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Covers

Our covers this month represent two sides of our interest:

Front— Bromealids growing in scrubland on Wayqecha Reserve in Peru. The land is recovering after conversion from farmland. Photo by Steven Heathcote, article page 245.

Back— Bromeliads growing in a private garden in Whangarei, New Zealand. Photo by Colin Symonds, article page 272.

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Editorial

Conservation - do we really give a damn?

One of the purposes of the BSI (that means you, the members - there is no one else involved) is to promote and maintain interest in the preservation of bromeliads. We now have a "conservation fund" set up, in 2008, to which you have been invited to contribute:

2008 conservation contributions $595
2009 conservation contributions $182
2010 conservation contributions $313

That is not a lot of interest in contributing to the BSI conservation fund.

In this Journal in 2008 I offered to donate to the conservation fund 5% of my nursery's sales of seed-grown endangered species to the BSI conservation fund if the BSI would put a list of qualifying species for this purpose on its website. There was not a single response to me. I'm pretty small commercially, but since then I have shipped hundreds of *T. kammii, T. hondurensis*, and *T. xerographica*. It is apparent there is not a lot of interest in receiving contributions to conservation, either.

The BSI Conservation Chair has been vacant for many months. Anybody prepared to stand up?

The BSI does not generate operating profits sufficient to fund significant conservation efforts - a recent grant of $500 to the German Bromeliad Society for ex-situ conservation effectively halved our conservation funds received over the past three years. Your Journal is a significant force in bromeliad conservation in virtue of its continuing publication of new species and their habitats, and highlighting instances where native populations are endangered. Don't let this go!

We can dream of getting out and becoming a force helping conserve bromeliads in their native habitats, but we have little money to do this. I think that the only way we will encourage more conservation funding will be to initiate specific projects that donors can contribute to. For example, please read the article on page 267 outlining the shocking destruction of *Tillandsia xerographica* plants by commercial operators in Guatemala. A European mission to Guatemala in 2002-3 tried to help the situation - perhaps BSI could go down and monitor the current situation? There are many conservation projects going on in South America, perhaps someone could recommend some that BSI could align itself with?

Finally, farewell. This issue concludes my tenure as Editor.

Andrew Flower

Amazonian Aechmeas

Harry E. Luther[1]

Two rather similar aechmeas are shown below. Both are from Amazonian South America, both have clusters of blue flowers and both are former "Streptocalyx" species. *Aechmea poitaei* has been in cultivation for some time from Peru and Ecuador. Some forms resemble the white-flowered *A. nidularioides*. *A.brachystachys* is a relatively new import from Peru via Europe. Its lateral branches are a bit more exposed than those of *A. poitaei*. Both species are easily grown given space and ever-warm conditions.

Figure 1. *Aechmea poitaei* flowering at the Marie Selby Botanical Gardens. Photo by Phil Whitman.

Figure 2. *Aechmea brachystachys* flowering at Gardens by the Bay, Singapore. Photo by Khin Maung Soe.

1 Gardens By The Bay, National Parks Board Headquarters, 1 Cluny Road, Singapore 259569.

The Bromeliaceae of Wayqecha Research Centre, Manu National Park, Peru

S. Heathcote and J.A.C. Smith[1]

Abstract

Presented here are 22 species from 7 genera found in the 563ha of the Wayqecha Biological Station in the Peruvian Andes as the result of fieldwork over three years. The reserve is situated in tropical montane cloud forest, rich in epiphytes.

Figure 1. *A view of the Wayqecha Reserve, looking towards the Amazon.*

Introduction

The eastern slope of the Andes is the most biodiverse place on earth. Where the Andes meet the Amazon unique conditions are created, with a rapid change in environment in a small geographic space. The cloud forests formed as warm wet air comes of the Amazon and hits the Andes are especially rich in epiphytes. While the Bromeliaceae of Ecuadorian, Bolivian and Venezuelan cloud forests have been well documented, those of southern Peru are less documented, despite the popularity of the area for tourism. Here we present data from a new field station established in the cloud forests on the eastern slope of the Andes.

1 University of Oxford, Department of Plant Sciences.

Figure 2. *Tillandsia patula* seen from the canopy walkway.

Figure 3. *Tillandsia rubella* in the cloud forest.

The Wayqecha Biological Station is a 563ha private reserve situated in tropical montane cloud forest in Southern Peru (fig. 1) (see http://www.acca.org.pe/). The station is located within the buffer zone of Manu National Park, and borders the zone of strict

Figure 4. *Guzmania squarrosa* is restricted to riparian zones.

protection. Outside the park much of the cloud forest is threatened through increasing development of roads and towns, and through mineral and oil exploration.

The reserve is composed of a mosaic of habitats. The three most common are the tropical montane cloud forest, Puna grassland and montane scrub. The montane scrub is abandoned pasture from agriculture. The reserve boundaries are defined on two sides by rivers, which meet at the low point of the reserve, and the forested riparian zone provides another habitat type, albeit one which is prone to landslides.

Figure 5. *Pitcairnia lechleri* is common in open scrubland.

Figure 6. *Guzmania squarrosa* in habitat.

Materials and Methods

The lowest part of the reserve is at 2350m a.s.l. and the highest part is 3500m a.s.l. Most of the reserve has a steep gradient and many areas are prone to landslides. The annual mean temperature is 12.5°C and the mean annual precipitation is 1705mm (Girardin et al., 2010). The area is also immersed in clouds on a daily basis, and dew deposition may contribute the same amount of water gain, as well as shielding plants from solar radiation. The reserve also has a distinct seasonality, with cooler temperatures and lower rainfall from May to September, during the Austral winter.

Work by Italo Trevino Zevallos in November 2007 had identified nine Bromeliaceae species present on the reserve. Further work from May-August in 2008, 2009 and 2010 by the author and several field assistants collected and identified further species. Specimens were identified from all trails, including a 50m canopy walkway, and two permanent 1ha research plots. New specimens were deposited in the herbarium of the National University of San Marcos, Lima (LIM) and duplicated in the Oxford Univeristy herbarium (OXF).

The taxonomy follows Luther (2008), except for *Tillandsia patula*, where we follow Grant (Grant, 1993) in considering this species a member of the genus Tillandsia and not Vriesea.

Results

The study identified 22 species of Bromeliaceae within the boundaries of the reserve (table 1), with one variety and two natural hybrids. The subfamily Tillandsioideae is predominant with 19 of the 22 species.

Discussion

The reserve is rich in species which are unique to cloud forest. The dominant species on the reserve are *Racinaea penduliflora*, *Tillandsia complanata* and *T. fendleri*. These species grow in all habitats on the reserve, and tolerate both high and low light, with all three have leaves which vary in colour from deep red to green depending on ambient light.

The Puna grassland is not rich in bromeliads, the only bromeliad being *Puya membranacea*, a species endemic to the state of Cuzco. Other species of Puya are found in nearby Puna grassland, including *Puya leptostachya*, but none were found within the reserve itself. *Pitcairnia lechleri* is another terrestrial species restricted to the montane scrub. Three species and the natural hybrids were found only in the scrub (*Racinaea tetrantha* var. *aurantiaca*, *R. schumanniana* and *Tillandsia buseri*).The other species are found throughout the reserve, in both the primary and secondary forest.

One group of species, not strongly associated with the cloud forest, is found exclusively in the riparian zones below 2600m composed primarily of Guzmania species (*Guzmania besseae*, *G. squarrosa*, *G. atrocastanea*) besides *Mezobromelia pleiosticha* and *Racinaea ropalocarpa*.

Taxon	Author
Subfamily Bromelioidea:	
Greigia vilcabambae	H. Luther
Subfamily Pitcairnioideae:	
Pitcairnia lechleri	Baker
Subfamily Puyoideae:	
Puya membranacea	L.B. Smith
Subfamily Tillandsioideae:	
Guzmania besseae	H. Luther
Guzmania gloriosa	(André) André ex Mez
Guzmania squarrosa	Mez & Sodiro) L.B. Smith & Pittendrigh
Guzmania atrocastanea	H. Luther
Mezobromelia pleiostich	(Grisebach) J Utley & H. Luther
Racinaea penduliflora	Gouda & Manzanares
Racinaea ropalocarpa	André) M.A. Spencer & L.B. Smith
Racinaea schumanniana	(Wittmack) J.R. Grant
Racinaea seemannii	(Baker) M.A. Spencer & L.B. Smith
Racinaea tetrantha var. *tetrantha*	(Ruiz & Pavón) M.A. Spencer & L.B. Smith
Racinaea tetrantha var. *aurantiaca*	(Grisebach) M.A. Spencer & L.B. Smith
Tillandsia biflora	Ruiz & Pavón
Tillandsia aff. buseri	Mez
Tillandsia complanata	Bentham
Tillandsia fendleri	Grisebach
Tillandsia rubella	Baker
Tillandsia stenoura var. *stenoura*	Harms
Tillandsia stenoura var. *mauroi*	Gilmartin
Tillandsia superba	Mez & Sodiro
Tillandsia wurdackii	L.B. Smith
Tillandsia fendleri x *complanata* (nat. hybrid)	
Tillandsia stenoura x *complanata* (nat. hybrid)	
Tillandsia patula	(Mez) L.B. Smith

Table 1. Species at Wayqecha Research Centre.

Figure 7. A natural hybrid of *Tillandsia complanata* and *T. fendleri*. One lateral inflorescence has continued growing after the main plant has died.

Three species are found only in the primary forest, and are rarely, if ever, found in the secondary forest (*Guzmania gloriosa*, *Tillandsia biflora* and the terrestrial species *Greigia vilcabambae*). *Greigia vilcabamabae* formed dense stands in the understory of well developed forests, make up almost 100% of the ground cover.

Zevallos (2008) reports two species from the reserve which were new records for the state of Cuzco (*Guzmania besseae* and *G. squarrosa*). With the additional species collected subsequently I report that *Greigia vilcabambae*, *Mezobromelia pleiosticha*, *Racinaea ropalocarpa*, *Tillandsia superba* and *T. wurdackii* are new records for the state of Cuzco based on the Flora Neotropcia and the TROPICOS database. *Guzmania gloriosa* is a new record for Peru. *G. gloriosa* is recorded as present in Ecuador and Bolivia, and it seems likely that the new record from Peru represents infilling of a patchy distribution, rather than a significant range expansion.

The reserve also contains several examples of natural hybridization between *Tillandsia complanata* and both *T. fendleri* and *T. stenoura*. These were identified by the presence of multiple lateral inflorescences, as well as one terminal inflorescence, of which both simple and once-branched examples were found.

To aid *in-situ* identification of the species of bromeliad on the reserve a rapid colour guide is being produced in collaboration with the Field Museum, Chicago and a full colour identification guide is also being produced. The Wayqecha Biological Station has a strong education program and it is hoped this material will be useful to all visitors to the centre.

Figure 9. *Sunset over the Wayqecha Reserve.*

Acknowledgements

The author is grateful to the Amazon Conservation Association (ACCA), and in particular Adrian Tejedor and Daniel Hermosa, for supporting this research. Thanks also given to my field assistants, Guido Vilcauama Fernandez, Guilmar Damien Ramos, Liz Ethington, Sally Scudder and Payden Sra and project co-ordinatior Javier Silva Espejo for their invaluable help. For help with identifications, many thanks are due to Eric Gouda, Walter Till and Harry Luther.

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Aechmea 'Pseudonudicaulis' a man-made hybrid?

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

Figure 1.*Aechmea* 'Pseudonudicaulis' aka *"Billlbergia sp.* Brazil, Seidel 1047" at Utrecht University Botanic Gardens.

Some specimens are travelling from one Botanic Garden to another without a proper name and that was how we got a plant named "*Billbergia sp.* Brazil, Seidel 1047". How it came to Europe is not clear to me, but we got it from B.G. Vienna (Austria) who in turn got it from B.G. Halle (Germany).

1 Curator, Utrecht University Botanic Gardens

Figure 2. *Aechmea* 'Pseudonudicaulis' aka "*Billlbergia sp*. Brazil, Seidel 1047" at Utrecht University Botanic Gardens.

I missed the first time it flowered in 2009/2010, but in January this year it was flowering again and it was obviously not a Billbergia, but seems to be intermediate between *Aechmea nudicaulis* (L.) Grisebach (1864:593) and *A. comata* (Gaudich.) Baker (1879:234). Walter Till suggested I check the publication of *A.pseudonudicaulis* Leme (1987:394, fig.p.401) that was described in *Bradea* 4(50): 394. The holotype was said to be collected in Espirito Santo, Baixo Guandu, by Alvim Seidel 1074. Flowered in cultivation on 20 Aug. 1987 (Holotype HB n.s.).

Harry Luther (2010) in his binomials, considers this closer to *Aechmea comata* and thus Ortgiesia rather than it being in the sub-genus Pothuava as suggested when this taxon was described.

Elton Leme was so kind as to scan the *Bradea* publication for me, because his article was somehow missing between all my *Bradea* xerox copies. When I got all the information together, the collector number turned out to be the same collector and number as the holotype and the description and drawing proved that it is the same plant.

Working with the plant I got the feeling that it is a hybrid and therefore I decided to test the pollen. Each anther only contained pollen in very small amounts and very irregular in form and size. A very low percentage and only the largest pollen germinated (growing of a pollen tube) on an Agar plate, indicating that this must be a hybrid.

Aechmea comata is from Santa Catarina and adjacent Rio Grande do Sul, Brazil and it is not likely to grow in Espirito Santo, where it could have made a natural hybrid with *A. nudicaulis*. Elton told me that he did not find any thing like *A. pseudonudicaulis* in the type area (Baixo Guandu), but this area deserves to be explored more because it is not very well known.

For now I think it would be the best to consider *Aechmea pseudonudicaulis* to be a man made hybrid at the nursery of Alvim Seidel and to remove it from the species list and add it to the BCR as *Aechmea* 'Pseudonudicaulis' (*A. nudicaulis* x *A. comata*). Maybe it got mixed up with an other plant or maybe it was a victim of an accidently label exchange that can happen in nurseries and gardens. It is a beautiful middle sized fast growing Aechmea with a very nice colored inflorescence. For the hybrid lovers a plant worth growing. The petals however are not really bright yellow, but seems to have some blue in it (not clearly seen in the pictures), making the color some what dirty yellow, something you also see in some *A. comata*-like clones we grow.

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Alcantarea compacta, a New Species from the Grasslands on Rocky Soils of Minas Gerais State

Elton M. C. Leme & Otávio B. de C. Ribeiro. Illustrations by E. M. C. Leme

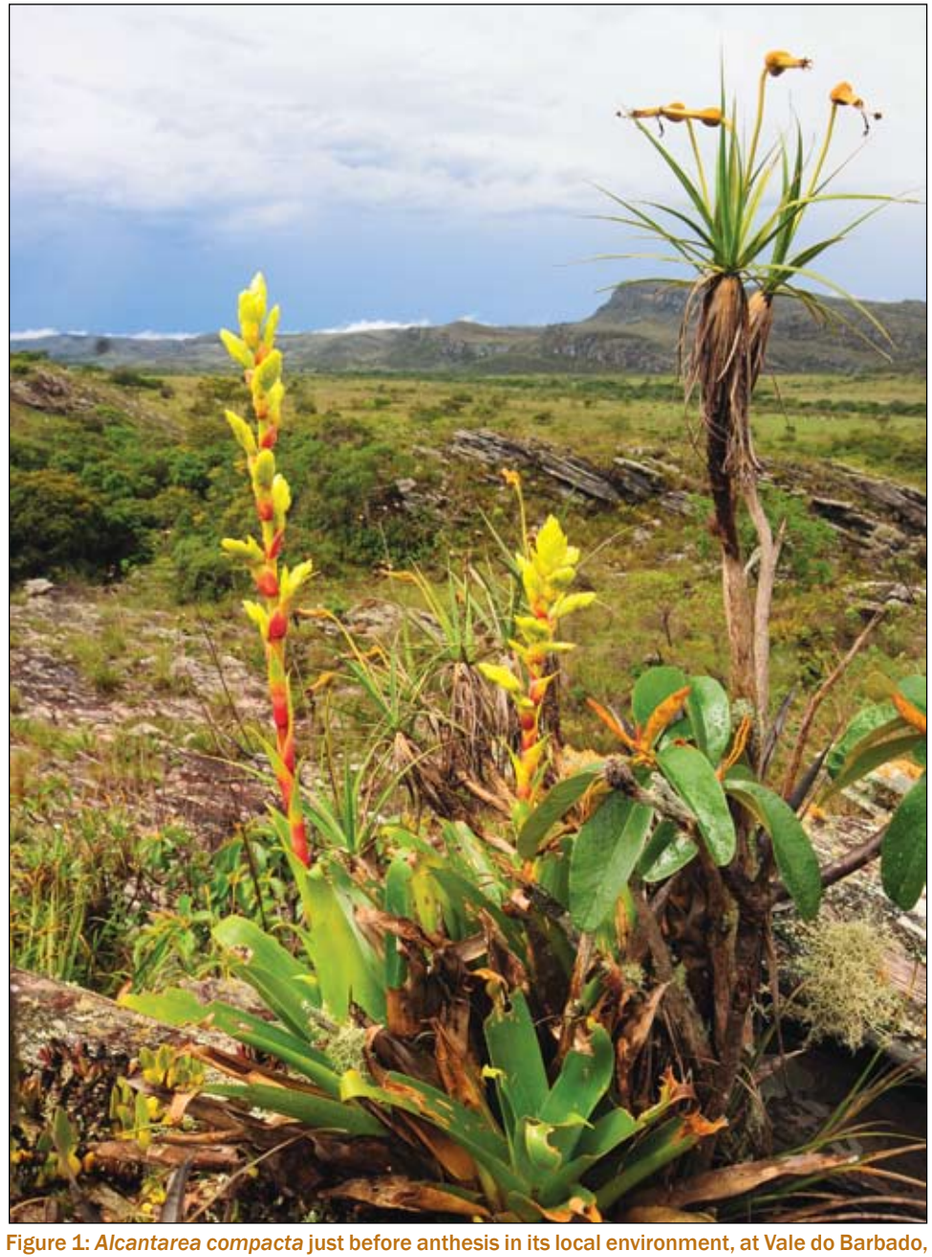

Figure 1: *Alcantarea compacta* just before anthesis in its local environment, at Vale do Barbado, Santana do Pirapama, Minas Gerais.

Figure 2: Habit of *Alcantarea compacta* which completed the inflorescence development in cultivation.

Alcantarea is a comparatively small-sized tillandsioid genus comprising some 30 known species. It is endemic to Brazil and lives in rocky environments that stretch from the north coastal region of São Paulo state, Southeastern Brazil – the southernmost limit, with 1 taxon or 3.7% of the species – to the Northeastern state of Bahia – the Northernmost limit, with 2 taxa or 7.4% of the species. The diversity center of the genus is concentrated in the southeastern states of Rio de Janeiro (with 12 taxa or 44.4% of the species), Minas Gerais (with 11 taxa or 40.7% of the species) and Espírito Santo (with 6 taxa or 22.2% of the species).

The species of Alcantarea are exclusively saxicolous or rupicolous, living mostly in sun-exposed areas in rocky escarpments in the domain of the Atlantic Forest (with 23 taxa or 85% of the species). A few species, like *A. burlemarxii* (Leme) J.R. Grant, *A. duarteana* (L.B. Sm.) J.R. Grant, *A. hatschbachii* (L.B. Sm.& R.W. Read) Leme, and *A. turgida* Versieux & Wand., grow in outcrops in the grasslands on rocky soils or "Campos Rupestres" that form the usually high-altitude landscape of the Serra do Espinhaço range, standing out from the savannas domain in Minas Gerais state. The new species described below is an addition to the "Campos Rupestres" flora.

Alcantarea compacta Leme & O. B. C. Ribeiro, sp. nov. **Type:** Brazil, Minas Gerais, Santana do Pirapama, near the border with Congonhas do Norte, Vale do Barbado, 1,207 m elev., 18º53'05"S 43º45'04"W, ca. 26 Nov. 2010, E. Leme 8478, O. Ribeiro, R. Oliveira & C. Oliveira (Holotype: RB, Isotype: HB).

Ab A. duarteana (L.B. Sm.) J.R. Grant, cui affinis, laminis foliorum brevioribus latioribusque, apice acuminatis, bracteis pedunculi supernis ovato-lanceolatis acuminatis, brevioribus, inflorescentia breviore et bracteis floriferis orbicularibus latioribusque differt.

Plant rupicolous, stemless, flowering 60-80 cm high. ***Leaves*** 17 to 20 in number, coriaceous, densely rosulate, suberect, forming a funnelform rosette; ***sheaths*** ovate, 12-17 x 9.5-10 cm, inconspicuously lepidote, green toward the apex, strongly coriaceous; ***blades*** narrowly subtriangular-lanceolate, not narrowed at the base, 15-24 x 5-6 cm, green, inconspicously and sparsely white-lepidote mainly adaxially to glabrous, nerved, suberect with recurved apex, apex acuminate. ***Peduncle*** 30-45 cm long, 0.8-1 cm in diameter, erect, glabrous, green; ***peduncle bracts***: the basal ones subfoliaceous, the upper ones ovate-lanceolate, acuminate, suberect toward the apex, its basal portion enfolding the scape and without any notable water-holding capacity, distinctly exceeding the internodes, 7.5-8 x 2.5-3 cm, completely green or more often red toward the base and green at the apex, glabrous, covered by a oleaginous substance. ***Inflorescence*** shortly paniculate, densely bipinnate, 22-30 cm long (including the terminal branch), 11-13 cm in diameter, erect, rachis nearly straight, green, glabrous, 0.5-0.7 cm in diameter, internodes 1.5-3 cm long; primary bracts distinctly exceeding the stipes but all shorter than the branches, without notable water-holding capacity, the basal ones resembling the upper scape bracts, the upper ones broadly ovate to orbicular, apex acute and apiculate, 2.5-4.5 x 2.5-3 cm, suberect, glabrous abaxially, inconspicuously and sparsely white lepidote adaxially, covered by an oleaginous substance, completely green or red at the base and green toward the apex; ***branches*** 10 to 12 in number (including the terminal one), 1.5-3 cm apart, the lateral branches 6-9 cm long, erect or nearly so at the base and subspreading toward the apex, subdensely to densely flowered at anthesis, with 4 to 6 flowers, bearing sterile bracts at the apex, rachis geniculate, slightly angulose, 3-8 x 3 mm, glabrous, green, stipes 7-30 x 5 mm, erect or nearly so, slightly complanate, green, glabrous, ebracteate, the terminal branch erect or nearly so, similar to the lateral branches, subsessile, ca. 8-flowered; ***floral bracts*** orbicular or nearly so, 20-27 x 25-27 mm, apex rounded, incurved and appearing cucullate, greenish-yellow toward the apex and yellowish-green at the base, glabrous or nearly so, equaling 1/2 of the sepals length, strongly convex, carinate or the upper ones obtusely if at all cari-

nate, covered by an oleaginous substance. ***Flowers*** distichous, divergent, not secund, slightly fragrant, 70-86 mm long (with extended petals), covered by an oleaginous substance, pedicels 7-9 x 6 mm, subcylindrical, green, glabrous; ***sepals*** slightly asymmetric, obovate, apex rounded, 25-29 x 12-15 mm, glabrous, free, ecarinate, green at the base and yellowish-green toward the apex, cymbiform, thinly coriaceous, covered by an oleaginous substance; ***petals*** sublinear, apex obtuse-emarginate, 60-79 x 7.5 mm, golden yellow, strongly spirally recurved at anthesis, completely exposing the stamens, becoming pendent-flaccidescent afterwards, bearing at the base 2 linear, obtuse to irregularly bidentate, 10-17 x 1.5 mm appendages adnate to the petals for 8-12 mm; ***stamens*** completely exposed at anthesis, erect; ***filaments*** terete, white, the antesepalous ones free, the antepetalous ones shortly adnate to the petals; ***anthers*** linear, 8-10 mm long, filiform at anthesis, fixed near the base, distinctly shorter than the petals; ***pollen*** narrowly ellipsoid, sulcate, exine broadly reticulate, lumina subrounded, muri narrowed; style slightly shorter than the petals, white; *stigma* conduplicate-spreading, blades slightly contorted with recurved apices, densely papillose, white, ca. 1.5 mm long. ***Capsules*** unknown.

Paratype: Brazil, Minas Gerais, Congonhas do Norte, on the border with Santana do Pirapama, border of the plateau, ca. 1,450 m elev., 18º53'00"S 43º43'27"W, 18 Sept. 2010, E. Leme 8446, J. A. Siqueira Filho & O. Ribeiro (RB).

Figure 3: Close up of the flowers of *Alcantarea compacta*, highlighting the orbicular floral bracts.

Figure 4: A typical *Alcantarea duarteana*, from the neighbouring county of Diamantina, with its longer and narrower leaves and more elongated inflorescence.

Alcantarea compacta is morphologically related to *A. duarteana* which grows in the neighbouring county of Diamantina. However, *A. compacta* differs from it by the shorter (15-24 cm vs. 60-70 cm long) and broader (5-6 cm vs. 3-4 cm wide at the base) leaf blades with acuminate apex (vs. long attenuate-caudate), ovate-lanceolate and acuminate upper peduncle bracts (vs. foliaceous, narrowly triangular, long-attenuate and caudate) which are shorter (7.5-8 cm vs. 20-30 cm long), shorter inflorescence (22-30 cm vs. 40-45 cm long) and by the orbicular floral bracts (vs. ovate), which are broader 25-27 mm vs. 20-21 mm wide).

The epithet of this new species is a reference to its compact leaf rosette due to the comparatively shorter and densely rosulate leaves, which is a striking distinctive character of A. compacta.

Alcantarea compacta was discovered as a rupicolous species in the "Campos Rupestres" outcrops at the border of the counties of Santana do Pirapama and Congonhas do Norte, not far from the well known Serra do Cipó National Park. It lives in completely sun-exposed sites along higher and steep parts of the plateau border, ca. 1,400 m high, as well as on less inclined rocky surfaces along the internal valleys, ca. 1,200 high. Individuals are sparsely distributed in the species range, with adult specimens producing abundant basal adventitious offsets, which is a characteristic for the genus (Leme, 2007). Other species observed sharing the same environment are *Aechmea bromeliifolia* (Rudge) Baker, *Dyckia* sp., *Encholirium subsecundum* (Baker) Mez, *Tillandsia streptocarpa* Baker, *Vriesea oligantha* (Baker) Mez, to name few, as well as other conspicuous species like Barbacenia sp. (Velloziaceae), *Cattleya caulescens* (Lindl.) H.G. Jones, and *Pilosocereus aurisetus* (Werderm.) Byles & G.D. Rowley (Cactaceae).

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We thank the botanist José Alves Siqueira Filho and the Secretary of Culture of the Prefecture of Congonhas do Norte, Cloves Oliveira, and Rafael de Oliveira for their valuable field support and companionship during the expeditions to Congonhas do Norte and Santana do Pirapama.

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JOURNAL OF THE BROMELIAD SOCIETY INDEX

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Covers are listed as if numbered. Page numbers in **bold face** refer to photos or illustrations, new species are shown under the appropriate genus in both *italics* and **bold face.**

Tillandsia xerographica in Guatemala

Lieselotte Hromadnik[1]

Originally published in Die Bromelie 2005(2): 57–60, translated by Uwe Scharf.

Summary

Tillandsia xerographica is one of seven Tillandsia species protected by the CITES convention. In recent years, after discovering imports containing plants extracted from the natural habitat, the EU plant commission put a ban on the import of this species. In 2003 a Dutch CITES commission travelled to Guatemala to gain information about the status of *T. xerographica* in nature and in Tillandsia nurseries. The author, known as a bromeliad specialist, was asked to join this commission. Seven of 22 nurseries licensed to produce *T. xerographica* were visited by the commission. Unfortunately, only a few nurseries were able to demonstrate the amount of produced *T. xerographica* could be covered by their stock of mother-plants. Trading of illegally collected specimens was still frequent. In the habitat of *T. xerographica* the University of Guatemala did a screening survey in the last two years. The results showed an average population density of one to seven plants per km². *T. xerographica* has to be classified as extremely threatened by extinction. Massive in-situ and ex-situ protection programs like bringing back seeds into nature could possibly prevent this.

Tillandsia xerographica was added to the Appendix II of CITES (in total seven species of Tillandsia) because the natural populations of this decorative species is now threatened after being collected for some tens of years for commercial purposes in Guatemala.

Officially, 190 tons of tillandsias were exported from Guatemala in 1996. The Netherlands were the leading exporter worldwide, followed by the USA and Japan, where the largest quantities went to. In the years 1999 and 2003 a large amount of plants collected in the wild were discovered in several huge import posts of some thousand *Tillandsia xerographica* plants, that were declared as artificially propagated. These plants were confiscated. In August 2003 the plant committee of the EU put a ban on imports of this species. Obviously, trading in this species was the reason of declining populations in the wild. A Dutch commission was created and sent to Guatemala to gather information about the status of *T. xerographica* in the wild and to check if exporting of this species is possible without threatening the natural populations. Furthermore, some criteria should be worked out (eventually, it was done successfully) for the Guatemalan governmental executives to distinguish between plants from the wild and those from artificial propagation before exporting.

I was given permission to accompany the two Dutch members of the Commission, Dr. Chris Schürmann (sent by CITES), and Dr. Eric Gouda (keeper at the Botanical

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Gardens of the University Utrecht), on their travel. During this week, I was able to contribute in solving the problems in communication between the nearly exclusively Spanish or English speaking partners.

This travel was not a relaxing holiday or investigation journey in its common sense. Already in the preparation phase a concise schedule showed a lot of fixed appointments, such as meetings with gardeners and exporters, gatherings with the concerning ministerial representatives, with the nature protection agency CONAP, and with botanists at the university. Beside a day in the field, we faced intensive and informative visits at different *Tillandsia xerographica* nurseries in remote places.

In Guatemala 22 "tillandsia farms" were known, from which seven were registered to propagate *Tillandsia xerographica* at that time. Their plant stock has to be checked by inspectors every four months. Exclusively these registered and controlled nurseries got an export permit. All of them were obliged not to increase the stock of mother plants and not to introduce plants collected in the wild. In addition, there are some not registered and therefore illegally operating nurseries and traders with no export permit. These operators most likely sell plants to official exporters

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Several attempts at illegal exporting of large quantities of *Tillandsia xerographica* originating from illegal growers or from the wild were unveiled in recent years, the plants were even camouflaged in consignments of ordinary ornamental plants. Usually, after three of such discoveries the concerning nursery was closed, but the plant stock was not confiscated. Just changing the name allowed continuation of the same illegal activity at the same place. We hope our visit caused a change in this behaviour.

The official penalties are ridiculous, compared with the sums that were calculated from the export numbers. In 1999 a consignment of 100,000 plants of *Tillandsia xerographica* plants from the wild was confiscated and the trader got a penalty of 250 US$. Just calculated from an estimated price of US$1.50 to 2.00 at the wholesale store the shipment had a value of US$150,000 to 200,000. Even the highest possible penalty of US$ 2,500 is no reason at all to stop illegal trading.

The six nurseries visited by us concerning *Tillandsia xerographica* showed a very variable stock in mother plants regarding number and provenance. While some are registered for 15 or approximately 20 years and confidently informed us that they had no additional plants from the wild in that time, others were registered since 1989 but have purchased the last plants from the wild in 1995 and about 2000 plants from the wild from other nurseries in 2003. That also explains the contradiction between the conspicuously bad condition of so called "mother plants" and a big amount of perfectly built plants to sell: most of the latter were doubtless extracted from the wild.

Each individual nursery had its own cultivation and propagation regime. *Tillandsia xerographica*, which even in their home habitat needs at least 20 years to reach maturity, produces under usual cultivation one to three offsets, from which the first is the biggest (replacing the mother plant) and can be cut off after one year after

Figure 1. *Tillandsia xerographica* in the Editor's collection. Photo by Andrew Flower.

flowering. More offsets are built later, they grow slower and need two to three years to reach export quality. The cycle between the flowering events takes three years. Using this method a permanent export base is doubtful. It takes such a long time that some of the nurseries (the "black sheep") prefer to throw away the mother plant after taking the first offset and to buy new plants instead.

Some years ago Uwe Feldhoff tried to multiply the number of offsets and to increase the growth rate by introducing certain chemical compounds. His methods were worked out and his experiences are used in other nurseries. They lead to a large increase in the number of cultivated plants. First, the stock of mother plants is treated to produce flowers very early. This is stopped by another agent. To replace the suppressed flower, the mother plant produces many offsets, which can be cut off relatively early. By optimal shading, irrigation, fertilisation and regular treatment with fungicides and pesticides every individual of the 3,000 to 60,000 mother plants is able to give a further three generations of offsets (8–10 are mentioned), which grow within just 1.5 to 3 years into masses of perfectly built, clone-like plants ready to export. 20 to 30% of them are kept as additional mother plants. In that way, the productivity is increased by 300%, but even here a number of 17 mother plants is necessary to export one plant per month. The required space regarding the gigantic export numbers is huge. In contrast, to grow *Tillandsia xerographica* from seeds, was just developed in recent years. Nowhere seedling-plants bigger than 10 cm and older than five years (according to the information from the nursery) were seen.

The biggest nursery visited is registered just since 1999. It consists of 3 ha shaded area (will be increased to 28 ha) and a dry forest of 1.5 km² within the original (natural) distribution area of *Tillandsia xerographica*. In 1999 the owner has removed 67,000 specimens from that property (from the 500.000 *T. xerographica*, growing there, he said… but according to our own inventory this number is probably exaggerated) as mother plants for his nursery, where the stock has increased to 120.000 mother-plants in 2003. The property is guarded by scouts to prevent further thefts of plant material. Until now, no plants were exported, but the owner plans to start exporting 150.000 plants in 2005, 500.000 in 2006 and one million plants in 2008, he wants to sell them for 50 Cent each, "for everybody's price". The man is an owner of a construction company and runs his nursery, where hundreds of thousands plants of *T. harrisii* are also in stock, as his hobby.

It is very questionable how he purchased his stock of mother plants, but his propagation method is successful. It is something intermediate between natural growth and chemical treatment. The plants are shaded, irrigated and fertilised like in other nurseries, but they are allowed to flower. Between the plants hummingbirds hover, pollinating the flowers. On the older inflorescences we found spontaneously germinated seedlings, which are collected at a size of 1–2 cm and placed on nets for further cultivation.

Surely, the stock of *Tillandsia xerographica* in the nurseries exceeds significantly the scarcely distributed individuals in natural habitat. The only known distribution area of *T. xerographica* is a dry area in the valley of Rio Motagua on the foot of the Sierra de las Minas. Here the little village San Agustin Acasaguastlan is situated, which harbours beside a beautiful pilgrimage church as Zocalo (central place in town) a small park with a very old *Ceiba pentandra* (Bombacaceae), the national tree of Guatemala. Here (we guess) the largest amount of the remaining individuals of *T. xerographica* in Guatemala is located: 80 to 100 big plants and a high number of juvenile plants, next to a number of other Tillandsia species. Hopefully, by a list of signatures the locals could have prevented the already scheduled logging of this tree (to date, no recent information is available).

A recommendation was made to pay a visit to a side valley towards Monte Spinoso. There we should find an even more beautiful population of *Tillandsia xerographica* than elsewhere. We tried an inventory in the most promising elevation zone up to 600 m. On a plot of about 8 km length and an easily overviewable width of 30–50 m in total we just saw 16 respectively 30 specimens, that makes an amount of 32 to maximum 125 plants per km²!

An two-year inventory done by the University of Guatemala regarding *Tillandsia xerographica* in their former natural habitat released for the remaining population an average density of seven individuals to even less than one plant per km²! With this results we have to recognise *T. xerographica* in Guatemala as close to extinction and the former population as practically vanished. People with an experience of many years, like Uwe Feldhoff, already now exclude a natural recovering of the population without drastically interfering management (like e.g. application of artificially harvested seeds). The persisting pressure on the remaining populations worsens the situation. On the illegal market, every plant collected in the wild is still paid with one to two dollars.

According to information of the nature protecting agency there are just in the genus Tillandsia and next to *Tillandsia xerographica* numerous species which are endangered by illegal collecting or even brought close to extinction like *T. harrisii*, *T. streptophylla*, *T. pruinosa*, *T. filifolia*, *T. deflexa*, *T. magnusiana* and *T. matudae*. Some of them are massively artificially propagated now, but originally they were extracted from the nature, a process that didn't stop until now. This was proofed by a horrifying visit of a now closed nursery where hundreds of thousands doubtlessly in the wild collected plants like *T. streptophylla*, *T. fuchsii* forma *gracilis*, *T. seleriana* and also *T. xerographica* were kept under the most unimaginable conditions, the majority already rotting. According to the recent report of Dr. Chris Schürmann the import ban into the EU was made undone, but the new export numbers, even from the nurseries where everything seemed to be fine, were ranked as extremely high by the members of the delegation.

Finally, the author wants to stress the fact that all information and data presented here is easy to prove. They are based on a report of the Dutch mission and oral information of the Guatemalan responders for CITES, on information from the nature protection council in Guatemala, on general knowledge of botanists at the University Guatemala being active in that special field, gathered over a long time, and finally on the experiences of individual gardeners, working respectfully with these plants and for which it is the biggest personal task to keep the native species alive at their natural habitat.

Acknowledgement

On behalf of the the BSI, the Editor thanks the author, Lieselotte Hromadnik, and the President of the German Bromeliad Society (Deutsche Bromelien-Gesellschaft, DBG) for permission to publish this article.. Uwe Scharf from the German Bromeliad Society made the article accessible to the English speaking community of scientists and bromeliad lovers.

Cultivation

Broms aglow in Kamo

Erin Titmus with photos by Colin Symonds

The first glimpse of bromeliads in Iris and Colin Symonds' garden in Kamo, just north of Whangarei, New Zealand, sets the scene for more that is to come: an overall sense of quality planting, both in plant health and clever composition.

Iris' first love in the garden.

The garden has been established 40 years now and over that period the structure remains as first laid out, but the underplanting style has changed four times. The current emphasis on subtropical planting began 10-12 years ago when bromeliads became popular and available. This style complements Iris' first love in the garden, orchids. They appeal as a wider family of plants and as a bigger challenge to grow - more deaths! Three orchid houses cater for cool and intermediate planting requirements. Colin shares the interest as builder, sprayer and waterer of the garden and captures their beautiful results in photographs.Their skill in growing orchids transfers to the general garden where bromeliads glow in good health. "It is important to look after your plants," says Iris. "People keep buying them and often don't look after them well."

"You need a collection," she adds, "to be able to use colour for contrast which will come through better in numbers and groupings." And so Iris repeats specimens, colours, textures, and then intermingles contrasts to create her tapestry effects in the underplanting. Fine festuca blue grass and the native green-mounding scleranthus are favourite complements along with the softening textures of fine-leaved ferns.

Among the bromeliads, Iris favours the tillandsia genus. The hardy species mingle in the general garden. Spanish moss, for instance, hangs from many open boughs and is encouraged as it is a useful medium to enhance orchid displays. Other tillandsias feature in a collection that frames the broad opening of an orchid house facing north.

Eclectic mix with variegated box hedging and sarracenia in pot.

Mass planting of bromeliads.

Wall display of tillandsias in glass house.

Tillandsia punctulata frames shade house entrance

Here, together, their diversity in leaf colour shows to full effect. These plants don't like wet with the cold and Iris moves them into the glass house over winter. The more sensitive plants have pride-of-place on a wall display inside the glass house year round. And why tillandsias you may ask? Well, Iris is looking forward. When the time comes to move to a flat they will be able to accommodate these plants which will be nicely established. Meanwhile, Iris and Colin's garden in Crawford Crescent continues to evolve as an eclectic mix that will delight from season to season.

Exploring in Brazil, Part 1

Peter and Jeanette Waters. Photos by the authors.

The opportunity to go to Brazil to take part in a plant expedition was not something to be turned down so Jeanette and I were well on time at the airport for the 7.30pm departure. One should always check the latest times on the computer as we found that the plane was very late and wouldn't leave until about 3.30am. We didn't want to go home again so we went off to our daughter's and kept them up until after midnight. The late flight had repercussions as we were to arrive in Rio on Friday night, but by the time we got to Buenos Aires, there were no flights and we were put up in a hotel.

Figure 1. Elton Leme's hillside planting.

The first flight at dawn saw us on our way. I had emailed Elton Leme to let him know and hoped we had not inconvenienced him too much. As we arrived over Rio we found a tropical downpour and we circled out to sea for an hour before our turn to waterski down the runway. Needless to say there was much clapping from the passengers when we finally touched down. It was great to see Elton, wife Vania and Vanessa, their daughter, waiting for us and we immediately set off for their mountain villa at Teresopolis in the Organ Mountains. Teresopolis, pop 140,000, lies in a valley surrounded by very impressive peaks and the Leme property is on the lower slope of a forested hill. It is very sheltered, surrounded by mature trees and has many large

Figure 2. The 500 sq. m. shadehouse containing part of Elton Leme's collection.

palms and other natives, and the gardens are filled with bromeliads, many of them terrestrials. At first glance there are lots of bromelias, dyckias and all the spiny plants, but there are also beds full of hohenbergias, vrieseas, orthophytums, cryptanthus all carefully planted in situations and media that closely resembles their natural habitat. Epiphytic species are attached to trees, palms, stumps and rocks and even though most have been planted, there are some that are natural inhabitants, such as a clump of Neoregelia concentrica on a tree trunk. Although we had been here six years ago it was exciting to me to see what had changed and what new plants had been added. The majority of Elton's collection however, is in a large shadehouse of about 500 sq. metres, constructed with tall concrete pillars to give a high roof and concrete benches. The collection is virtually species only and contains mainly plants from Brazil that Elton and others have collected. It is believed to be the largest collection of bromeliad species ever gathered. He is continually working on their taxonomy and trying to understand better the relationships between the different species and where they fit into the overall picture. He has hundreds of unnamed species that are probably new, and he told me that even if he finds no more new ones, he has enough work to keep him occupied for many years. All the plants have an embossed label with a number only, no names, as these are kept in books, together with collection data, habitat etc. This makes it a little difficult for the visitor as Elton has to be on hand to furnish the

Figure 3. Hillside planting of alcantarea species, Leme collection.

names of plants one is interested in. Over the weekend I must have driven him to distraction by wanting to know about hundreds of different species, and by collecting offsets to take home.

While I was spending hours in the greenhouse, Jeanette was photographing plants and some wildlife, including hummingbirds which required a lot of patience. Since the last time we were here, there had been a new addition of a shadehouse at the back of the large greenhouse, in which I found some new *Neoregelia carcharodon* types and other large species, mostly unnamed as yet. One plant in particular was quite spectacular, a large carcharodon-like neoregelia with pale, almost white leaves with green hieroglyphics and a pale pink flushed centre as it came into flower. I believe this bromeliad will be a sensation when it becomes available.

Another thing that stood out was the dozens of different alcantareas that had appeared in the last six years. They were all planted on a bank alongside the car-parking area. Many were in flower and only a few were described species, with many to be

studied as they came into flower. Of particular interest to me was the collection of nidulariums, every species and all different clones are represented and it was fascinating to compare them with what we have known in New Zealand. There is a lot of work to be done in trying to correct our plant labels.

Later that day a visitor from Rio was Rafael Oliveira, who we found out was going to come on the expedition with us. This was welcome news as he is well-known for having a great eye for spotting new bromeliads and has found more variegated plants in the wild than anyone. His eyesight turned out to be quite extraordinary. He spent the afternoon poking around in Elton's collection and left clutching a bag of offsets. Even though the Lemes come to Teresopolis frequently, Elton always finds some interesting plant flowering and he then has the opportunity to photograph or describe it, and perhaps discover a new species. I watched as he wrote the description of a new hohenbergia and made a drawing of all the flower parts. He then put plants in a drying cabinet in clamps to make herbarium specimens. He was so quick and efficient, testament to the hundreds of new species he has described. To anyone interested in bromeliads, this place would have to be close to the Holy Grail.

Figure 4. Rafael Oliveira with *Neoregelia* 'First Prize' (variegated).

Late on Sunday afternoon we unfortunately had to leave for the city, but as we were returning later in the trip, it was not so bad. By the time we reached our hotel on Copacabana Beach we had a pretty good idea of the traffic jams in Rio on a Sunday. On Monday, Vania and Vanessa came to the hotel and took us out for the day on a sightseeing tour, and apart from seeing the thousands of alcantarea on the cliff faces, I was on a bromeliad-free diet.

The next day, however, we had arranged to go out to the suburbs to find Rafael at his nursery. He sold mainly bromeliads but also other tropicals for the landscaping trade. He had many different variegated broms, particularly thousands of *Neoregelia* 'First Prize' (variegated) which he had discovered as a sport. He also had made many hybrids. He doesn't really speak English, but somehow we coped and we found that later on he seemed to become easier to understand. I was very interested to see the original *N.* 'Rafa' which is one of the parents of *N.* 'Hannibal Lector'. He found it near Santa Teresa. By the time we returned to the hotel it was dark.

Figure 5. *Neoregelia silvomontana* Leme 5288.

In the morning we had to sort our bags as we were being picked up to leave on the expedition and we did not want to take too much gear. Cars in Brazil are all fairly small and as there would be four of us we needed to keep plenty of space for plants. We were waiting outside the hotel in the sunshine for Elton to arrive, when up walks Rafael with a tiny bag. Obviously he could survive six days with just a toothbrush and a credit card. We were originally planning to go to Diamantina in Minas Gerais, where Elton had applied for permits to allow him to collect in some national parks, but as the permits had not yet arrived he decided that we would go to Santa Maria Madalena in Rio de Janeiro state, about 200km, as he had the necessary permits for that Park. He has permission to take several plants of any species for study. There were plenty of places that had not been explored in that area so we were hopeful that we might be able to find something of interest.

As we headed into the countryside we started looking for bromeliads in the trees. It was only when we left the main road that we saw any and it soon became apparent that only old and usually large trees had plants attached. However there was no stopping and in a few hours we reached the small town of Santa Maria Madalena. It was somewhat elevated in an area of Atlantic Forest that had been designated a national park. Our hotel was a few kilometres away on the edge of the forest and it was a surprise to find such good quality accommodation here, and at only $NZ100 for a room, including all

Figure 6. *Orthophytum mucugensis* Leme 5902.

meals. We would be staying for four nights as we searched the surrounding areas. Dusk was upon us but we had to have a quick look around and along the driveway we found many different bromeliads, including *Billbergia horrida*, *Aechmea flavorosea*, *A. pineliana*, *A. nudicaulis*, *Nidularium rutilans*, *Vriesea philippo-coburgii* and *V. bituminosa*. These were established on trees and rocks naturally and not just planted.

In the morning we were up early for breakfast and keen to get started. Elton had hired a 4WD vehicle and driver, but he couldn't get there until noon so we decided to have a look on the top of the hill behind the hotel. A nearby farmer carrying a machete arrived from nowhere to guide us. This hardly seemed necessary for this climb, but I think Elton likes to provide work for the locals. And I must say that clearing the track is sometimes very helpful as the bush can be very dense in parts.

As we began our climb we came across clumps of what seemed to be Aechmea pineliana but the inflorescence was somewhat different. Elton said he had collected it before and it may turn out to be a new species. There was a paucity of other broms on the steep slope as we clambered up, eventually coming to a sheer cliff which hosted many *Alcantarea imperialis*. After skirting the cliff and continuing up we finally arrived at the top. We were disappointed to find no bromeliads and even though we followed the ridge for a kilometre or more, just nothing. Our guide took us down another route and

Figure 7. Peter Waters with *Quesnelia edmundoi* var. *intermedia*.

Figure 8. Elton Leme with *Vriesea arachnoides*.

back to the hotel. It was not a good start, but our driver had arrived with his vehicle so we remained positive and after a quick lunch set off. Jeanette and I not really knowing where to, as many discussions took place in Portuguese, but wherever it was, it could be a fairly uncomfortable trip as it was quite a small jeep-like 4WD. We had only gone about 400 metres when Rafael pointed out a lonely tree in a paddock which had clumps of a neoregelia on it, but as we had just started we didn't want to stop yet so left them for later. We followed a dirt road along a stream for some way and saw many broms on large rocks in the water. Again we didn't stop as Rafael was identifying plants as we went. At one spot he saw a neoregelia which looked interesting but we thought it best to look on the way back. After a while we stopped near a sheer rock wall hundreds of metres high which had the ubiquitous alcantarea, but also tiny silver dots, even through my 10x binoculars, which they agreed was *Vriesea appariciana*. We climbed up through a paddock to see if we could find anything at the base of the cliff. The conditions looked ideal for bromeliads, with rocky outcrops, but we could find only one poor specimen which had fallen off its perch, but it was enough to verify the identification. *V. appariciana* is the most intense silver-white but only 250mm across. Back down to the jeep, only to find that Jeanette had disappeared. A man sitting nearby said she had gone off with some people in a beach buggy. No problem, as it was in the right direction. We found her some miles further on at a large farmhouse, having a cold drink as the temperature was very warm, well over 30 degrees. It turned out that Elton knew the woman, as she owned a lodge in the national park at the top of the road.

As we continued our journey the road started to climb and the scenery became more rugged. The road became progressively worse, with many quite large rocks and deep ruts. Mostly it followed the sides of high hills and as there was no safety fence it was rather nerve-wracking. After what seemed like an eternity of bouncing and leaping about we came to a cliff with many *Alcantarea heloisae* or similar and we stopped for

Figure 9. *Quesnelia edmundoi* var. *rubrobracteata*.

Elton to collect a sample. Also here we found some *Pitcairnia encholirioides* which has a large and very attractive inflorescence. By the time we loaded up the vehicle there wasn't a lot of room and it was quite disconcerting to think that bromeliads are home to snakes, scorpions, ants, giant spiders and other insects. At least it took our minds off the road. Soon we came to quite dense bush which signified the entrance to the national park and the remnants of the Atlantic Forest. A few kilometres further on the road ended at the lodge, a rather small and basic building in a large clearing. The owners had now arrived and provided lunch for us which was much appreciated. Up here it was like another world as it was above the clouds. Towering over everything

was a massive rock mountain, Mt Morumbeca. This was the object of Elton's interest as he was sure that there would something of interest on the top, but as it was already afternoon, we would begin the climb tomorrow morning. We spent some time exploring the surrounding area and found several items of interest. There was a stream running through and alongside on rocks were *Nidularium rutilans*, *Vriesea philippo-coburgii* and *V. bituminosa* and *Tillandsa geminiflora* .In the fringes of the bush we found *Vriesea arachnoidea*, an interesting plant with its long spindly and twisted leaves, which was known from much further south only. Another plant was a billbergia somewhat like *Billbergia* 'Domingos Martins' but that comes from 400 kms north in Espirito Santo. There was only a seedling on a tree, but I scouted around and found a large clump on a fallen log. It was grey-green with large white and pink patches and I am sure it will become a desirable horticultural specimen. At the beginning of the track to the summit and on the edge of the forest, a colourful plant high on a tree-trunk caught our eye. There was a large clump 20 metres high, but also a few 10 metres up. Rafael said he would get them tomorrow, but how I couldn't see.

As the light was beginning to fade we started back to our hotel. While this took two hours, at least it was now dark and we couldn't see the massive drop off the side of the road....

...to be continued.

A Warm Welcome to New Members

Janine Barnabot, Guadeloupe, France
Mary Broussard, Beaumont, Texas, USA
Andy Burgess, Rancho Viejo, Texas, USA
Bromeliad Society of Puerto Rico, Carolina, Puerto Rico
Helen Brown, Hurlstone Park, NSW, Australia
Chris Burgr, Vero Beach, Florida, USA
Nick Daniel, Denver, Colorado, USA
Dietmar Endner, Darmstadt, Germany
Luis Alfonso Gallon, Miami, Florida, USA
Jim Garvner, Houston, Texas, USA
Brandon Gauthier, Venice, California, USA
Ray Gompf, Merritt Island, Florida, USA
Brian Hawkins, Henniker, New Hampshire, USA
Louise J Hawthorne, Fort Myers, Florida, USA
Maria De Los A. Hernandez, Aibonito, Puerto Rico
IB_Instituteo de Biociencias, Birmingham, Alabama, USA
Beth Jacobs, Prescott, Arizona, USA
Paulo J Llinas, Valle del Cauca, Colombia
Roger Marin, Portland, Oregon, USA
James Martin, Tallahassee, Florida, USA
Jamie M. Nelson, Florissant, Missouri, USA
Barbara Oakley, New Orleans, Louisiana, USA
Pachara Orchids Int., Suphanburi, Thailand
Molly Perry, Geneva, Florida, USA
Jimmie Rather Tomlinson, Marion, Kentucky, USA
Arian Henry Van Rensen, Gauteng, South Africa
Betty Schweizer, Edgewater, Florida, USA
Matt Takata, Lihue, Hawaii, USA
L. Henri Georges Wiehe, Petit Reffray, Mauritius

We hope you enjoy your stay with the Society!

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

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.

August 6-7, 2011. South Bay Bromeliad Associates, 2011 Bromeliad Show and Plant Sale. Rainforest Flora Nursery, 19121 Hawthorne Blvd, Torrence, CA. Contact Bryan Chan (818) 366-1858 or bcbrome@aol.com

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.