *N. punctatissima* so I wrote to Harry Luther for advice. I got lots of 'probables' in his answer which did make sense because after all the only truly identified species is the herbarium specimen!! Collections made 50 years after the event have to be checked thoroughly. Harry sees similarities with *N. tigrina* as long as we keep an open mind as to what we grow as the white-petalled *N. tigrina* (originally *N. albiflora* of Hort!). But there still seemed something odd as though Harry was talking about a different plant. Comparison of photographs gave us a shock because our plant bore no relationship to the photo of Selby 2000-089A. We have since found out that when AQIS supervised the 'treatment' they decided that the labels did not need to be fumigated too. So they became separated and we cannot link OUR plant 'Selby 2000-089A' to any sort of provenance. It does need some identity and Geoff feels that 'Perdita' meaning lost, is an apt name.

Figure 2. *Neoregelia 'Perdita'*. Photo by Geoff Lawn.

So the name Selby 2000-089A survives (see fig. 1) and may eventually be given a proper species name. Our plant has no provenance and will be grown in Australia as *Neoregelia* 'Perdita'.

Cultivation

My Tillandsias are Freezing

David Christiano, Springfield, Missouri. Reprinted from *Bromeliana* 46, No. 2.

Editor's note: Many growers dream of visiting bromeliad homelands to seek out their native habitats and hopefully gain some insight into how to grow them in cultivation. This article is a good illustration of one such trip to northwest Argentina, and the author's conclusion regarding Tillandsia tectorum cultivation is certainly correct. However, there are a couple of points that could mislead the novice grower. You may get the impression from the article that all bromeliads native to Argentina are frost hardy in cultivation - whilst many endure freezing temperatures, they are not necessarily able to withstand direct frost (particularly successive days of it without a significant rise in daytime temperature). A friend of mine, Chris Larsen from Melbourne (Australia) had an interesting experience collecting tillandsias in nw Argentina, and I have included some notes from Chris after this article. Also, T. tectorum has not been recorded as growing in Argentina, only in Ecuador and northern Peru: however in cultivation it can be treated similarly to the grey-leafed Argentinian tillandsias mentioned in this article.

I've been growing Bromeliads for about 35 years. I know, as most Bromeliad growers know, that almost all of our plants are native to South America. Of course, we all know that South America is full of tropical rain forests and eternally warm humid growing conditions. So why have I managed to kill off numerous *Tillandsia tectorums*, a plant that most people say is indestructible? I guess I'm hardheaded… it took a trip to Argentina to find out.

Argentina conjures up things like soccer teams and the Tango; we think of a big city like Buenos Aries. But Argentina is all of these things and more, and most certainly less. It's the eighth largest country in the world, just slightly smaller than India and stretches from the tropics (almost anyway) in the north to near Antarctica. It was surprising to me to find out that almost all of Argentina is subject to freezing with the possible exception of the extreme northeastern provinces adjacent to Brazil and Uruguay. Much of the country is dry especially the farther west you go. Elevation also increases steadily in the Andes mountains to some of the highest peaks in the Americas. The terrain is flat to hilly to downright mountainous, and with rainfall steadily decreasing; the scenery is that of a high desert strewn with rocks and boulders of all colors and shapes.

In the last two weeks in November, wife Mary and I traveled with a group of cactophiles from Cordoba (roughly in the middle of the country), northwestward towards the Andes and the Bolivian border. The elevation ranged from about 1,700 feet in Cordoba to over 12,000 feet on the Puna in the far north. (The Puna or Altiplano is a cool to cold, semi-arid to arid, high plateau area in the central Andes occupying parts of Chile, Argentina, Bolivia, Peru and Ecuador.) Of course, in the southern hemisphere November is like our June with Spring rapidly changing into Summer. Temperatures ranged from 75-90 degrees F. during the day to 55-60° at night.

Opposite page: ***Tillandsia tectorum*** **seedling in cultivation. Photo by Andrew Flower.**

Dyckia species at Seclantas (Near Cachi, nw Argentina). Photo by Andrew Flower.

According to the Florida Council of Bromeliad Societies database, Argentina hosts about 132 species of Bromeliads in 13 genera. Most prominent of these are *Tillandsia* (71 species, including varieties) and *Puya* (12 species). Despite their size, I have taken a special interest in Puyas over the last several years partly due to their cold hardiness.

Immediately on leaving Cordoba, we began to see Tillandsias. Although I razzed our cactus growing friends that most of the plants they saw fell into one or two general types with not a lot of differences, I had to admit that many of the Tillandsias we saw were quite similar, but we also saw *Deuterocohnia brevifolia* and *D. lorentziana* growing in gigantic clumps 30-40 feet across and masses of *Dyckia floribunda, D. velascana,* and *D. ferox* covering steep, rocky hillsides. [see front cover -Ed.]

Our first *Puya*, was observed just northwest of Cordoba. Very widespread in the 2000-3,500 foot range is one of my favorites, *Tillandsia duratii*. The native plants did not seem have the intense curling of the leaves we see on many cultivated plants, but they grow on many hosts including the numerous large *Tricocerus* cacti. Some of my favorites were *Tillandsia bryoides*, (one of the smallest Tillandsias, and in full bloom), *T. duratii, T. peiranoi, T. reichenbachii* (the latter three with highly fragrant flowers), *T. didisticha* and the spectacular *Bromelia serra.* *T. peiranoi* is rarely available to be purchased from nurseries. It grows only on the sides of sheer cliffs, so you can't collect it wityhout being lowered down in a basket. I was lucky to have found a clump of the white flowered form, *T. peiranoi var.alba*, growing on a top edge of a plateau.

Deuterocohnia mounds near Tilcara, nw Argentina. Photo by Andrew Flower.

We did find a single *Pitcairnia,* growing on a steep riverbank, a typical location for them. I think I found a *Neoglaziovia* growing amidst short, thorny shrubs in very sandy soil. However, most bromeliad sources state it is endemic to Brazil. I managed to take a few pups so we'll see.

All these plants endure freezing temperatures every year – and survive and thrive. Oh, did I forget the cacti? If you are in love with them, then you must see northwest Argentina. Although it is generally dry, northwest Argentina is a Mecca of wineries (bodegas) and olive plantations. The wine is quite good and very inexpensive by our standards. With massive plantings of vineyards and olive trees, Argentina has now become a major world exporter of wine and olives.

Tillandsia bryoides on cactus. Highway 40 Quilmes, nw Argentina. Photo by Andrew Flower.

Yes, bromeliads are tropical plants, at least by a common consensus. But "our" plants in Argentina routinely survive both frost and arid conditions. The key to growing anything is to mimic what Mother Nature provides, and now I know why I've killed so many *T. tectorums* (and a few others). I've been killing them with kindness, providing too much moisture for many of them, and especially letting them stay wet overnight.

Notes on Cold Tolerance in Cultivation

Chris Larsen Melbourne, Australia

When I was collecting tillandsias many years ago in Argentina we were camped amongst some trees, right by a river on the way to the town of El Potrerillo. The river was in a very wide plain, at the same altitude and within 50 km of various collections of a number of tillandsias which I was sorting out at the end of the day. As the evening progressed, and the drinks were consumed, I left the plants I was sorting on the top of the car and on the ground right beside it when I went to bed.

In the morning I awoke to a white frost. The plants on the top of the car were frozen and were obviously dead. The ones on the ground beside the car took a few days to die. I wondered why these plants would react in this way when the area was not much different to where they were found.

One thing that has always intrigued me is the subject of stated minimum temperatures which plants tolerate. On a recent trip visiting plant collections, I saw many plants which growers in Melbourne have not been able to grow outside. One of these was at the home of Peter Tristram, and and these "cold sensitive" plants were thriving in his garden. When talking to Peter about his minimum temps, I found that some of his winter overnight temperatures were approximately 3 degrees C lower than those experienced in Melbourne! I have always speculated that the higher winter daily temperatures (5-10C in winter in Peter's case) & greater light, both day length and the sun being higher in the sky (being closer to the equator), have helped these plants cope with the extremes – but I wonder what else may influence cold sensitivity.

This table accompanies the notes on page 39, how to send digital images to us for printing. Digital cameras are classified according to their capacity in "megapixels" and even a 3 megapixel camera can give acceptable quality at its finest setting.

original image size in pixels	camera needed with its highest quality setting	size of print in the Journal	jpg file size assuming no further saving.	Suitability for the Journal.
640 x 480				too small
1280 x 960	1.3 mexapixel	4" x 3"	516 KB	smallest acceptable
2048 x 1536	3 megapixel	6.8" x 5"	1 MB	front cover size
2448 x 1632	4 megapixel	8.2" x 5.4"	1.2 MB	nearly full page
2592 x 1944	5 megapixel	8.6" x 6.8"	1.5 MB	full page inside
3000 x 2000	6 megapixel	10" x 6.7"	1.6 MB	full coverage back cover

Bromeliad Society of Central Florida Show, 2009

We received these two pictures of the affiliated Show winners:

John Boardman's entry, awarded the Morris Henryb Hobbs Award for Best of Show, Artistic.

Best of Show Horticulture, *Guzmania conifera* shown by Evan McCrory.

These 640 x 480 pixel figures are ok to look at on a computer screen, but for printing in the Journal we prefer digital pictures to be a bit larger - see the chart on page 38. Also, a short paragraph accompanying the pictures would be nice, perhaps mentioning highlights from the Show and maybe thanking the volunteers who helped setting up and judging the Show.

Sending Digital images to the Editor.

Most modern digital cameras are capable of producing photos suitable for printing in the Journal, so long as you follow a few simple rules. We print from 300 dpi tif files, but you can send us jpg files if that is what your camera produces. The Editor will convert your files into print-ready versions. It is vitally important that you do not use imaging software to re-save, or "down-size" your original files. They may look great on the computer screen, but still be unsuitable for printing. Avoid using "digital zoom" as this reduces quality, so try and get as close as possible and fill the frame with your subject. The table on page 38 shows how different spec. cameras relate to eventual print size.

The "original image size" is the size of the file you download from your camera, eg., a 5 megapixel camera set to highest quality will produce a 2592 x 1944 image file, on its lowest quality setting it might produce a 640 x 480 shot. The jpg file sizes shown are those that should be produced by the camera, and it is these I need for the Journal. I can reduce the print size of image files you send me, but I am very reluctant to try increasing them. These are minimum standards: the higher quality the better.

Image files can be copied onto a CD and posted to me, or they can be e-mailed. E-mailing images is slow, and some mail providers set a limit on the size of attachment you can send. You can try sending one image per email, or you can contact me and I will tell you how to transfer files over the internet directly from your computer to the BSI website without using email. This way you can send huge files—I send the Journal to the printers by this method, and the file can be 400 megabytes or more! - *Ed.*

Did You Know?

Joyce Brehm, BSI President.

The BSI is grateful for those Societies and Members who donate to the Society for our many projects and causes? Well, WE ARE! Thank you, especially in this time of financial difficulty. It is only through your generous giving that we are able to carry out our mission.

Because we want to honor your giving in a special way, we are changing how we designate your donations.

Those Societies or Members who give $25.00 to $100.00 (US) will be designated **Bronze Contributors.**

Those Societies or Members give $101.00 to $300.00 (US) will be designated as **Silver Contributors.**

Those Societies or Members who give $301.00 to $500.00(US) will be designated as **Gold Contributors.**

Those Societies or Members who give $501.00 to $1000.00 (US) will be designated as **Sweepstakes Contributors.**

Those Societies or Members who give over $1001.00(US) or more will be designated as **Best of Show Contributors.**

These contributions can be made in any of the many designated funds and can be made by accessing the Donation link at BSI.ORG website. A form is included with your renewal or you can directly mail your donation to the current Treasurer or Membership Secretary.

You should also consider bequeathing part of your estate to BSI. You can write this in your will or add a codicil to your will if you have already written a will. Contact your lawyer to ensure this is done properly and legally. When you have decided to make this contribution, contact the current BSI Treasurer so that we can acknowledge your generosity. Those Members who chose this option will become a member of the **Ben Franklin Contributors** in honor of Ben Franklin a member of the San Francisco Bromeliad Society who bequeathed a large amount of his estate to BSI in 2007.

All contributions in these categories will be listed annually in ***The Journal of the Bromeliad Society.***

If you have any questions, please do not hesitate to telephone me in the United States at 858-277-1030 or email me at my preferred email address joycesjoy@aol.com

Wholesale

Bromeliad and Orchid production site

available for sale

This business has been established for fifteen years in the Naples/ Ft Myers area of Florida.

It resides on 2.5 acres of filled ground that is well treed on the borders . In the interior of the property there are 25,000 square feet of steel frame greenhouses.

.The business produces hundreds of varieties of Bromeliads and Orchids that are all consumed locally annually . The site offers plenty of room for expansion as well . It also has a very nice 1/1 house with a large deck over looking the greenhouses . For more information contact Robb Ross at 239 992 8613 at Gulf Coast Bromeliads Inc.

E mail is Robbrernfl@aol.com I can furnish more pictures upon request.

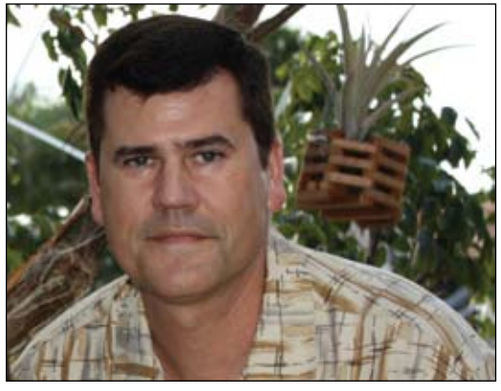
MEMBERS ONLY SEEDBANK

Acanthostachys ***strobilacea***
Aechmea ***aquilega*** ● ***bracteata*** v. ***pacifica*** ● coelestis ● ***distichantha v. schlumbergeri*** ● ***fuserstenbergeri*** ● ***luddemanniana*** ● ***spectabilis.***
Alcantarea ***braziliana*** ● ***glaziouana*** ● glaziouana.
Billbergia rosea ● zebrina. *Deuterocohnia* ***brevifolia.***
Neoregelia ***morrisoniana*** ● ***pascoaliana.*** *Puya* ***mirabilis.***
Pitcairnia ***flammea*** ● ***oliva-estevae*** ● ***spicata.*** *Portea* ***petropolitana*** var. ***extensa.***
Tillandsia ***capillaris*** 'hieronymi' ● ***polita*** ● gilliesii ● ***welzii.***
Vriesea ***neoglutinosa.***

Packets, at least 20 seeds, US $1 each. Seed supplied only to BSI members, and limit 2 packets per species.

Send orders & make checks payable to: Harvey C. Beltz, 6327 South Inwood Road Shreveport, LA 71119-7260. USA

Meet the New Webmaster



Nick Bethmann, our new web master of the BSI's website, www.bsi.org, is from Boca Raton Florida where he resides with his wife and two children. It was after attending a Boca Raton Bromeliad Society outing that he became hooked on bromeliads. Besides serving as a Board of Directors member and the club Librarian, he has put his computer talents to work to create a forum for the members of the Boca Raton Bromeliad Society, http://forums.bocabromeliads.com. Besides his home society, Nick is a member of the BSI and a 10 year member of the Palm Beach Palm and Cycad Society.

Nick has earned a B.S. and a M.S. in Computer Science. For the past 10 years, our new Webmaster has been a consultant for a variety of web servers. He started to develop websites in 1999 while working on Intranet applications for Wells Fargo. Currently he is employed by a small Internet startup, creating a new web site, which will be open to the public in about six months. During the last six years he has had his own web server and is its webmaster.

Some of his ideas for enhancing the BSI website include:

Getting an online merchant account.

Using a third party shopping cart or service to help sell our products.

Collecting membership dues online.

Get a good authentication system in place that allows for us to offer specific services to members.

Find a way of sending emails to all members who have opted into such a service.

Making the Cultivar Registrar's job easier by having complete online management of the registration database.

Nick welcomes dialog with the BSI membership concerning any recommendations or suggestions for improving the efficiency and content of the BSI website. He is already working closely with Ken Marks, his predecessor, to provide a smooth and a rapid transition.

Meet the New BSI Secretary

Carole Richtmyer and her husband, Rick, became interested in bromeliads while living in Houston, Texas and with the encouragement of a neighbor and avid grower himself, Shelton Kinkade, they joined the Bromeliad Society/Houston in 1981. They were transferred to Dallas in 1982 and happily found there was an active society in that city, as well, so they were able to continue and expand their interest during the years they lived there. Upon moving back to Houston in 1996, they again became members of BS/H. As an active member Carole has served in many capacities with the BS/H, as President, Vice President and Director and is currently the BS/H Newsletter Editor.

She enjoys growing many different genera of bromeliads but became especially interested in Cryptanthus while they lived in Dallas. During that time, she joined the Cryptanthus Society and became its Secretary, in which capacity she has also served for many years. Carole enjoys growing both species and hybrids, and has created and registered many Cryptanthus hybrids herself. Through the years, she and Rick have learned how to grow a lot of bromeliads in a little space, although they are looking forward soon to retirement and a larger greenhouse.

Carole is also an International Accredited Master Judge and Instructor and enjoys giving bromeliad-related programs on different topics.

Meet a New Australian Director for 2009-2011

Greg Aizelwood was introduced to Bromeliads by his wife Narelle some twenty odd years ago. In Greg's words "While extricating the neighbour's cat from my vegetable patch, I happened to spy a billbergia flower and was overwhelmed by the brilliant red bracts, the delicate recurved petals, and how the show of color appeared to stand out like a beacon in the heavily shaded area in which it was surviving. I was smitten by the 'bug.'

We tracked down the Queensland Bromeliad Society; immediately joined and began collecting plants and knowledge. Although we have served in committee positions and have remained active members of the QBS, a move in 2000 from Brisbane to a quiet, quaint little fishing village of Woongoolba, situated midway between Brisbane and the Gold Coast, prompted us as a matter of convenience to join the Gold Coast Succulent and Bromeliad Society. We now pour our energies into the Gold Coast Society where I have held positions on various committees. We have since joined the Sunshine Coast Bromeliad Society and organize our visits to relatives in the area to coincide with the society's meetings days.

My favourite bromeliad genus is Billbergia, but I am branching out into the Tillandsia domain with an interest in the various forms of fasciculata as well as the fragrant tillandsias. I also have a small collection of Cryptanthus, which seems to grow well nestled on the floor in the warm moist environment of the billbergia house.

On my quarter acre house block, which I have managed to use nearly completely, I have developed an interest in propagation from seeds. Although I have been restricting my growing to mostly species plants, predominately tillandsias, I do have some of my own hybrids coming along. Neoregelia 'Painted Heart' is already registered with the BSI Cultivar Registry. I still enjoy growing vegetables and gerberas as companion plants for the larger aechmeas in the garden.

My aims if elected are to support fellow B.S.I. members in their endeavors, and promote the B.S.I. throughout Australia."

RAINBOW GARDENS BOOKSHOP
Your resource for Bromeliads and other books for the Cactus and Succulent Enthusiast
To see our online booklist visit us on the web at:
www.rainbowgardensbookshop.com
If you prefer you can send for a free catalog by calling
Toll Free (866) 577-7406
In Arizona (520) 577-7406
RAINBOW GARDENS BOOKSHOP
3620 W. Sahuaro Divide, Tucson, Arizona 85742

A Warm Welcome to New Members

Janet Brown, Los Angeles, CA
Catherine & Lewis Burger, Atlantis, FL
Caspar R. Curto, Oakland, CA
Martin Dent, Santa Barbara, CA
Nicholas Day, Astoria, NY
Tommy Emanuel, Mount Belvieu, TX
Marty Folk, Kissimmee, FL
Joel E. Graham, Baltimore, MD
Justin Hethcoat, Del Mar, CA
Kenji Kinebuchi, Isejaji, Japan
Dave Nelson, Los Angeles, CA
Jared R McKinley, Vail, AZ
Timothy and Anat Nomer, Huntington Beach, CA
Zigfred A Onari, Davao City, Philippines
Richard Preziosi, Manchester, UK
Jeno Udvardy, Budapest, Hungary
Viola Walton, Newark, OH
Jebbifer Webb, Harrington Park, NSW

We hope you enjoy your stay with us!

Michael's Bromeliads

Providing a unique selection of quality Bromeliads

Our ***free*** catalog offers thousands of varieties from over forty genera

Specializing in varieties of Neoregelia and Billbergia

Mail order, by appointment or visit us online at
michaelsbromeliads.com

Michael & Donna Kiehl
973 First Dirt Road
Venice, FL 34292
(941) 488-4011
Fax: (941) 488-1002
info@michaelsbromeliads.com

Shipping Worldwide since 1986

EVENTS CALENDAR

Australia

April 10-13, 2009, XV Australian Bromeliad Conference, Adelaide. Contact (08) 8356 7728 or www.bromeliad.org.au/BROMADELAIDE2009.htm

May 2-3, 2009 Bromeliad Society of NSW Autumn Show, Concord

May 16-17 2009, Bromeliad Society of Australia Autumn Show, Burwood

October 25-26 2009, Bromeliad Society of NSW Spring Show, Concord

United States of America

April 4-5, 2009, Bromeliad Society of Broward County Annual Show & Sale. Plantation Women's Club, Fort Lauderdale FL.

April 17-19, 2009 Bromeliad Society of South Florida Show & Sale. Fairchild Gardens, Miami, FL. Judged Show 17th, Show & Sale 18-19th.

April 25-26, Sarasota Bromeliad Society Show & Sale. Marie Selby Botanical Gardens, Sarasota FL. 10:00am-5pm Friday, 10:00am-4pm Saturday. Plant sales Thursday April 24, 10:00am-5pm.

May 2-3, 2009. Greater New Orleans Bromeliad Society Show & Sale.

May 2-3, 2009. La Ballona Valley Bromeliad Society, 50th (aprox.) Annual Show & Sale. Culver City Veteran's Complex, 4117 Overland Bl., Culver City.

May 9-10, Central Florida Bromeliad Society Mother's Day Show & Sale.

May 15-17,Bromeliad Society of Houston Show & Sale, Mercer Arboretum.

June 13-14, Bromeliad Society of San Francisco Sale, Strybing.

November 13-15, 2009. Florida Council of Bromeliad Societys Bromeliad Extravaganza, hosted by Bromeliad Society of Central Florida. Renaissance Orlando Hotel Airport, Orlando FL. Sales, Seminars, Tours, Banquet, Rare Plant Auction.

December 4-6, 2009. Caloosahatchee Bromeliad Socieyu Show & Sale. Terry Park, Fort Myers FL. Judged Show on Friday, Public Show & Sale Sat-Sun.

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

Corporate Donations

The Caloosahatchee Bromeliad Society recently donated $400 to our color fund and $400 to the Bromeliad Identification Centre. Bromeliad Society Houston has donated $50 to the color fund in memory of John Reese and Tony Novak.

Thank you to these folks for their generous support.

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.

OFFICERS

President.....Joyce Brehm, 5088 Dawne Street, San Diego, CA 92117-1352. president@bsi.org.
Vice-President.....Jay Thurrott, 713 Breckenridge Dr., Port Orange, FL 32127, USA. vicepresident@bsi.org.
Editor.....Andrew Flower, P.O. Box 57021 Mana, Porirua 5247, New Zealand. editor@bsi.org.
Membership Secretary.....Dan Kinnard, 6901 Kellyn Ln, Vista CA 92084-1243, USA
Secretary.....Carole Richtmyer, 18814 Cypress Mountain Dr., Spring, TX 77388, USA. secretary@bsi.org.
Treasurer.....Edward Doherty, 4039 Herschel Avenue, Dallas, TX 75219. treasurer@bsi.org.

DIRECTORS

(To e-mail Directors, write "firstname@bsi.org," Not all Directors have e-mail)
2007-2009 .....California: Rodney Kline, Keith Smith
2008-2010..... Florida: Jose Donayre. Louisiana: Bonnie Boutwell. Texas: Gene Powers. International: Francisco Oliva-Esteve
2009-2011.....Australia: Lynn Hudson, Greg Aizlewood,Olive Trevor. New Zealand: David Anderson. California: Holly Mena. Central: Penrith Goff. Florida: Steven C. Provost, Gary Lund, Vicky Chirnside. Northeast: Leslie Graifman. Southern: Rei Irizarry. Western: Hannelore Lenz. International: Eric Gouda, Luiz Felipe Nevares de Carvalho.

STANDING COMMITTEES

Affiliated Shows.....Theresa M. Bert, 9251 13th Ave. Cir NW, Bradenton, FL 34209, USA. shows@bsi.org.
Affiliated Societies.....Martha Goode, 826 Buckingham Ct, Crystal Lake, IL 60014-7601. affiliates@bsi.org.
Archives and Historical.....Robert and Janet LaRoe, 401 Oakford Road, Sarasota, FL 34240
Conservation.....Pierre Ibisch, University of Applied Sciences, Alfred-Moeller Str 1, Eberswalde, Brandenberg 16225, Germany. conservation@bsi.org.
Cultivar Registration.....Geoff Lawn, 31 Greenock Ave., Como, Perth WA 6152, Australia. cultivars@bsi.org.
Finance & Audit.....Elizabeth Patterson, 4205 Gloster Road, Dallas, TX 75220
Judges Certification.....Betty Ann Prevatt, 2902 2nd St., Ft. Myers, FL 33916
Mulford B. Foster Bromeliad Identification Center Harry E. Luther, Marie Selby Botanical Gardens, 811 South Palm Ave., Sarasota, FL 34236-7726. bic@bsi.org.
Nominations ..... Larry Giroux, 3836 Hidden Acres Circle N, North Fort Myers, FL 33903, USA. Larry@bsi.org
Publications Sales.....Robert & Karen Kopfstein, 6903 Kellyn Ln., Vista CA 92084, USA. publications@bsi.org.
Research Grant.....Gregory K. Brown, University of Wyoming, P.O. Box 3165, Laramie, WY 82071-3165. grants@bsi.org
Seed Bank.....Harvey C. Beltz, 6327 South Inwood Rd., Shreveport, LA 71119-7260
Media Library.....Keith Smith, 1330 Millerton Rd., Auburn CA 95603-1243, USA. slides@bsi.org.
Web Site.....Nick Bethmann, 726 Forsyth St., Boca Raton, FL. 33487-3204 USA,webmaster@bsi.org.
World Headquarters.....Tom Wolfe, 5211 Lake Le Claire Rd., Lutz, FL 33549-4833, USA.

HONORARY TRUSTEES

David H. Benzing, *USA*
Nat DeLeon, *USA*
Grace M. Goode OAM, *Australia*
Peter Waters, *New Zealand*
Roberto A. Kautsky, *Brazil*
Marcel LeCoufle, *France*
Elton M.C. Leme, *Brazil*
Elmer J. Lorenz, *USA*
Harry E. Luther, *USA*
William Morris, *Australia*
Herb Plever, *USA*
Derek Butcher, *Australia*

Members-only web site access: **username:** your bsi membership number (this is printed in the first line of your journal mailing label) **password:** bsi