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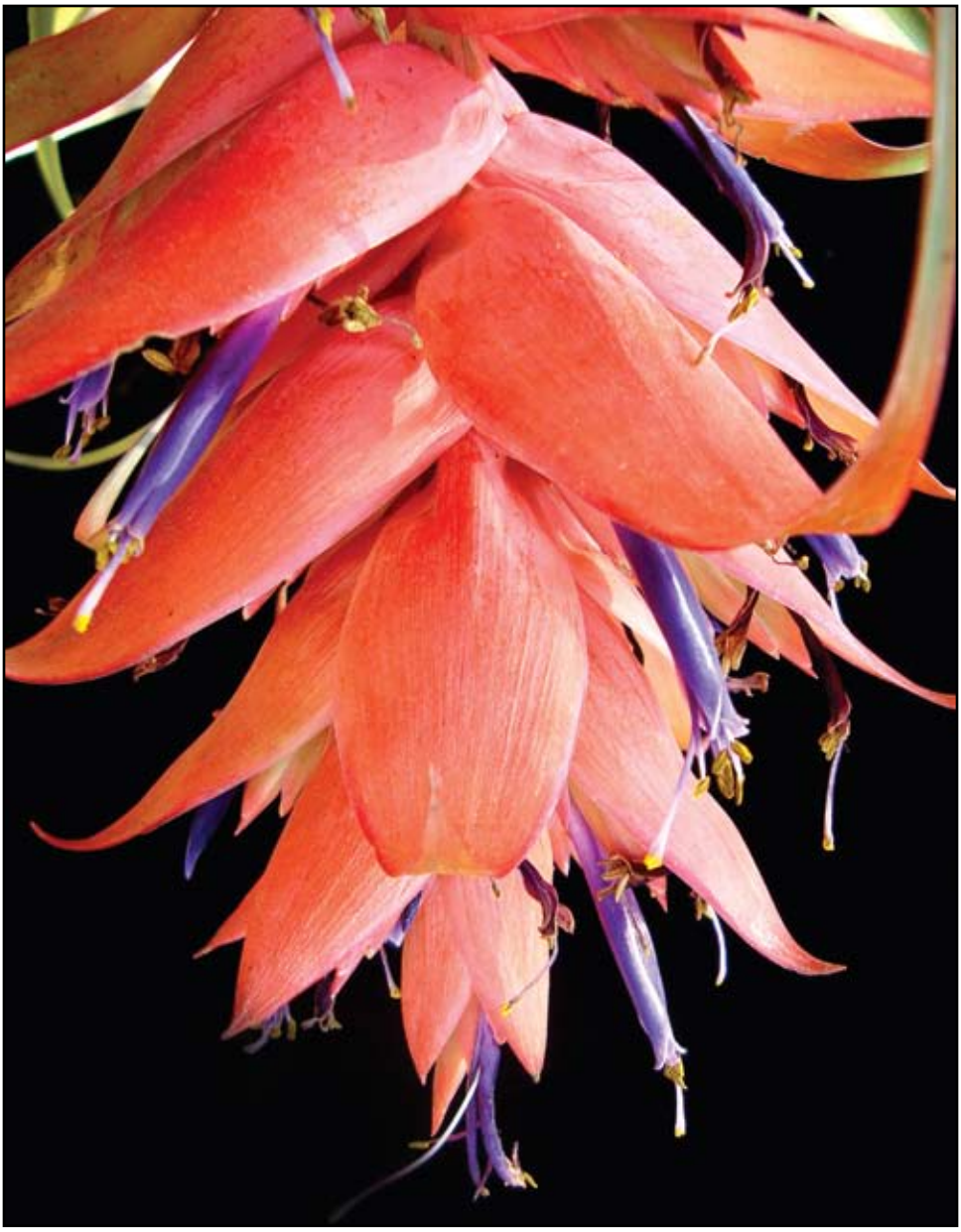

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Covers

Our covers this month were photographed by Professor Claudia T. Hornung Leoni of the Biology Department of the University of Hildago, Mexico. Both bromeliads are native to Hidalgo State.

Front— *Tillandsia violacea,* ***Back***— *Tillandsia imperialis*

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

Cultivar Registry Innovations

Yes, the Bromeliad Society International's Culivar Register (BCR for short) http://botu07.bio.uu.nl/bcg/bcr/index.php is being constantly updated and to let you know what happened recently you now have a 'What's new' button to press. For example did you know that Mulford Foster did not describe xQuesmea Lyman and thanks to Aussies and Marie Selby Botanical Gardens archives we now know what the plant looks like.

You will also note that we using a BCR watermark on our photos. This is there to deter those who copy your photos and claim them as their own and for commercial purposes. These photos remain under the ownership of the photographer who sent us copies in the first place

PRODUCTION CREW - Geoff, Derek, and Eric

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Scientific

A New Ornamental Neoregelia Species from Serra dos Índios, Bahia, Brazil

Elton M. C. Leme, Harry E. Luther, Walter Till & Heidemarie Halbritter.

Figure 1: *Neoregelia rothinessa* which flowered in cultivation (Leme 7062 et al.). Photo by E. Leme.

The genus Neoregelia contains 112 species (Luther, 2008), comprising four subgenera (s. lato), the typical one, Longipetalopsis Leme, the Amazonian Hylaeaicum (Ule ex Mez) L. B. Sm., and the monospecific Protoregelia W. Till & Leme, endemic to Bahia, Brazil. The species of the type subgenus grow at different altitudes of the Atlantic forest domain in southern and southeastern Brazil, ranging into Bahia, with two important disjunctions, one in Loreto, Peru, represented by *Neoregelia johnsoniae* H. Luther (Luther, 1989), and the other, *N. cathcartii* C. F. Reed & R. W. Read, from Rancho Grande, Venezuela (Reed & Read, 1981).

The species of subgenus Longipetalopsis prefer montane or high-montane forest formations, including high altitude grasslands in the Atlantic forest of southeastern Brazil and in the states of Bahia, Alagoas and Pernambuco in the northeast. They are

also common in the Campos Rupestres of Serra do Espinhaço in Minas Gerais and Bahia. Among other traits, this subgenus is characterized by large petals, at minimum 5.5 cm long, but sometimes to 11 cm long, being among the longest petals reported for the family (Leme, 1998).

When *Neoregelia pernambucana* Leme & J. A. Siqueira was described in 2000 in subgenus Longipetalopsis, there was not any known close relative due to its unusual combination of morphological characteristics. At the time there was speculation that related species might already have disappeared due to destruction of the Atlantic forest. However, ongoing field work filled the gaps with the discovery of *N. gigas* Leme & L. Kollmann, and *N. silvomontana* Leme & J. A. Siqueira that form, together with *N. pernambucana*, a homogenous complex of large-sized species of Atlantic Forest (Leme & Siqueira-Filho, 2007). Now, another showy new species of the "*N. pernambucana* complex" was discovered during an expedition to the difficult-to-reach Serra dos Índios, in Bahia, and is presented here.

Neoregelia rothinessa Leme, H. Luther & W. Till, sp. nov. **Type**: Brazil, Bahia, Iguaí, near the border with Dário Meira, Serra dos Índios, nascente do Rio dos Índios, Alfredo Pinheiro farm, ca. 926 m elev, 14º31.74'S 40º05.17'W, 26 May 2007, E. Leme 7062, R. F. Reis Jr., J. C. Falcon, A. O. S. Filho, C. Rizério & L. Del Grande. Holotype: RB.

A N. pernambucana Leme & J. A. Siqueira, cui affinis, floribus externis pedicellis duplo longioribus, sepalis lanceolatis vel elliptico-lanceolatis, erectis totaliterque imbricatis, brevioribus latioribusque et petalis apice purpureis differt.

Plant epiphytic or rupicolous, propagating by short basal shoots. ***Leaves*** 12 to 14 in number, suberect-recurved, forming a broadly crateriform rosette; ***sheaths*** broadly elliptic, 19-25 x 17-20 cm, subdensely pale-brown lepidote on both sides, greenish or sometimes reddish near the apex; ***blades*** linear, not narrowed toward the base, 30-44 x 11-14 cm, glabrescent abaxially, inconspicuously and sparsely white lepidote adaxially, rose-red throughout, more so adaxially or green toward the base and reddish near the apex, bearing dark green, sparsely arranged irregular spots, apex broadly acute to rounded and apiculate, apiculous ca. 0.4 cm long, margins subdensely to sparsely spinulose, spines 4-7 x 3-5 mm, 5-15 mm apart, castaneous-red near the apex. ***Scape*** 5-8 cm long, 2.2-2.7 cm in diameter, greenish-white, glabrescent; scape bracts broadly triangular (the basal ones) to subtriangular-ovate or subtriangular-orbicular (the upper ones), apex acute and apiculate, suberect, spinulose at the apex to entire, green except for the reddish apex, inconspicuously and sparsely white-lepidote to glabrescent, thin in texture, the upper ones somewhat involucrate, 4.5-5.4 x 4-5 cm, slightly shorter to slightly exceeding the ovary, distinctly longitudinally sulcate mainly near the apex. ***Inflorescence*** broadly capitate, simple, umbellate, apex nearly flat, sunk in the center of the rosette, 8-9 cm long (excluding the petals), 9-12 mm in diameter, 56 to 65-flowered; ***floral bracts*** entire to remotely denticulate at the apex, green, membranaceous,

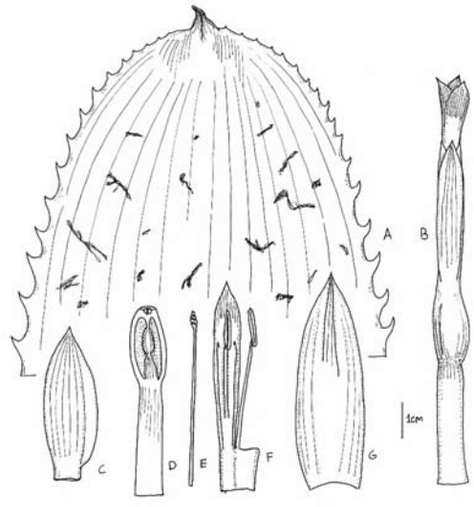

Figure 2: *Neoregelia rothinessa*: A) leaf apex ; B) flower; C) floral bract; D) sepal; E) petal; F) longitudinal cross-section of the ovary; G) style and stigma. Drawing by E. Leme.

distinctly nerved, longitudinally sulcate mainly near the apex, sparsely to subdensely white-lepidote outside, glabrous inside, the outer ones resembling the involucral bracts, ecarinate, slightly exceeding the ovary, the inner ones narrowly ovate-lanceolate to sublinear-lanceolate, acuminate, ecarinate or bearing a protruded central nerve and appearing carinate, 45-60 x 8-20 mm, slightly exceeding the ovary. ***Flowers*** 85-110 mm long, fragrance not detected, pedicels 23-35 x 4-10 mm, greenish toward the apex, sparsely to subdensely and coarsely white-lepidote, strongly complanate mainly the outer ones and dilated toward the base; ***sepals*** asymmetric, narrowly subelliptic-lanceolate, 38-44 x 13-15 mm, erect and imbricate to each other at anthesis, apex acuminate, connate at the base for 3-4 mm, ecarinate, green, glabrous, thin in texture except for the membranous margins; ***petals*** sublinear-lanceolate, acuminate, 56-62 x 5-6.5 mm, connate at the base for 10-11 mm, white toward the base, greenish at the central-apical portion except for the blue to purple 7-10 mm distal portion, erect except for the slightly suberect-recurved apex at anthesis, slightly twisted-flaccidescent afterwards, not spirally-recoiled, bearing 2 longitudinal callosities about equaling the filaments; ***filaments*** ca. 40 mm long, slightly complanate, white, the antepetalous ones adnate to the petals for 18-20 mm, the antesepalous ones adnate to the petals for 10-11 mm; ***anthers*** linear, 9-11 mm long, dorsifixed ca. 2 mm above the base, base obtuse, apex obtuse and apiculate; ***pollen*** ellipsoidal, biporate, exine reticulate, lumina polygonal to rounded, muri slightly thickened; stigma ovoid-ellipsoid, conduplicate-spiral, ca. 2 mm in diameter, blades ca. 4 mm long, white, margins minutely lacerate; ovary elliptic, 18-20 x 9-10 mm, green, glabrous, slightly sulcate; placentation central-apical; *ovules* cylindrical, obtuse; ***epigynous tube*** ca. 1 mm long. ***Fruits*** slightly enlarged from the ovary, yellowish.

Figure 3: Close up of the inflorescence of *Neoregelia rothinessa* (Leme 7062 et al.) Photo by E. Leme.

Figure 4: Details of the flower of *Neoregelia rothinessa* (Leme 7062 et al.) Photo by E. Leme.

Paratype: Brazil, Bahia, Iguaí, near the border with Dário Meira, Serra dos Índios, nascente do Rio dos Índios, farm owned by Alfredo Pinheiro, ca. 1,046 m elev, 14º 31.19' S, 40º 05.18' W, 26 May 2007, E. Leme 7068, R. F. Reis Jr., J. C. Falcon, A. O. S. Filho, C. Rizério & L. Del Grande (HB).

This new species is closely related to *Neoregelia pernambucana*, but differs by the outer flowers with distinctly longer pedicels (23-35 mm vs. 10-15 mm long), sepals lanceolate to elliptic-lanceolate (vs. narrowly sublinear-lanceolate), erect and completely imbricate (vs. suberect with the 2/3 distal portion not imbricate), shorter and broader (38-44 x 13-15 mm vs. 48-52 x 7-8 mm), and by the petals with bluish-purple apex (vs. pale lilac). Since the morphological differences presented by *N. rothinessa* are subtle in comparison with the remaining taxa of the *N. pernambucana* complex, an identification key is provided here, which includes a recently discovered and yet unpublished new species also closely related to them.

Figure 5: *Neoregelia rothinessa* at type locality. Photo by E. Leme.

Key to the Species of *Neoregelia pernambucana* complex

1. Sepals suberect at anthesis with the 1/2 to 2/3 distal portion not imbricate, 7-9 mm wide; petal apex white to pale lilac.

2. Flowers 70-95 mm long; petals (35-) 55-62 mm long, connate at base for 7-17 mm, erect to suberect at anthesis.

3. Petals 35-37 mm long, equaling to slightly exceeding the sepals, subspatulate; fruits dark red.....*N. sp. nov.*

3. Petals 55-62 mm long, distinctly exceeding the sepals, narrowly lanceolate to sublinear; fruits white to orange.

4. Leaf blades densely and conspicuously white lepidote on both sides; sepals 36-38 mm long; petals white with the apex acute to shortly acuminate-caudate; fruits white .....*N. silvomontana.*

4. Leaf blades sparsely and inconspicuously white lepidote mainly adaxially; sepals 48-52 mm long; petal apex lilac and acuminate; fruits orange.....
.....*N. pernambucana.*

2. Flowers 100-115 mm long; petals 70-75 mm long, connate at base for 21-28 mm, spreading recurved at the apex at anthesis.

.....*N. gigas.*

1. Sepals erect at anthesis and completely imbricate, 13-15 mm wide; petal apex bluish-purple. .....*N. rothinessa.*

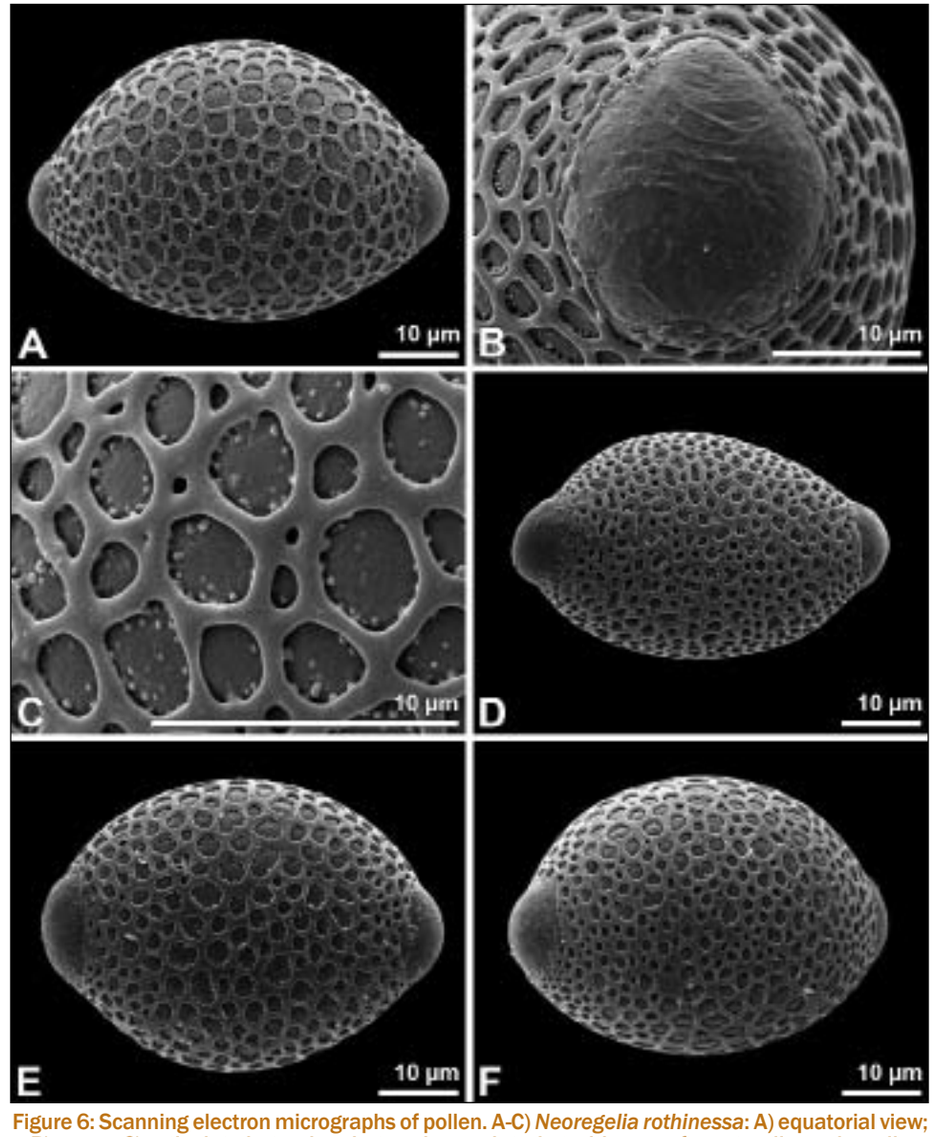

Figure 6: Scanning electron micrographs of pollen. A-C) *Neoregelia rothinessa*: A) equatorial view; B) porus; C) reticulate heterobrochate exine sculpturing with some free standing columellae. D) *Neoregelia pernambucana*: E) *Neoregelia gigas*; F) *Neoregelia silvomontana*. Photos by H. Halbritter.

Pollen of *Neoregelia rothinessa* is diporate, medium sized, with a diameter of about 50 µm (longest axis). Pollen is often slightly heteropolar (Fig. 6, A). The more curved side is the distal one. Pores situated at the equator are smooth and about 10-15 µm in diameter (Fig. 6, B). Exine sculpturing is reticulate and heterobrochate (lumina of different sizes) with some free standing columellae in the lumina (Fig. 6, C).

The pollen of the closely related species, *Neoregelia pernambucana* (Fig. 6, D), *N. gigas* (Fig. 6, E) and *N. silvomontana* (Fig. 6, F) are very similar to those of *N. rothinessa.* There are no significant differences in size, shape and ornamentation.

Figure 7: General aspect of the top of Serra dos Índios, Bahia, indicating campsite position. Photo by E. Leme.

Neoregelia rothinessa was first found growing in humid montane Atlantic Forest at altitudes over 900 m in Bahia. Most of the few observed individuals were growing rupicolous at the border of the forest. Despite containing some well preserved fragments of montane forest, a large area of the collection site, known as Serra dos Índios, was deeply disturbed by cattle raising activities and frequent fires, despite its difficult access, which required the use of mules and three-days camping at the top of the mountain by the so called "Ruduleiro Expedition". The name of the expedition was unanimously chosen by the collectors during the way back, as a reference to the area being infested by the cattle tick "ruduleiro" or "rodoleiro" (*Amblyomma cajennense*), responsible for the transmission of the "febre maculosa" (Rocky Mountain spotted fever).

The montane Atlantic Forest of the Serra dos Índios, mainly the portion near the Índios river, is very rich in epiphytes, mostly Bromeliaceae represented by 10 genera, including four *Nidularium* species [*N. bicolor* (E. Pereira) Leme, *N. longiflorum* Ule, *N. procerum* Lindman, and *N. rutilans* E. Morren,] as well as by rare and endemic taxa, like *Aechmea candida* E. Morren ex Baker (fig. 10), *Canistrum auratum* Leme, *Hohenbergia sandrae* Leme (figs. 11,12), *Ronnbergia silvana* Leme, and *Vriesea blackburniana* Leme, to name a few.

Figure 8: After three-days camping at the top of Serra dos Índios, Bahia, the core group of the so called "Ruduleiro Expedition" take the way down by mules. Photo by E. Leme.

Figure 9: Campsite at the bank of Índios River, with a bromeliad-rich altitude forest on the back. Photo by E. Leme.

Figure 10: *Aechmea candida*, one of the inhabitants of the bromeliad-rich altitude forest of Serra dos Índios, Bahia. Photo by E. Leme.

Figure 11: *Hohenbergia sandrae*, an attractive recently described species. Photo by E. Leme.

Figure 12: Floral details of *Hohenbergia sandrae*. Photo by E. Leme.

The name of *Neoregelia rothinessa* honors collectively the children of the senior author, Rodrigo, Thiago, and Vanessa Leme, for all their encouragement, support and understanding of their father's bromeliad passion.

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Some Notes on Petal Color in Diaphoranthema

Eric Gouda[1]

Figure 1. *Tillandsia kuehhasii* in bloom. Photo by Eric Gouda.

Tillandsia kuehhasii W.Till *Die Bromelie* 2: 33-5. (1995) shows yellow petals in the picture of the flowering isotype. The description however gives the color brown for the petals. If you look at the details of the picture, it is yellow with some brownish speckles. These speckles can become very intense in the petal blade that can color deep brown to nearly black. This has been shown in the plant collected by Renate Ehlers (EB 950601), also in Bolivia, Sucre – Chatajilla at an altitude of 3610 m. This has flowered in the Utrecht Botanic Gardens several times with larger sepals (16x3.5 mm, ecarinate when fresh) and petals (25x4 mm) and with an elongated peduncle (3.5 cm). It has the typical T. kuehhasii habit, long caulescent with clustered branching, see figure xx (note one 2-petaled flower). It has a week but pleasant odour, something in between the smell of Hyacinthus and a typical soap smell.

It is well known that petal color is variable in species of the subgenus Diaphoranthema. For example in *Tillandsia pedicellata*, *T.funebris*, *T.capillaris*, *T.caliginosa*, *T.spiralipetala*, mostly yellow, yellow with brown speckles or totally brown. It is rare that it can also be blue, which has been recently found for *T.spiralipetala*, in collections from Cuzco, Peru (Nuñez, P. & S. Walsh 6284 [CUZ, USM]).

1 University Utrecht Botanic Gardens.

New bigeneric genus: *x Aechbergiopsis*

Geoff Lawn, BSI Cultivar Registrar

In March, 2011 the nothogenus *x Aechbergiopsis* (Aechmea x Hohenbergiopsis) was first recorded in the Bromeliad Cultivar Register under ICBN Rules (Vienna Code 2006). On behalf of the registrant Kerry Booth Tate of the Channon, northern New South Wales who chose the cultivar name 'PITA', I coined this new combination bigeneric genus name. The full history of *x Aechbergiopsis* 'Pita' is still unrecorded but probably is an Australian-bred cross from the late 1980s with the hybridist unknown but mistakenly grown as *Hohenbergiopsis guatemalensis*. It is the considered view of several very experienced bromeliad growers consulted that the parentage is most likely to be:

Seed parent : *Hohenbergiopsis guatemalensis* L. B. Smith & R. W. Reed, *Phytologia* 30 (no. 5) 1975.

Pollen parent: *Aechmea* sp. Ruiz & Pavon, Fl. Peruv. Prodr. 1794 (Bromel)

On page 217 Kerry Booth Tate briefly tells the known background story of *x Aechbergiopsis* 'Pita' and her quest to identify it.

Validation of *Racinaea goudae*

José M. Manzanares & Walter Till

In the latest issue of the Journal of the Bromeliad Society we have described three new species of Racinaea. Due to a mistake in the protologue of *R. goudae* two herbaria have been cited for the holotype rendering the name as invalid (ICBN Art. 37.7). In order to validate the name full and direct reference is here given to the previous description (Art. 45.1, Ex. 2) and the type citation is corrected:

Racinaea goudae Manzanares & W. Till, J. Bromeliad Soc. 60(4): 161 „2010" (Jan 2011), sp. nov. Type: Ecuador, Napo: Quijos, entre Papallacta y Cuyuja, 00°21'56"N, 78°02'55"", 17 August 2001, José M. Mazanares, Margaret Case, Eduardo Gutierrez, Manuel Medina & Rebecca Manzanares 7431 (Holotype: QCNE, isotype: MO).

Additional material (paratypes): Manzanares 5499: QCNE (para); Manzanares & Bracke 5298: MO, QCNE (para); Manzanares 5464: QCNE (para); Clark 2245: QCNE (para); Manzanares 5655: QCNE (para); Manzanares 5656: QCNE, WU (para); Manzanares 5657: QCNE (para); Manzanares 5658: QCNE (para); Manzanares 5707: QCNE (para); Manzanares & Till 6229: QCNE (para); Vargas, Narváez & Mancheno 1850: MO, QCNE (para); Vargas & Narváez 3339: MO, QCNE (para); Vargas & Narváez 3500: MO, QCNE (para); Manzanares & Gouda 7788: QCNE, U, WU (para).

Hechtia lundelliorum, another Spectacular and Little Known Bromeliad from Mexico

Ana Rosa López-Ferrari1, Adolfo Espejo-Serna, Jacqueline Ceja-Romero & Aniceto Mendoza-Ruiz[1]

Hechtia may be considered practically a Mexican genus. It has 56 species (Espejo et al., 2005; Luther, 2006; Espejo et al., 2007; Espejo et al., 2008; López-Ferrari et al., 2008, 2009; Ramírez-Morillo, 2008), of which 53 occur in Mexico, and 51 of these are endemic.. As we stated in a previous paper (López-Ferrari et al., 2008), Hechtia species are incompletely collected, and hence poorly understood. As a result of our explorations seeking Hechtia species to complete the monograph of Mexican Bromeliaceae, we found this spectacular species in bloom. Hechtia lundelliorum was never collected in flower until recently, when we collected it. The species was known only from a fruiting type collection and a few other fragmentary collections.

Figure 1. *Hechtia lundelliorum* in habitat.

We collected and photographed flowering material of *Hechtia lundelliorum* (fig1.) and we include the most comprehensive description of this taxon to date.

Hechtia lundelliorum L.B. Sm., in Britton, N. Amer. fl. 19: 97-98. 1938. **Type:** San Luis Potosí, Tamazunchale, on limestone cliffs and ledges, 225 m, VII-1937 (Female, fruit), C. Lundell & A. Lundell 7265 (HT: MICH!).

1 All Authors: Departamento de Biología, División de Ciencias Biológicas y de la Salud, Universidad Autónoma Metropolitana-Iztapalapa C. P. 09340 México, D. F., e-mail: aes@xanum.uam.mx

Figure 2. *Hechtia lundelliorum:* A. staminate panicle; B, C. staminate flowers.

Plant saxicolous, rosulate herb, forming large colonies, flowering 0.80--1.8 m tall, the rosettes zygomorphic in mature plants, 30–90 cm long. ***Leaves*** numerous, fleshy, very long and pendent; sheaths white to yellowish, broadly oblong to oblong, 5--6 x 3--5 cm, minute serrated especially toward the apical portion, white-lepidote on both surfaces; ***blades*** pendent in mature plants, light green at the adaxial surface, densely white-lepidote on the abaxial surface, linear to narrowly triangular, long attenuated, 60--110 x 1--2 cm, minute serrated at the margin. ***Inflorescence*** terminal, paniculate,

erect to arched and/or pendulous, three divided; ***male inflorescence*** 50--180 cm high, three times branched, peduncle brown, erect, cylindric, 50--80 cm long, 8–12 mm diameter; peduncle bracts light brown linear to long triangular, 25–50 cm long. ca. 1 cm width at the base, entere to minute denticulated at the margisn, densely lepidote on the abaxial surface, glabrous to glabrescente on the adaxial surface,long attenuated much longer than the internodes, but never covering it; reducing their longitude gradually to the apical portion of the peduncle, ***primary branches*** numerous, ascendent, 25--40 cm long, ca. 4 cm width, pediculated, the pedicles flattened, 4--10 cm long, ca. 4 mm width; primary bracts light brown, linear to triangular, 2--25 cm long, 4--6 mm width at the base, long attenuate to acuminate; secondary branches numerous, ascendent to adpressed, 6--13 cm long, pediculated, the pedicles 1--2 cm long; secondary bracts triangular, ca. 2 mm long, ca. 1 mm width, deciduous; terciary branches numerous; flowers numerous per branch, polystichous, rotate to slightly campanulate, ca. 6 mm diameter, short pedicellate, the pedicels filiform, 1.5--2.5 mm long; floral bracts light brown, triangular, ca. 2 mm long, ca. 2.5 mm wide, rounded; sepals brown to light brown with white, slightlr rose to the margins, ovate to triangular, ca. 1.2 x 1.4 mm, with a conspicuous central nerve, glabrous, entere, roundes; petals white, elliptic, nerved, 3.5--4.2 x 2.1--2.4 mm, rounded; stamens subequal, shorter than the petals, ***filaments*** white, laminar, linear-triangular, 2--3 mm long, anthers yellow, oblong, dorsifixed, ca. 1.4 mm long; ovary vestigial, white, ovoid, ca. 1 mm long, ca. 1 mm in diameter. ***Female inflorescence*** 1--1.5 m high, the peduncle dark brown, cylindric, 50–75 cm long, 1.5–2 cm diameter at the base, glabrous; peduncle bracts brown to light brown or green, foliaceous, linear to long triangular, 5--70 cm long, ca. 1 cm wide ate the base, minute serrated at the margins, densely white lepidote on the abaxial surface, glabrous to glabrescente on the adaxila surface, long attenuated, much longer than the internodes, but never covering the peduncle, reducing their longitude gradually to the apex of the peducnle; primary branches numerous, ascendent , 25--35 cm long, pediculate, the pedicles flattened, 7--12 cm long, ca. 2.5 mm wide; primary bracts brown to light brown, linear to triangular, 3–12 cm long, 4.5-5 mm wide at the base, long attenuated to acuminate; secondary branches numerous, ascendent to adpressed, 14--17 cm long, pediculated, the pedicles ca. 2 cm long; secondary bracts triangular, ca. 2 mm long, ca. 1 mm wide, deciduous; ***tertiary branches*** numerous; ***flowers*** numerous per branch, polystichous, rotate to slightly campanulate, ca. 8 mm diameter, short pedicellate, the pedicels 1.4--1.7 mm long; floral bracts light brown, hyaline, ovate to triangular, ca. 1 mm long, ca. 1 mm wide, rounded; ***sepals*** light brown with withe, ovate to triangular, ca. 1.5 mm long, ca. 1 mm wide, acute; ***petals*** white, oblong-elliptic, ca. 3.5 mm long, ca.1.7 mm wide, rounded; ***ovary*** green, ovoid, ca. 3 mm long, ca. 2 mm in diameter, glabrous, ***stigma branches*** three, white, linear, 1--2 mm long, recurved; staminodes white, laminar, triangular, ca. 1 mm long, antheroids white, diminute, inconspicuous; capsule brown to dark brown ovoid to narrowly ovoid, slightly trigonous, 5--7 mm long, 2--3 mm in diameter, glabrous, reflexed; ***seeds*** brown to reddish-brown, fusiform, ca. 1.3 mm long, vca. 0.5 mm in diameter, with a wing that encircle the half of the seed and prolongues in two terminale caudes.

Figure 3. *Hechtia lundelliorum:* A. pistillate panicle; B,C. pistillate flowers and fruits.;

Specimens examined: E. Carranza G. 4616 (IEBx2, UAMIZx2 male); J. Ceja, A. Espejo, A. R. López-Ferrari & A. Mendoza R. 1074 (IEBx2, UAMIZx3 female); R. Ehlers et al. EM982402 (WUx2 female); A. Espejo, A. R. López-Ferrari, J. Ceja, A. Mendoza R. & R. Valdés A. 6964 (UAMIZx8 female); A. Espejo, A. R. López-Ferrari, J. Ceja, A. Mendoza R. & R. Valdés A. 6965 (UAMIZx8 male); Kenoyer & Crum 3940 (AAx2 female); A. R. López-Ferrari & A. Espejo 2001 (UAMIZx3 female); C. L. Lundell & A. A. Lundell 7265 (MICHx2 female); M. Martínez D. 1684 (MEXU, TEX

female); M. Martínez D. 1685 (IEB, MEXU male); E. Pérez C. et al. 4111 (IEB, UAMIZ female); J. Rzedowski 43305 (IEBx2 male); J. Rzedowski 46333 (CIIDIRX2, ENCBx2, MEXUx2 female); J. Rzedowski 46334 (ENCB, FCME, MEXU, TEX, UAMIZ male); P. Tenorio L. 15730 (IEB, MEXU); S. Zamudio R. 6283 (CIIDIR, ENCB, MEXU, UAMIZ female); S. Zamudio R. 6284 (ENCB, MEXU, TEX, USx2 male); S. Zamudio R. 6329 (UAMIZ male); S. Zamudio R. & E. Carranza G. 6470 (IZTA, MEXU, TEXx2, UAMIZx2 female).

Hechtia lundelliorum is a cliff-dwelling species that inhabits high steep faces of limestone rocks in the canyons of the Moctuzema river basin, where it forms extensive colonies (figs. 1-3). The species is known from the states of Hidalgo, Querétaro, and San Luis Potosí in Mexico, growing between 225 and 1250 m elevation. The species is spectacular and showy both vegetatively as well as in flower. The size of the inflorescence, besides the abundance, color, and delicate scent of the flowers (figures 2, 3), makes it a plant with great ornamental potential. Fortunately, the plants of the species grows at inaccessible places and are, in that way, protected from predation and disturbance.

Acknowledgments

We are very grateful to Victor Steinmann for the critical revision of the manuscript and for the improvement of the final english version. Also we thank the curators of AA, CIIDIR, ENCB, FCME, IEB, IZTA, MICH, TEX, UAMIZ, US, and WU for alowing us the use of their herbaria. The photos included were taken by Aniceto Mendoza and Adolfo Espejo.

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Vriesea flava

Harry E. Luther[2]

Figure 1.*Vriesea flava* in cultivation at Marie Selby Gardens, Florida, USA. Photo by Vern Sawyer.

Vriesea flava, recently described, has been in North American horticulture for several decades where it is usually mis-identified as V. carinata 'Yellow' or similar.

It is an easily grown, understated species.

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Introducing *x Aechbergiopsis* 'PITA'

Kerry Booth Tate

Figure 1. *x Aechbergiopsis 'PITA'* in Kerry Booth Tait's garden. Photo by K. Tate.

For many years there has been a bromeliad circulating in Queensland and New South Wales labelled as *Hohenbergiopsis guatemalensis*. I purchased a specimen by that name at a Mt. Coot-tha (Brisbane) Bromeliad Society of Queensland show in 2008. On doing my homework post-purchase, I noticed there were two different-looking versions of this lone species of the genus on the fcbs.org photo index. The photo of the suspect version was submitted by Derek Butcher. His photo was of a plant grown by Ruby Ryde in Sydney, New South Wales in 1996.

The three other photographic submissions were by John Buchanan of Pinegrove Nursery, N.S.W. (three photos), Eloise Beach of Florida, U.S.A., and Robert Read - the latter two published in the BSI Journal, 1982. The plants grown by Eloise are direct descendents of the type specimen of this species. Although the photos are all scanned pre-digital images, depicting various blooming stages with questionable true colour, the photographed Pinegrove plants do look to be the same - particularly the plant in the

Figure 2. *x Aechbergiopsis 'PITA'* in Kerry Booth Tait's garden. Photo by K. Tate.

third image. Ross Little (Pinegrove Nursery, N.S.W.) and Genny Vauhkonen (Jacob's Well, Qld.) have both confirmed that they grow the true Hohenbergiopsis guatemalensis. Therefore, it has been grown in Australia for many years, although not recorded in the Pinegrove "Ledger" and still elusive. Genny also grows the "furphy" plant with the erroneous label - the same as Ruby Ryde's specimen, photographed by Derek.

Figure 3. *Hohenbergiopsis guatemalensis* in Eloise Beach's Apopka, Florida, USA garden. Photo by P. Tristram

In August 2010 Peter Tristram imported a plant of *Hohenbergiopsis guatemalensis* directly from Eloise's Florida garden. Down the track, it will be interesting to compare its inflorescence and growth habit to those which have been in Australia much longer - if they can be found!

Of course, Derek had long noticed the anomalies of Ruby's plant also labelled as "*Hohenbergiopsis guatemalensis"* - as surmised in the accompanying "Uncle Derek Says" link on the FCBS website. He wisely suspected the odd one out to be, more likely, a bigeneric hybrid, and awaited healthy debate with fellow sceptics - of which there was little...until recently.

Figure 4. ***Hohenbergiopsis guatemalensis*** in Eloise Beach's Apopka, Florida, USA garden. Photo by P. Tristram

My plant flowered in January, 2010. The unusual inflorescence looked identical to the same misnamed plant which Derek had photographed. It is definitely not *Hohenbergiopsis guatemalensis*. So the question remained - What is it?

I sent my query to Detective Derek, with accompanying photos of the blooming plant. The case was re-opened. After considerable discussion, it was agreed that our mystery bromeliad is a bigeneric hybrid between *Hohenbergiopsis guatemalensis* and an unknown Aechmea - and deserves a registered cultivar name. Among the Bromelioideae genera, Aechmea best fits the general description below as the most likely other parent genus involved. Geoff Lawn, the BSI Bromeliad Cultivar Registrar, was called in to adjudicate on an appropriate nothogenus classification. Because this is the first bigeneric hybrid recorded with that combination of parentage, the new nothogenus of *x Aechbergiopsis* now exists.

Due to my defence of this pretty hybrid's worth, I was given cultivar naming rights. Considering Derek's complaint about this plant's habit of coming back and biting him, I thought the name *x Aechbergiopsis* 'PITA' appropriate. Those readers who are familiar with contemporary acronyms will know what PITA stands for!

Description: mature plant approx. one metre wide, in an open funnel-shaped rosette. Leaves lime green, becoming rose-flushed in bright light, 6 cms wide, and 60-70 cms. long. Small spines along length of leaves, regularly spaced, with a soft terminal spine. Inflorescence 70 cms high. Upright rhachis densely lepidote, primary and floral bracts pink, petals blue-grey. Hybridiser and origin unknown.

Acknowledgements

Many thanks to Geoff Lawn, Derek Butcher, Ross Little, Peter Tristram, and Genny Vauhkonen for their information and opinions.

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Butcher D. fcbs.org Uncle Derek Says: item # 66: *Hohenbergiopsis guatemalensis* .

Germinated *Tillandsia usneoides* pollen.

Michael Dorris

Pollen is the male non-flagellated, gametophytic cell found in most vascular plants from Cycads to palms; the spore producing ferns and lycophytes are a bit different. Pollen carries half the genetic compliment to the prospective zygote but without the plastid component (chloroplasts and other chromoplasts) of the female ova so it contributes just a bit less or contributes differently than the ova.

In the plant breeding process it is often useful to verify the quality of the pollen used, this is done by germinating the pollen; a varitey of formulas can be used including pure water. For germinating *Tillandsia usneoides* pollen I used the Kwack (1965) formulation because it works well with a number of plants. 10% sucrose, 100 PPM boric acid, 300 PPM Ca(No3)2, 200 PPM Mg SO4, 100 PPM KNO3 in distilled water, Ph to 7.3.

Sometimes 20% sugar is used to balance the presumed higher osmotic pressure of the inner walls of the pistil surface, but Kwack (1965) with 10% sugar works well.

The drawback is this test only shows if the pollen can germinate and as microbes grow on it just as well as pollen an overall figure of the percentage germinated is not accurate as in nature pollen can take days to reach its goal and pollen tube formation is far from synchronous. Microscopic studies (De Proft, 2002) have shown later pollen tubes can take advantage of earlier tubes; physically as it allows a "path" and chemically as the earlier tubes mask the pollen's chemical signature, allowing less compatible pollen to sneak past the pistol's defences; hence the basis for "mentor pollen" i.e. mixing compatible and less compatible pollen together.

Illustrations (opposite)

Tillandsia usneoides, germinating pollen after 5 hours at 28^{O}C, scale in microns. Photos by Michael Dorris .

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Growing Vrieseas in The Ground in Southern California

Jim Wright. Photos by the author.

Thirty years ago it was almost unheard of to grow Vrieseas in Southern California outside of a warm greenhouse. They were thought to be susceptible to our cool winter nights (48-52° F average). As time moved on, trial and error proved that many Vrieseas would do exceedingly well out in the garden. Strong filtered light is very important- in my case a few hours of direct sun doesn't appear to cause any bleaching of the leaves. I never fertilize any of my Vrieseas; they seem to do just fine and, in fact, maybe even better without fertilizer. Flushing the cups frequently will help prevent rotting. My plants get watered with regular sprinklers whenever I water the palms they are intermingled with. During the summer this would be every 5-7 days; much less during the rainy, cool season.

I have found, after using various planting mediums, that volcanic rock (1/2-3/4" diameter) is ideal. The advantages of volcanic rock are:

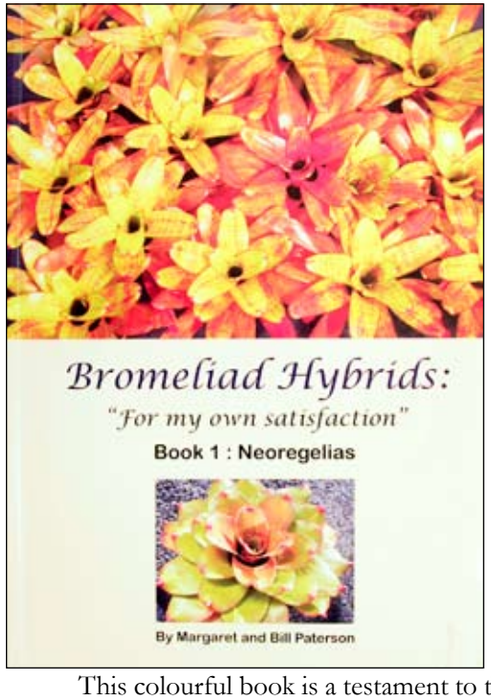
(1) Its ability to hold the plants firmly in place in an upright fashion.
(2) The root zone is well aerated and dries rapidly, avoiding a soggy medium.

(3) A bed of volcanic rock creates a visually appealing Bromeliad bed. Guzmanias are treated the same as Vrieseas and bloom equally well. One of my all-time favorite Vrieseas is *V. philippocoburgii*.

Book Review

Andrew Flower, BSI Editor.

Bromeliad Hybrids: "For my own satisfaction" Book 1: Neoregelias. Margaret and Bill Paterson, ISBN 9780646529899 (pbk) Veteran, Queensland, 2010. Large format paperback 210 x 295mm, 100 pages, 620 colour photographs.



This colourful book is a testament to the hybridizing work carried out over more than thirty years by Margaret Paterson, and is a must-buy for anyone interested in cultivated neoregelias. More than 600 colour photos speak for themselves.

The book is organized well, with hybrids grouped in series (such as the "Red Planet Series" and the "Love Series") and notes on parentage, selection reasons, and naming reasons. There are some notes on cultivation and environmental effects on plant colour. There is a nicely laid out index that shows not only the name of each plant illustrated and its page number but also the date of crossing, seed and pollen parents.

Publication is a family effort with Margaret responsible for the plants and husband Bill taking the photos and registering the cultivars. Cost (including shipping) Australian dollars) $34.99 in Australia, $41.99 other countries. Orders by mail to 212 Sandy Creek Road, Veteran, QLD 4570, Australia; wm_paterson @bigpond.com or from the website www.bromeliad-hybrids.com (note there is only one t in Paterson).

Travels in Iquitos, Peru

Bruce Dunstan

In 2008, prior to the Heliconia Society International Conference in Iquitos, I set off on an adventure with three good friends, Jan Hintze from Darwin and Carla Black and Angel Rodriguez from Panama. The locality we were keen to explore was the mountainous slope of the Andes in Southern Peru, between Cusco up high in the sacred valley down to the world famous Manu National Park, Peru's largest, at around 800m elevation.

I had travelled to this area in 1996 but had only been at the top at Cusco and flown through the peaks of the Andes to land down at an old disused Coca airstrip at the bottom along the banks of the Madre de Dios river. It was here in Manu National Park we were to see amazing animals like Jaguar, Giant otters, Tapir, black and white caiman, sloths and Spider, Howler and Capuchin Monkeys. The flora down in the basin was typically Amazonian with low levels of diversity and similar species to other localities within the huge Amazon River basin.

It was the slope and changing elevation I was keen to explore. This region of southern Peru, while tropical, is occasionally subject to cold blasts of cold air as large cold fronts come up from Chile and Argentina to the south. Temperatures down to 7^0C are common and while we were at Manu in 96 we travelled by boat one morning in 13^0C that felt absolutely freezing with the wind chill of the moving boat. The fact we were 4 hours up the Rio Manu in virgin Amazonian rainforest felt all the more strange considering how cold it was. The Amazon is meant to be a steaming torrid jungle, not chilly!

For this trip we were driving from Cusco in a rented 4WD with a driver, down the steep slopes to the jungle town of Pillcopata, in a day's drive.

Jan and I flew into Cusco after the long flight from Australia and the next morning met up with Carla and Angel. The 3000m that Cusco sits at caused a few issues with limited oxygen in the thin air and any moderate activity, like walking around, can quickly result in shortness of breath. We bought some last minute supplies changed a few dollars with some roadside moneychangers, filled up with diesel and then set off. From Cusco we drove through good roads to the town of Pisac through the previously mentioned Inca Sacred Valley. Ancient Inca ruins lined the road and hillsides. Agricultural terraces made of stone were amazing in the way these ancient people had changed the shape of the steep slopes so they could grow their crops of potato, beans and amaranth with irrigation from the natural springs that pop out of the massive mountains that are the Andes.

Figure 1. *Tillandsia rubella*

The first Bromeliads seen in this region of high elevations were Puya, not a genus I have had any interest in, but there were two species growing along the roadsides. Tillandsias were also spotted as we tried to get as many kilometres as possible towards our night time goal of getting down the hill to Pillcopata. First we had to climb up out of the valley and make our way between the mountains through the pass at 4200m elevation. There was snow on the ground and walking around at this elevation to take a call of nature was really tough going. The sight of small Quechua children tending animals at this location was amazing. What a tough existence.

Figure 2. *Tillandsia buseri*

Figure 3. *Tillandsia confinis*

Once we were through the pass we quickly began descending into the Amazon basin. The road is an amazing sight and I had looked it up on Google Earth prior to the trip to see what we were in for. It has switchback after switchback as the road loses altitude. We saw the same Puyas again as we lost the altitude we had gained at the pass. Growing at the high elevations were many Tillandsia walteri, a spectacular tank type with a bright pink paddle-like inflorescence. These plants grow on the large rocks along the side of the road. A large blue grey striped *Agave sp*. is also common at this elevation. We stopped at the town of Paurcotambo for a quick cup of coffee for some, while Carla and I tried the coca tea. In Cusco this is served as tea bags while in the roadside restaurant at Paurcotambo we had just shredded loose leaves. Unsure of how much we should use we opted on the heavier strength just in case we could get a better result in coping with the elevation and lack of oxygen we were experiencing. Feeling much refreshed we set off further along the road.

Travelling among the dry stony fields that served as people farms, we were constantly heading down hill, losing altitude and as we did we began to see more small stunted trees and the sky began to get cloudier. We were entering the elfin cloud forest that lines the upper elevations of the Amazon basin. This forest is constantly wet and cloudy as winds blow the hot humid air from the lowlands east and when it hits the Andes Mountain range it is forced up by the mountains where it drops its moisture. It is always wet and windy.

Figure 4. *Tillandsia truncata*

As we were descending we started to notice bright flowers in and amongst the trees. Oreocallis, a shrubby tree with pink flowers, is related to the bright red Tree Waratah that grows in Nth Qld rainforests. Also common were bright red tubular flowers of Ericaceae related to blueberries and Azaleas. The plants have developed bright tubular flowers to attract hummingbirds to pollinate them. Also growing in this cool windswept forest were some spectacular Tillandsias. Tank types in flower were *Tillandsia buseri*, with a bright red inflorescence nearly a meter tall with white flowers, also growing side by side was *T. rubella*, its inflorescence was just as spectacular bright pinkie purple with blue flowers arching out and hanging over to 500mm long.

Also growing at this high elevation stop were pink flowered Melastomes, related to Tibouchinas that are commonly grown in Australian gardens, as well as a very attractive upright sagitate Anthurium with heavily textured leaves. Plants from this elevation would be very difficult to cultivate as they have very little range in temperature where they naturally grow. It is the elevation that moderates the temperatures, probably never below 16^0C and never above 24^0C. If they were grown without climate controlled conditions they would be unhappy if it ever got cold or hot.

We also drove past tall flowering *Guzmania gloriosa* with yellow and red inflorescences held up above their dark green leaves, growing on the impossibly steep slopes. We the came across an amazing site to see what appeared to be a bridge appear out of the clouds from nowhere. We stopped again and took photos and back into the 4WD

The "Bridge to Nowhere" (above) and an approaching truck (below)

Figure 5. *Guzmania vinacea*.

it was quickly solved as we headed into a tunnel bored straight into the rock of the mountain. The entrance was dripping in moisture from the mountain and covered in Pitcairnia plants like a green carpet. Slowly we crept along in the dripping dark when suddenly we appeared out the other side of the tunnel and out on to the bridge high above the forest below. I should mention at this time the road down to Pillcopata is very narrow and unpaved. Trucks and buses come up one day and down the next, as it is very narrow. We were in a 4WD so were able to do what we wanted although at every blind corner our driver was on the horn to let any other drivers know we were coming. Plants that are at eye level are actually up trees 10-20m tall and the slopes above the road were way too steep to attempt to go more than 2m up as losing traction or your footing would result in a quick slide and ending up in a heap on the road or even worse going over the other side and getting to the bottom of the valley the quick way. A number of times we tossed rocks over the edge and most times we could never hear them hit anything below.

Figure 6. *Mezobromelia pleiosticha*

Figure 7. *T. cf. stenoura with Carla Black.*

The road is also unerringly the same gradient as it snakes along and around any terrain changes. From a distance it looks like a snake working its way down the valley along a very regular angle of descent. We noticed a second road is being built below the original so traffic won't be so constrained by 24-hour periods.

After running into the odd truck, which meant stopping and reversing back to find somewhere we could pull off the road and let the truck pass, allowed me to get out and start looking at plants. At the higher elevations the trees were loaded in bright red-foliaged Tillandsias probably an adaption to the high UV levels the plants experience at that elevation. We saw plenty of *Tillandsia truncata*, a large tank Till with a meter long tripinnate pink inflorescence that arched out sideways.

Tillandsia confinis, another 'tank' only half the size with a bright orange, branched inflorescence as well as *T. laminata* with a bright pink upright tripinnate spike, were seen. Also growing at this altitude was *Guzmania morreniana* with its tall thin spikes topped with a maroon club like inflorescence. The highlight in this elevation for me was seeing *G. vinacea* in flower. This plant will one day be a fantastic flowering houseplant, mass-produced in nurseries. I've seen images of it being multiplied in one European nursery. The foliage is a dark green with wine red undersides. The cylindric inflorescence is also a wine red colour with creamy yellow flowers.

As we headed down the hill and lost more altitude we saw more and more species. Large flowering examples of *Guzmania squarrosa* with bright red and yellow bracts were growing in the same trees as Mezobromelia pleiosticha. These plants had 1m long red

Figure 8. *Heliconia robusta.*

spikes. Also at this stop were *Werauhia ringens* and another large Tillandsia sp with a tall 1.5m branched spike that may have some affinity to *Tillandsia stenoura* although it was much thinner and sparser to others I have seen.

While all this Bromeliad action was unfolding we were also seeing many Heliconia species, Fuchsias, Orchids, Aroids, Bomareas and notably different coloured Calceolarias. As I get older my tunnel vision of plants is diminishing. I kid myself that I'm becoming a generalist, but occasionally the tunnel vision returns, usually when I see a Heliconia species new to me in the wild.

The rich diversity was intoxicating - the change in elevation allows speciation to occur over time. The sheer number of species growing so close to each other in such a short distance is incredible. This diversity is something you don't see when you get to the bottom of the hill in the Amazon basin.

To make a long day shorter we eventually ran out of light and had to continue down the road using our headlights which seemed safer as trucks could see us coming except on the blind corners. We eventually made town and quickly found a great family run establishment that provided rooms, breakfast, dinner and as much beer as we could drink for $20 a night. We could also access wireless internet from across the street for free or walk across and pay 1 Sole, $0.50 to use their computers. This was Pillcopata, a logging frontier town that is becoming an eco tourism hub for the Manu National Park that is nearby.

We spent another couple of days looking for plants in the surrounding forests, which were being preserved for tourism. The area is rich and we found some beautiful Heliconia species. One notable plant was *Heliconia robusta*, discovered in 1909 and to our knowledge was not being cultivated anywhere in the world - needless to say it is now in one of the Heliconia Society International Conservation Centres.

Seeing Bromeliads in the forests around Pillcopata was very tough, as most plants would be growing up in the tall canopy. The only way you see them closely is when they fall to earth after storms or when the whole tree falls. Away from the light they die quickly on the forest floor or are eaten by the wildlife.

We headed back up the 'hill' to Cusco and continued on to Machu Pichu, as most tourists do when visiting Peru, most satisfied with what we had seen on the Paucotambo to Pillcopata road. We then flew up to Iquitos for our conference and post conference trip up the Rio Napo by boat. Another story in the making.

I would like to thank my travelling companions Carla, Angel and Jan for allowing me to jump out at the strangest times to look at plants they had no or only a passing interest in. I would also like to thank Dr Harry Luther for giving his opinion of what my average photographic skills captured in my images.

Bromeliad Society of Central Florida Show, May 2010

Charles Birdsong, Affiliated Shows Chair. Photos by Marty Folk.

Lissa Robinette's *Tillandsia capitata* 'Peach' [aka. 'Rio Hondo' -Ed]

John Baordman's *Cryptanthus microglazioui*

Show held at Fashion Square Mall on May 7, 2010. Exhibitor John Baordman won the Mulford B. Foster Award with a multiple *Cryptanthus microglazioui*. The 12 year old clump of 40 to 50 plants is grown outside under 75% shade cloth. The Morris Henry Hobbs Best of Show Artistic was won by Lisa Robinette with a *Tillandsia capitata* 'Peach' in a peach glazed container. The Show had 72 entries from 13 exhibitors.

EVENTS CALENDAR

Australia

October 9-10, 2011. Bromeliad Society of Australia Spring Show, Burwood RSL

October 14-17, 2011. Bromeliad Society of New South Wales Spring Show, Concord Senior Citizens Centre, 9-11 Wellbank Street Concord.

United States of America

April 29-30, 2011. 30th Annual Sarasota Bromeliad Society Show & Sale at Marie Selby Botanical Gardens, 811 So. Palm Avenue, Sarasota FL 34236. Info contact 941-538-2174 or turtle1657@yahoo.com

May 7-8, 2011. La Ballona Valley Bromeliad Society, 56th Annual Show & Sale at the Culver City Vetrans Complex, 4117 Overland Ave., Culver City CA 90230. Show hours: Sat. 10-5, Sun 10-4. FREE admission & parking.

November 4-6, 2011. Florida East Coast Bromeliad Society hosting the Florida Extravaganza at the Plaza Spa and Resort in Daytona Beach. The Cryptanthus Society's International Show will be held at the same venue on the same dates.

September 24 - October 1, 2012. 20th World Bromeliad Conference, Caribe Royale Hotel, Orlando, Florida. Contact bbout@aol.com

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.