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Front Cover: Inflorescence of *T. appendiculata* with the typical two-colored petals. Article on page 158

Back Cover: Large tree with *T. confinis* on the left side and part of *T. fendleri* inflorescence above it, *T. appendiculata* on the lower right side. Article on page 158

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A discussion about *Tillandsia confinis* L.B.Sm. and *Tillandsia dudleyi* L.B.Sm.

Eric J. Gouda, University Utrecht Botanic Garden

Figure 1. *T. confinis* in habitat at Aguas Calientes, Rio Urubamba

Little is known about the species *Tillandsia dudleyi* L.B.Smith (1974:32) from Cuzco province, Peru. The only photo (known to me), is that of plants sold by Bird Rock Tropicals with that name, that can be found on the Internet (FCBS), but which is probably *Tillandsia huarazensis* Ehlers & W.Till (1988:21) or relative.

During our visit to the Inca Ruines at Machu Picchu, Peru, we found this very nice medium sized Tillandsia in full flower. It has a bright orange-red inflorescence with lavender petals and you can see it growing as an epiphyte in the trees, together with *Tillandsia appendiculata* (= *T. engleriana*?) L.B.Smith (1949: 307) and *Tillandsia fendleri* Grisebach (1865: 17) along the Urubamba river. You can see them from the train that brings you from Ollantaytambo to Aguas Calientes, the common way to go to the Machu Picchu Inca ruins.

Figure 2. Close up details of part of the inflorescence of *T. confinis* showing the flowers

My first impression was that it resembles *Tillandsia confinis* L.B.Sm. (1953:218), although it looks different than the smaller plants I know from Ecuador (it is originally described from Loreto, Peru), but it does key out to this species in Smith & Downs (1974) if you do not use key IX for plants with ligulate leaves. If you do use that key, you get stuck because of an error in the key, where you have to choose between ample primary bracts (duet 55) or short primary bracts. *T. dudleyi* keys out in the part with short primary bracts, but it really has large ones. At some point it is difficult to decide whether a species has ligulate or narrowly triangular leaves. Any way, this led me to the question, "How different is *T. dudleyi* from *T. confinis*?" Or is the only question whether or not to call the leaves ligulate or narrowly triangular?

Figure 3. *T. appendiculata* in habitat at Aguas Calientes, Rio Urubamba

From the descriptions of the two species by Lyman B.Smith, I could not find clear differences, except that the first species has lavender petals and the second has white(?) ones, and maybe the form of the floral bracts. All measurements overlap or are similar.

Studying the type specimen of both species and comparing it with the variety of the specimens I have seen at Machu Picchu convinced me that both are one and the same species (and even the same variety) and because the name *T. confinis* is the oldest one, this one has priority. Therefore the name *T. dudleyi* L.B.Sm. becomes a synonym to *T. confinis* L.B.Sm.

Please see additional images on the front and back cover of this issue.

Front cover: Inflorescence of *T. appendiculata* with the typical two-colored petals

Back Cover: Large tree with *T. confinis* on the left side and part of *T. fendleri* inflorescence above it with *T. appendiculata* on the lower right side.

Figure 4. Habit of *T. confinis*

Acknowledgements:

I want to thank Jose Koechlin and Carmen Soto of Inkaterra for their hospitality and enthusiasm for Bromeliads and Ricardo Fernandez (herbarium USM) for making images of the type of T.confinis.

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Preliminary Exploration of Bromeliad Biodiversity in Hidalgo State, Mexico

Claudia T. Hornung Leoni[1*] *and Aylé G. Pintado Peña*

Abstract

The state of Hidalgo has diverse biogeographic provinces in which many different species of bromeliads are well distributed in varied elevation ranges and vegetation types. *Tillandsia* is the most dominant and abundant genus (73.6%), followed by *Hechtia* (15.1%). *Hechtia* is very important in this region due to the extensive arid areas in which it is distributed. In total, 53 species have been reported in the literature and collected in herbaria: *Aechmea* (2), *Bromelia* (1), *Hechtia* (8), *Pitcairnia* (2), *Catopsis* (1) and *Tillandsia* (39). This study is a preliminary effort to inventory the Bromeliad flora in Hidalgo. We found species with a broad elevation distribution, such as *Aechmea bracteata* (0–1400 m), *Catopsis sessiliflora* (0–2300 m) and *Tillandsia gymnobotrya* (200–2800 m). These species can grow in scrub or forest. Other species have limited elevation distribution, such as *T. erubescens*, which is restricted to 2200¬–2800 m above sea level. There are also species that prefer a narrow range of vegetation, such as *T. imperialis*, which lives only in cloud forest or pine-oak forest.

Introduction

Mexico is considered a mega-diverse country and includes 22,351 species of vascular plants, making it the fifth most species-rich country in the world according to Villaseñor and Magaña (2007). Thirty genera of Bromeliads have been reported for Mexico, with 334 species, of which 67.6% are endemic, making it the fifteenth most endemic family in the country (Villaseñor, 2003). In the latest taxonomic revision, Espejo-Serna et al. (2004) recognized only 18 genera with some 333 species. The high number of endemisms and the huge plant richness are due to climatic and geographic factors such as the Sierra Madre Occidental and Oriental and the Río Balsas Basin (Méndez-Larios et al. 2004).

In recent years knowledge about diversity has had an increasing impact on global conservation strategy. Significant efforts have been made recently in this direction with bromeliads (Espejo-Serna et al., 2004; 2005; Ramirez-Morillo et al., 2004). Our study of the Bromeliaceae in the state of Hidalgo contributes to the global and Mexican trend in biodiversity. The main goals of our investigation are to explore the biodiversity of the state of Hidalgo to detect the main bromeliad species growing in this varied territory, and to add more species and distribution areas to those already known.

Materials and Methods:

Study Area

Hidalgo State is located in the central zone of Mexico between 19°35'52'' N and 21°25'00'' W and covers 20905.2 km2. It is bordered by the states of San Luis Potosí (NW) and Veracruz (E), Puebla (E – SE), Tlaxcala and Mexico State (S), and Querétaro to the W and NW. Hidalgo

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Figure 1. *T. violacea* in Hidalgo forest

contains a diversity of biogeographic provinces including mountain ranges, valleys, canyons and plains, and includes three contrasting provinces; the Sierra Madre Oriental mountain range, the Neovolcanic Belt and the northern Gulf Coastal Plain (INEGI, 1992). The state of Hidalgo contains various vegetation types (Martínez et al., 2007) associated with different elevation levels. All these factors contribute to a mosaic of contrasting conditions in Hidalgo that have influenced biodiversity.

Field Work and Literature Review

This work is a preliminary study that includes a review of the literature containing bromeliads from Hidalgo State and preliminary fieldwork in different areas of the state (Fig. 2). The specimens collected were deposited in the HGOM herbarium at Centro de

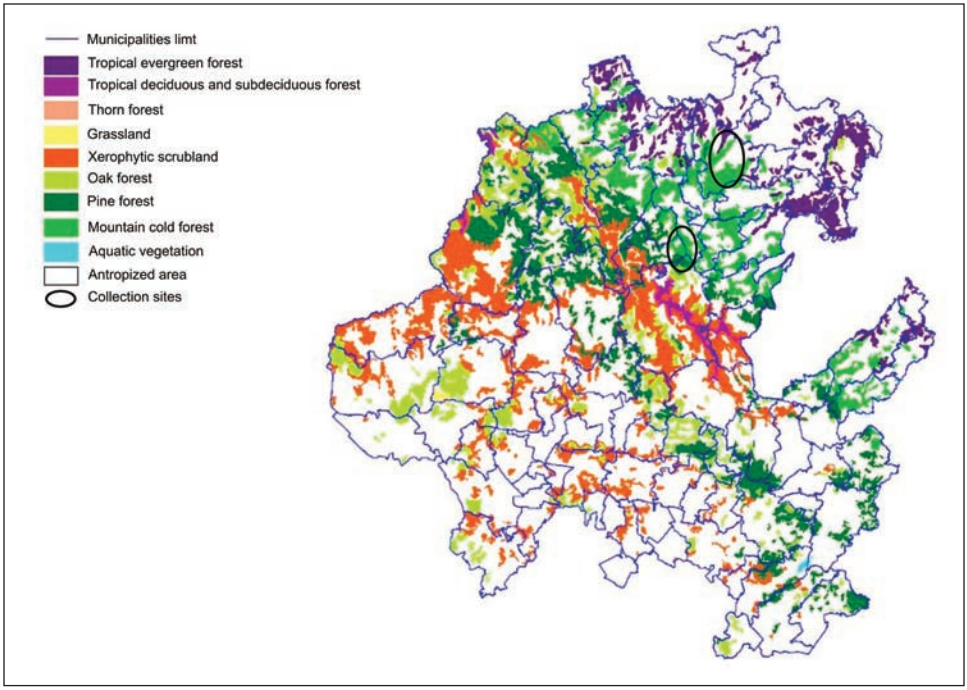

Figure 2. Vegetation types in Hidalgo State (Mexico). Modified from Martínez et al. (2007)

Investigaciones Biológicas–Universidad del Estado de Hidalgo (UAEH). In the second part of the project we will review the specimens deposited in Mexican herbaria.

Results

In Hidalgo bromeliads are abundant in various areas including scrub and forest, and also at various elevations related to vegetation type (Fig. 2). There are species that have wide elevation distributions, such as *Aechmea bracteata* (0–400 m), *Catopsis sessiliflora* (0–2300 m) and *Tillandsia gymnobotrya* (200–2800 m); these species can grow in scrub or forest. Other species have restricted distributions, such as *T. erubescens* which grows only at 2200-2800 m. Some species prefer one kind of vegetation, such as Tillandsia imperialis, which grows in cloud forest or pine-oak forest.

Based on the results of the bibliographic review, the number of species was changed. Smith and Down (1974, 1977, 1979) reported 27 species for Hidalgo in *Flora Neotropica*; García-Franco (1987), based on literature and herbaria, documented 40 species in *Las Bromelias de México*, adding 13 new records. However a mistake was made in both studies regarding the geography of Hidalgo State; that is, *Tillandsia pueblensis* was reported inside the borders of the state of Hidalgo in both publications but the location where it was observed is in the neighboring state of Puebla. Therefore the corrected numbers are 26 in *Flora Neotropica* and 39 in *Las Bromelias de México*. Hietz and Hietz-Sierfert (1994) documented 18 species, recording three new ones.

Local inventories were also reviewed even though, as noted above, this study has an

ethnobotanical focus. For example, Villavicencio et al. (1998) summarized information from the literature, reporting 28 species; Pérez et al. (2003) included 6 species of bromeliads used as ornamentals, medicinal plants and food in 19 "municipalidades" (country equivalents) of the state, including a new recorded species. Rzedowski and Rzedowski (2005) documented 10 species for Hidalgo which were included in the flora of the Valley of Mexico. None of these studies were intended as taxonomic work but all include important local references The most recent complete taxonomic work provided a checklist of Mexican Bromeliaceae (Espejo-Serna et al. 2004), reporting 31 species of which three were new for Hidalgo. Local studies and literature are included in our review but identification of the species will need to be corroborated directly in the herbaria. The species list from the literature is summarized in Table 1 and reports 53 species for Hidalgo State. Bromeliad diversity is shown in Fig. 3. The dominant genus is *Tillandsia* (49), followed by *Hechtia* (8). The genus *Viridantha*, considered by some authors to be *Tillandsia* (Luther 2008), is distributed in central Mexico, which includes Hidalgo, so to learn more about this species and its morphological variation, more fieldwork in the region is needed.

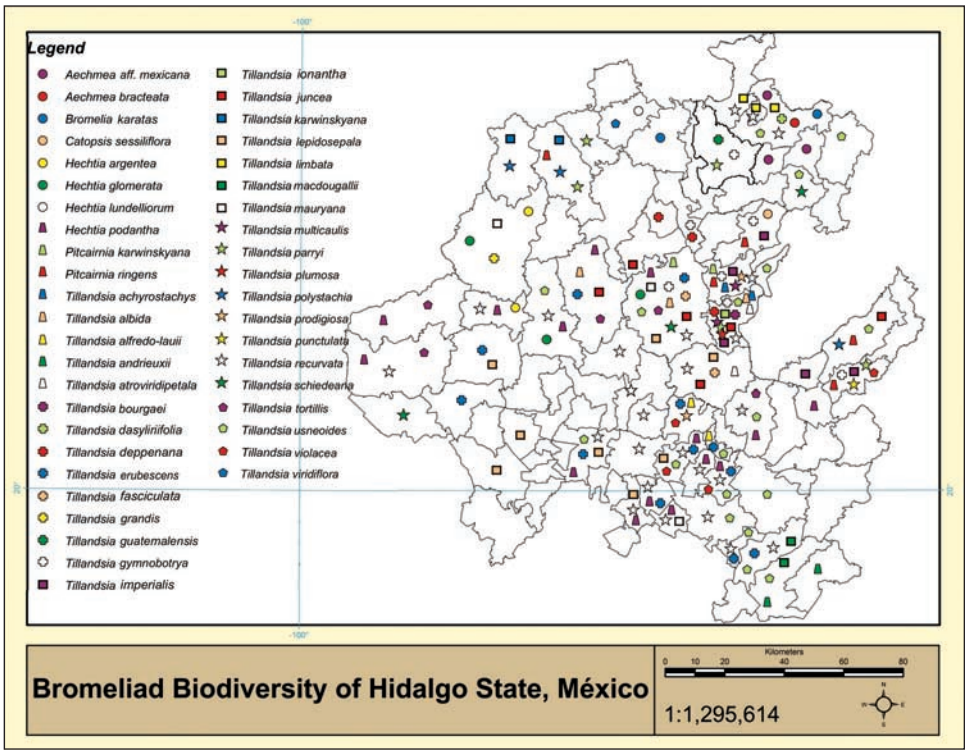

Figure 3. Preliminary Bromeliad diversity of Hidalgo State (Mexico). Includes species in which the locality is specified (at least to municipalidad level); those that only mention "Hidalgo state" are not included

Preliminary Additions and Contibutions

Our exploration of the literature to date has added the species *Tillandsia gymnobotrya, T. imperialis, T. deppeana, T. schiedeana, T. erubescens, T. bartramii* and *T. polystachia* to the known species in Hidalgo. Summarizing the literature citations, we have a preliminary list with

53 species (Table 1). Further review is required to corroborate correct identification and to consider synonymy. With these results we can affirm that Hidalgo State represents an important contribution to bromeliad biodiversity. The principal subfamily represented in this state is Tillandsioideae, with a notable dominance of the genus *Tillandsia* (including *Viridantha*), with 25 species.

Tillandsia is very abundant in a variety of areas from harsh habitats to humid forest. Another very abundant genus in Hidalgo is *Hechtia* but it is distributed mainly in xerophytic areas. Eight species are recorded in the literature, growing in extensive dry areas. In Hidalgo, epiphytes are abundant in woods, and terrestrial to saxicolous habits are more common in dry areas, where they share the terrain with cactaceae, asteraceae and Yucca plants. Another important factor to explore is species dominance. *Tillandsia* is the sixth largest genus by number of species among Mexican vascular plants (Villaseñor 2004) and ranks high in Hidalgo as well. To date, we have found that the genus *Tillandsia* represents 73.6% of bromeliads in Hidalgo (39 spp.), followed by eight *Hechtia* with 15.1%. The genuses *Pitcairnia* and *Aechmea* only include two species each, or 3.8%. *Catopsis* and *Bromelia* are poorly represented (having only one species each).

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Figure 4. *T. erubescens* from Hidalgo state

BROMELIOIDEAE (3) Aechmea (2) A. bracteata[1] A. aff. mexicana[3] Bromelia (1) B. karatas[6] (Syn: B. plumieri[6]) PITCAIRNIOIDEAE (10) Hechtia (8) H. argentea[2,3] H. glomerata[1] H. lundelliorum[1] H. podantha[1] H. rosea[3] H. stenopetala[3] H. texensis[2] (Syn: H. scariosa[2]) H. tillandsioides[4] Pitcairnia (2) P. karwinskyana[3, 4] P. ringens[1] TILLANDSIOIDEAE (40) Catopsis (1) C. sessiliflora[1]	TILLANDSIOIDEAE Tillandsia (39) (including Viridantha) T. achyrostachys[3] T. albida[1, E] T. alfredo-lauii[1,E,H] T. andrieuxi[1, E] T. bartramii[2] T. beutelspacheri[2] T. bourgaei[3] T. dasyliriifolia[2, 4] T. deppeana[1, E] T. erubescens[1, E] (Syn: T. benthamiana[4,2,3]) T. fasciculata[1] T. grandis[1] T. guatemalensis[3] T. gymnobotrya[1, E] T. imperialis[1, E] T. ionantha[1] T. juncea[1] T. karwinskyana[2, 4] T. kirchhoffiana[2] T. limbata[1, E] T. macdougallii[1, E] T. makoyana[2] T. multicaulis[2, 3, 5] T. parryi[1, E] T. plumosa[4, 2] T. polystachia[1] T. prodigiosa[3, 7] T. punctulata[1] T. recurvata[1] T. schiedeana[2, 3 ,4, 5] T. usneoides[1] T. utriculata[2] T. violacea[1, E] T. viridiflora[1] T. yunckeri[2] T. (Viridantha) atroviridipetala[1, E] T. (Viridantha) lepidosepala[1, E] T. (Viridantha) mauryana[1, E] T. (Viridantha) tortilis[1, E] (Syn: T. ehrenbergiana[3] T. ehrenbergii[4, 2, 3] T. sueae[1])

Table 1. Species listed in the literature. The complete list includes 53 species reported in the literature.

1 = Species included in Espejo-Serna et al. (2004); 2= García-Franco 1986; 3= Villavicencio et al., 2003; 4= Smith and Downs (1974-79); 5= Hietz and Hietz ; 6= Pérez et al., 2005; 7= Rzedowski and Rzedowski 2005. E= endemic to Mexico; H= endemic to Hidalgo

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Tillandsia chapalillaensis Ehlers & J. Lautner spec. nov.

Renate Ehlers

Figure 1. *T. chapalillaensis* at the location, photo Manfred Kretz 2004

A Tillandsia schiedeana Steud. habitu majori acaulescenti vel subacualescenti, foliis longioribus amplioribusque, laminis foliorum filiformiter attenuatis (nec acutis), perrigidis et subsucculentis, minus patentibus, inflorescentia plerumque 2-3 spicis composita, spicis minus teretibus amplioribusque, bracteis floriferis amplioribus, sublaevibus, sepalis minus connatis et petalis longioribus bicoloribusque differt.

Typus: Mexico, Estado Nayarit, prope pagum Chapalilla meridionaliter urbis Tepic, via principalis mexicana 15, inter km 18 et 19, 1300 m s. m., 18. 2. 2004, leg. R. Ehlers EM041501, Holotypus: MEXU, isotypus: WU; Estado Nayarit, 1250 m s. m., 18. 2. 1992, leg. J. Lautner L92/19, Paratypus: WU; Estado Nayarit, 1250 m s. m., 27. 2. 1994, leg. J. Lautner L94/23, Paratypus: WU.

Plant stemless or with a very short caulescent base, flowering 25-35 cm high, up to 25 cm wide, forming a rosette, sometimes simple, often growing in big groups.

Leaves polystichous-ranked, to 25 cm long, mostly straight and not or little spreading, very rigid, hard and sub-succulent, breaking easily, densely covered with cinereous adpressed scales; ***sheaths*** 2 -2,5 cm long, 2,5 cm wide at the base, ovate-triangular, slightly subinflated and densely imbricate, enveloping half of the base of the plant, conspicuous, adaxially light brown, abaxially rugose, brown, both sides densely covered with brownish-grey big scales, the margins with big asymmetric trichomes; ***blades*** 8-10 mm wide above the sheath, narrowly triangular, tapering in a long filiform apex, to 25 cm long, the lower ones reduced, involute-subulate, channeled, spreading, adaxially slightly 2- keeled, dark green, cinereous lepidote, abaxially more, the margins with very small asymmetric trichomes, appearing grey.

Peduncle erect, shorter than the leaves, 10-15 cm long, 4 mm wide, imbricately covered by few foliaceous peduncle bracts, the sheaths of the lower ones 3 cm long with up to 15 cm long blades, the upper ones with sheaths 2 cm long and the blades reduced towards the top, the sheaths red lepidote, the blades grey.

Inflorescence about as long as the rosette, simple or sometimes bipinnately composed of 2-3 spikes, (1 or 2 lateral smaller erect spikes), appressed at the base of the main-spike; ***primary bracts*** of the lateral spikes with sheaths about half as long as the spike and blades about as long as the spike, erect, covering the flat side of the spike; ***spikes*** distichous, 3-8 cm long, 5-11

Figure 2. *T. chapalillaensis* at the location, photo W. Schindhelm 2004

mm wide, lanceolate attenuate, not complanate but slightly terete, composed of 3-9 imbricate sessile flowers with 1-2 sterile bracts at the base, internodes about 1 cm, rhachis not visible; ***floral bracts*** 20-30 mm long, 10-15 mm wide, exceeding the sepals, broadly ovate, obtuse, ecarinate, rigid with thin margins, adaxially glabrous, nerved, abaxially lustrous, base green apical half red, sparsely lepidote with grey trichomes; ***sepals*** 18-21 mm long, 4-5 mm wide, lanceolate, acute, yellow-green with red tips, glabrous, even, the adaxial ones connate for 3-7 mm; ***petals*** 4,6-5 cm long, 8 mm wide at the top, 3,5 mm wide at the base, ligulate with sinus, forming an erect tube, corolla-throat closed, the tips very slightly curled back, apical 10-12 mm yellow-white, middle part 10 – 12 mm lavender, base white; ***stamens*** exserted; ***filaments*** 50-55 mm long, in 2 circles of unequal length, broadened near apex, 0,8 mm wide, apical 8-9 mm lavender, white towards base; ***anthers*** 3 mm long, 1 mm wide, fixed 1/2-1/3 from base, brown, pollen yellow; ***style*** 45 mm long, whitish becoming yellow towards apex; ***stigma*** 15 mm high, 2 mm wide lobes erect, papillose, emerald-green, Type I Brown & Gilmartin; ***ovary*** 9 mm high, 2,5 mm wide at base, conical, whitish green.

Type-location:

Mexico, Estado Nayarit, near Chapalilla, South of Tepic, Mexican Highway 15, km 18/19, 1300 m, Holotype collected by Renate Ehlers EM 041501, 18. 2. 2004. The plants grow on oak trees with *T. pseudosetacea* Ehlers, *T. makoyana* Baker, *T. ionantha* Planchon and *T. achyrostachys* E. Morren.

The plant seems related to *T. schiedeana* Steudel but differs by the following characters:

Plant larger, not caulescent or nearly so, leaves are longer and wider, the blades long filiform-attenuate not acute, much harder and sub-succulent, the blades less spreading, inflorescence not always simple but sometimes digitately composed of 2-3 spikes, spikes less terete, wider, floral bracts wider, not strongly nerved, sepals less connate, petals longer, not totally yellow but the upper part yellow, the middle part lavender and the base white.

History:

I originally obtained this *Tillandsia* in 1992 from my friend Jürgen Lautner, Goettingen, Germany, who discovered the plant on his trip to Mexico in 1992. He thought this was a new species which I should describe. But when I saw the flowers, I was nearly certain, that it was a hybrid. The two-coloured petals seem to be a sign of hybrid origin. Juergen insisted that this plant is very common near Chapalilla and that he did not see any putative parents for a hybrid. – But I did not trust him! Nevertheless I made a description which I gave Dr. Walter Till in May 1992. He assumed this plant to be a hybrid between *T. juncea* and *T. schiedeana*. I told Juergen his opinion, which I shared, and that I can not publish his plant as a species. The plant grew very well in our collection and flowered several times, and Juergen had many little tillandsias growing pretty well from seed in the Botanical Garden in Goettingen and in his own collection.

Figure 3. *T. chapalillaensis*. Habit photo Wolfgang Schindhelm

In 2004, I was on a trip in Mexico with Juergen and Ulrich Lautner, Manfred Kretz and Wolfgang Schindhelm. On February 18th, we were driving from Puerto Vallarta in the direction of Tepic on the MEX 15, and we intended to go to the area where Juergen found his dubious plant, and I was very curious. About 18 km before we reached Chapalilla, we saw the trees coated with many tillandsias. I really was very, very surprised when I saw, that this was THE PLANT, growing here by the thousands. It was not in the same place where Juergen had collected his plants in March 1992, only in the same area. The trees were crowded with the tillandsias, mostly growing in big clumps, but there were also single plants. We also found a few *T. pseudosetacea*, *T. achyrostachys* and *T. makoyana* and rarely *T. ionantha*.

Figure 4. *T. chapalillaensis*. Habit photo Wolfgang Schindhelm

The plant is growing in large numbers in this region, not only restricted to one location. There was neither *T. schiedeana* Steudel nor *T. juncea* Swartz growing at this location, and as well, we did not see any in the wider area. At the place where we collected, I would guess there were thousands of *T. chapalillaensis*, hun-

Figure 4. *T. chapalillaensis*. Scan of plant 2006

dreds of *T. pseudosetacea*, tens of *T. makoyana* and *T. achyrostachys* and few *T. ionantha*.

Now I had to admit that Juergen Lautner was right; the plant is not a hybrid but a good new species. Maybe, or more likely, the plants are of hybrid origin. When a plant has densely populated a large area in such huge numbers and is fertile, it should be treated as a species, not as a hybrid. In the meantime, Juergen Lautner has adult seedlings from seed he collected in 1992, that flowered in the Botanical Garden of Goettingen several times, and they all look alike. He gave this plant to many other Botanical Gardens and collectors of bromeliads.

They all flower every year and no other tillandsia produces so many fertile seeds. In my collection all plants growing in the surrounding of *T. chapalillaensis* often are covered with seeds.

Juergen and I had many discussions with friends about the plant and tried to solve the problem as to whether it is a hybrid or a species. Hiroyuki Takizawa wrote that he thinks that the putative hybrid on page 109 of the New Tillandsia Handbook by Hideo Shimizu and Hiroyuki Takizawa is the same plant as *T. chapalillaensis*, and I agreed that it looks similar. He got the plant from Alfredo Lau without location, but I believe that the plant shown on page 109 is closer to a hybrid that we found in the Sierra El Tuito. This is recorded in the Natural hybrids data base on http://fcbs.org as *T. schiedeana* x query. Derek Butcher did a lot of investigation of hybrids, and sent photos of putative *T. schiedeana* hybrids to me for discussion, which made me start working again and finishing this article.

This made me think that the BSI Journal was the best place to publish the plant. We specify the exact locality, where the plant is growing, hoping that some other collectors who come to this area and may be going to Puerto Vallarta will take the chance to check. Maybe they can write about their impressions in the BSI Journal some day, and perhaps there will be some more discussion about the evolution of a species and at what point it is classified as a natural hybrid.

After checking the description and history of *T. chapalillaensis,* Hiro Takizawa commented, "I guess there are many natural hybrids amongst *Tillandsia* which are believed to be species.

Natural hybridizing is a part of evolution. When does a hybrid become a species?" This is an interesting question and not easy to answer. A large population is important, especially for consideration as a species. Maybe some hybrids grow better than the parents and make large populations, and then it becomes a species!

Eric Gouda also contributed to the discussion. He has a number of seedlings from the Botanical Garden Goettingen from the first collection in 1992 of Jürgen Lautner, and so he was able to study the plant. He suggested that there seems to be slight differences in the seedlings but agreed to treat it as a species, as it has such a large population.

Tillandsia schiedeana x?

Mexico, Jalisco, Sierra El Tuito EM8177 and EM901603, Klaus & Renate Ehlers, 16. 3.1990

In March 1981 I was doing some fieldwork in the Sierra El Tuito, near Puerto Vallarta with my husband Klaus and my friends Gerda Haug and Guenther Noller. We came along a small river and saw a tree, covered with large clumps of *T. schiedeana*. We were surprised, when we saw that the flowers were violet, not yellow as normal, so we collected some plants to take home, which flowered in May 1983 in our collection. The petals were reddish-violet with pale tips, not violet, as at the location. I tried to collect these plants again, when I was next in the area.

Unfortunately, I never could find that tree again. In March 1990 I again collected plants in the Sierra El Tuito, and these flowered in May 1992 in our collection. I also got seed, so the plants are fertile. These plants also had no violet petals, but showed three-coloured ones, the tip whitish yellow, the middle part violet and the base white. My guess was that it must be a hybrid. The open question was, "What may be the other parent?" It is the area where we found a number of tillandsias like *T. tillii* Ehlers, *T. bourgaei* Baker and *T. juncea* (Ruiz & Pavon) Poiret. So the only putative partner for the *T. schiedeana* is *T. juncea*. On the other hand, the plants are smaller than the normal *T. schiedeana* growing in the area, while *T. juncea* is more than double the size. Why should the hybrid be smaller than both of the parents? *T. schiedeana* is not very abundant in this region, except on the one tree which hosted so many plants. We only found a few specimens in other trees on occasion.

As mentioned in the information on *T. chapalillaensis*, the hybrid on page 109 of the New Tillandsia Handbook from Hideo Shimizu and Hiroyuki Takizawa seems to be very similar to this plant from Sierra El Tuito.

Acknowledgements:

We thank all my friends who cooperated with me, especially Eric Gouda and Hiroyuki Takizawa and last, but not least I want to thank Derek Butcher, who did a lot of investigation, We exchanged many e-mails and he sent photos of hybrids. We had a lot of discussions and he gave me his advice and corrections. Many thanks to Dr. Klaus Eistetter who corrected this article.

Our best thanks to Dr. Walter Till, University of Vienna for his cooperation, help and for the Latin diagnosis.

Bromeliad Icons In Old Publications: Part 9

This article is a continuation of a series last published in JBS 61(3)

Leo Dijkgraaf

Figure 1. *Aechmea fulgens* var. *discolor* (C. Morren) Brongniart ex Baker. Syn.: *Aechmea discolor* C. Morren, Dictionnaire universel d'histoire naturel, Botanique monocotylédones plate 4 (1849)

In France cryptogamist and encyclopedist Charles Dessalines d'Orbigny published from 1841-1849 an encyclopedia of natural history, the *Dictionnaire universel d'histoire naturelle* comprising 13 volumes with text and 3 atlases with 288 coloured engravings. An updated second edition was printed in 1867-1869. Botanical authors included Adolphe Brongniart, Joseph Decaisne and Charles Lemaire. One atlas was in part on botany with 43 plates of plants. The plate of *Aechmea discolor* (Figure 1) is the only bromeliad in this work. Charles Morren described this plant in 1846 in *Annales de Gand* and gives the reasons why it should not be a variety of *Aechmea fulgens*; not because of the purple underside of the leaves ("color non est character, a dit Linné", as Morren puts it) but for some differences in morphology of the leaves. Adolphe Brongniart, who was the author of Aechmea fulgens, thought otherwise as did later John Gilbert Baker who registered the name as *Aechmea fulgens* var. *discolor* in his Handbook of the Bromeliaceae (1889). On the plate in the *Dictionnaire Universel*, the author-name Brongniart is erroneously used for *Aechmea discolor*.

In 1836 the French navy organised an expedition with the participation of scientists in the fields of zoology and botany. The corvette "La Bonite" left the harbour of Toulon in February 1836, calling at ports of Rio de Janeiro, Montevideo, Valparaiso, Callao, Paita and Guayaquil before sailing on to the Philippines and India, rounding Cape of Good Hope and via the isle of Saint Helena returning in France at Brest in November 1837. The results of this trip around the world were recorded in text and and figures, for each field of science seperately. The editor of the botanical part was Charles Gaudichaud-Beaupré, a pharmacist with the French navy. His work *Voyage autour du monde exécuté pendant les années 1836 et 1837 sur la corvette La Bonite, commandée par M. Vaillant - Botanique* was published in Paris; 2 textvolumes in 1846-1851 and an atlas in parts between 1841 and 1852. The botanical atlas had 150 copper engravings which were contrary to the plates in the zoological atlas not in colour. Many of the plates, including 19 of bromeliads, were not described or explained in the textbooks at the time; yet in 1866 this was done in a supplemental volume by Charles d'Alleizette titled *Explication et description des planches de l'atlas*.

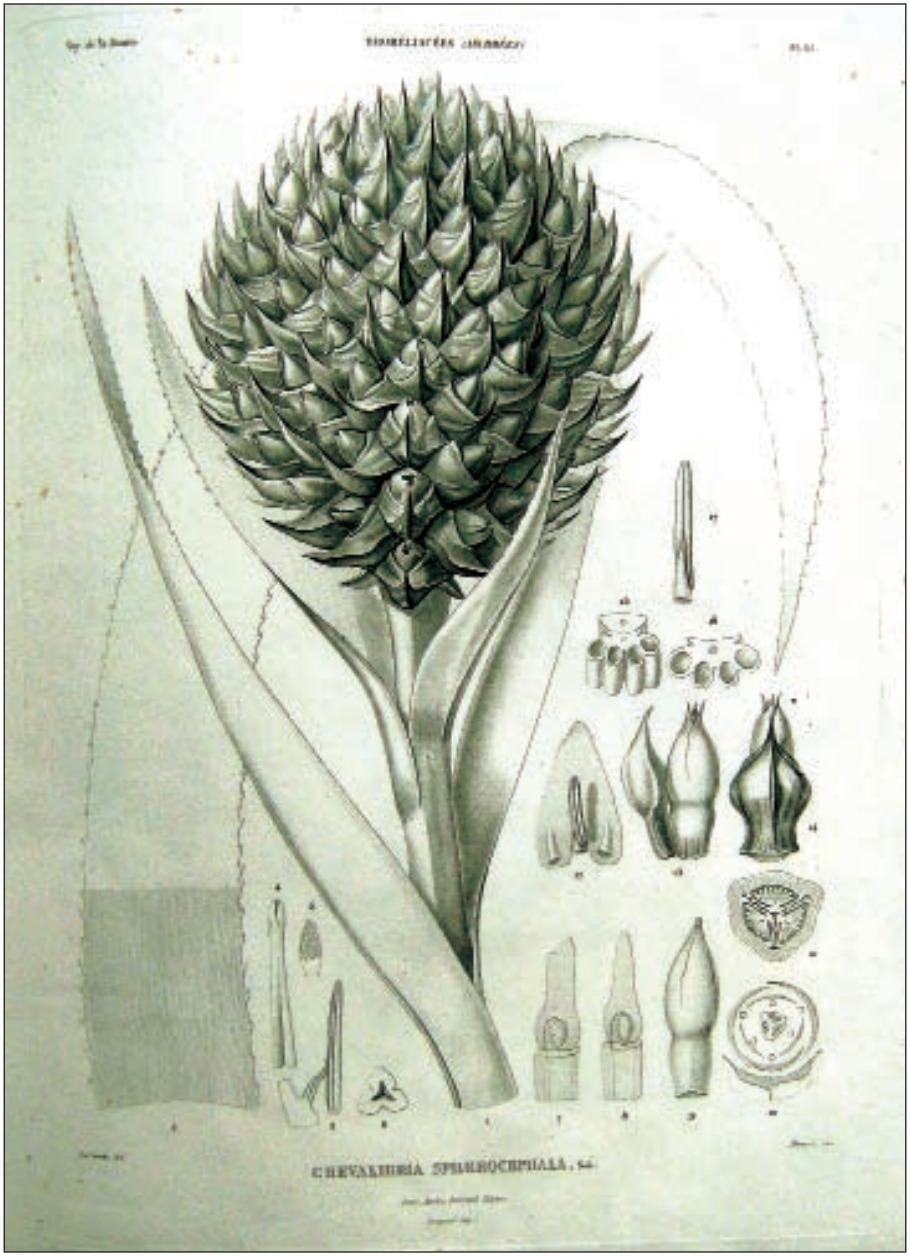

Figure 2. *Aechmea sphaerocephala* Baker. *Chevaliera sphaerocephala* Gaudichaud. Drawing Borromée, Voyage autour du monde La Bonite plate 61 (1843)

Several new species were illustrated in the atlas, but not all could be validated because they belonged to new genera that were not monospecific and thus were invalidly published (Grant & Zijlstra 1998). An example is *Chevaliera sphaerocephala* (Figure 2), in 1879 described

by Baker as *Aechmea sphaerocephala* in *London Journal of Botany*. In 1836 Gaudichaud made a collection of the plant, now deposited in the herbarium of the natural history museum of Paris. It is a species endemic to the states of Espírito Santo and Rio de Janeiro in Brazil, with leaves to 3 m. in length, but of relatively short stature with a flowering height of 60 cm. The species name relates to the spherical shape of the inflorescence. In 1989 after 17 years of cultivation a plant flowered for over a year in the Frankfurter Palmengarten (Zizka 1990); flowerbracts are purple and petals blue. This is an endangered species as described in an article in the BS Journal (de Paula & Guarçoni 2007).

Figure 3. *Billbergia morelii* Brongniart. Drawing and lithography Constans, Portefeuille des horticulteurs vol.2 page 97 (1848)

The journal *Portefeuille des horticulteurs, journal pratique des jardins* was short-lived with only 2 volumes from 1847-1848 published in Paris, but the the plates of 4 bromeliads were of fine quality. It is difficult to connect the name of one person to this journal, on the title page some 20 names of botanists and horticulturists are listed as publishers. Two new species in the journal are *Billbergia morelii* Brongniart and *Bromelia vittata* Brongniart ex Morel. The name *Billbergia moreliana* is printed on the plate from 1848 (Figure 3) while *Billbergia morelii*, the correct form of the name, is used in the description by Brongniart. In *La Belgique Horticole* in 1861 Édouard Morren reviews the confusion in various magazines concerning *Billbergia morelii* and *Billbergia vittata*; the description of one species was sometimes published with an illustration of the other. He also points out that the colours in the plate of *Billbergia morelii* in *Portefeuille des horticulteurs* are not accurate; so for comparison the plate illustrating Morren's article is reproduced here too (Figure 4). In 1859 a plate of this species was published with text by Heinrich Witte of Leiden in the Dutch journal with the French name *Annales d'horticulture et de botanique ou Flore des jardins du royaume des Pays-Bas*. Witte's plant came from horticulturist J.C. Rodbard of Leiden. Like Morren, Witte writes in detail about the incorrect information and wrong illustrations of this species in some journals. He also cites from a letter by Brongniart, who writes: "The figure in *Portefeuille des horticulteurs* shows a slightly different variety with dense involucrate lower bracts; but this can hardly be called a variety". The species name honors the botanist Morel who received the plant from Marius Porte, the collector of the plant in Bahia in 1847.

Figure 4. *Billbergia morelii* Brongniart. Drawing L. Severeyns, lithography G. Severeyns, La Belgique Horticole vol.10 plate 11-12 (1861)

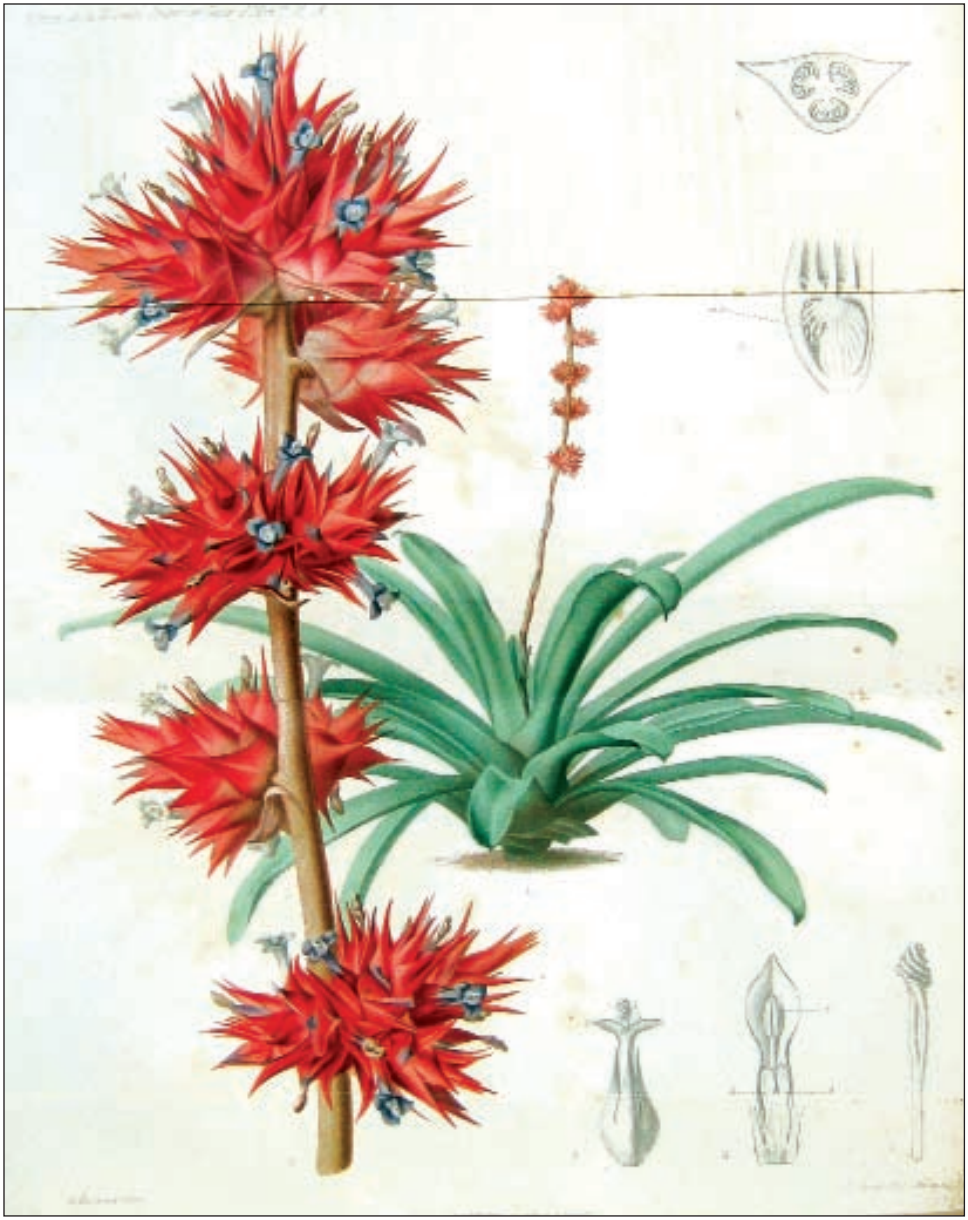

Figure 5. *Hohenbergia stellata* Schultes fil. Syn.: *Hohenbergia erythrostachys* Brongniart. Drawing A. Riocreux, lithography G. Severeyns, Journal de la Société Impériale et Centrale d'Horticulture de France vol.10 plate 18 (1864)

Francois Hérincq, botanist and gardener at the Muséum d'Histoire Naturelle in Paris, was the editor of *L'Horticulteur français, journal des amateurs et des intérêts horticoles*. This journal was published from 1851-1872, illustrated with 414 coloured plates with some bromeliads.

The Journal de la Société Impériale et Centrale d'Horticulture de France was founded in 1827 in Paris (published originally as *Annales* instead of *Journal*). A plate in 1864 shows *Hohenbergia erythrostachys*, descibed by Brongniart 10 years earlier but turning out to be the same species as *Hohenbergia stellata* Schultus fil. from 1830. The illustrated plant was collected by Porte in Bahia. This is an epiphytic and terrestrial plant from Trinidad and Tobago, Venezuela and northeastern Brazil.

In an article in the BS Journal by David Barry Jr. (Barry 1968) a fine plate of the cultivar *Vriesea* 'Mariae' was once reproduced from this French journal. The journal had changed its name by then to *Journal de la Société Nationale d'Horticulture de France* and still exists under the name *Jardins de France* as the organ of the French horticultural society.

Many readers will be familiar with Édouard André's *Bromeliaceae Andreanae. Description et histoire des Bromeliacées récoltées dans la Colombie, l'Ecuador et le Venezuela*. Published in 1889 in Paris, it was reprinted and translated in English in a version annotated by Michael Rothenberg in 1983. Several times attention has been given in the BS Journal to this book (Smith 1983, Rauh 1984, Lineham 1995). The 40 plates of bromeliads were made by lithographer G. Severeyns. In the English version and the one copy of the original French publication that I have seen, the plates are not coloured; but Marcel Lecoufle provided a reproduction of plate 10 in colour (Lineham 1995), so it seems the work was printed in different versions.

The last publication from France mentioned here is *Atlas des plantes de jardins et d'appartements* by D. Bois, who was connected to the museum of natural history in Paris and secretary-editor of the national horticultural society of France. The 2 volumes with 320 colour prints and a separate descriptive volume were published in 1896. The plates are neatly arranged by plant family, plates 257-260 are bromeliads. This work was also published in English in 4 volumes by E. Step and W. Watson (London, 1896-1897) under the title *Favorite flowers of garden and greenhouse*."

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Travels In Colombia

Bruce Dunstan

Figure 1. *Tillandsia mima*

Over the past 20 years I have wanted to travel in Colombia but have always put it off due to worries over security. In that time I have done trips to surrounding Panama and Ecuador a couple of times, also Costa Rica and Brazil and two trips to Peru. In all of those years and trips I survived unscathed, perhaps a little skinnier and scratched right afterwards, but nothing that has stayed with me long term.

This year was finally the chance to get to Colombia and have a play in the forest, one of life's true pleasures. Colombia is a plant lover's dream: instead of one mountain range with all the elevation changes that drive speciation in tropical plants, it has three separate mountain ranges as well as smaller mountain areas that in turn have their own local endemics.

Carla Black, from Panama and I travelled to Colombia this year with the view to take a group of plant people there as part of the post-tour for the 2012 Heliconia Society International conference, which will be held in El Valle Panama in late July 2011.

Figure 2. *Mezobromelia sp. nov.* Photo by Carla Black

Beforehand, Carla had managed to find our guide, Emilio Constantino, who made our trip possible. Emilio is a naturalist and a tropical fruit expert, trained in horticulture and tropical agriculture. He has devoted most of his life to studying South American wildlife and to promoting its conservation. For more than 25 years Emilio has carried out assessments of biodiversity and has promoted the creation of private plant collections and nature reserves among farmers and indigenous peoples. The collection on his farm serves as a model. He is the co-author of the Red Books on Colombian orchids, birds, mammals (tapirs and foxes) and insects (See his facebook page at www.facebook.com/profile.php?id=100000760847983). As well as this Emilio now guides people with specific interests in wildlife and plants, as well as cultural activities.

Emilio's contacts throughout Colombia allowed us to get advice from people on the ground, in specific areas, regarding how safe a particular road may be. This proved to be immensely helpful in ensuring we saw what we were hoping to find while avoiding any potential danger. Colombia is a country where conflicts have been going on between different peoples since well before the arrival of the Spanish in the 1500s. As times change so does the security situation. I remember Peru was a difficult proposition in the late '80s to early '90s. That situation rapidly changed and we had no problems in 1996 on my first visit.

Figure 3. *Pitcairnia archerii*. Photo by Emilio Constantino

Colombia is becoming safer and areas that were a war zone two years ago are just as safe to visit now as any other place in Latin America, or for that matter the world.

We started our trip in Cali, the country's third largest city, that nestles into the base of the western mountain range, or its correct name, Cordillera Occidental. The weather in Cali is warm, only 3^0 off the equator, but altitude helps moderate the heat and, with a couple of annual wet seasons, it is a prime sugar cane producing area, with alluvial soils 15-20m deep, eroded from the two surrounding ranges and deposited along the mighty Rio Cauca that flows north and eventually ends up in the Atlantic Ocean.

Our first adventure was to travel up and over the range and onto the slopes that run down to the Pacific Ocean. The roads that head in the easterly direction are all headed to Buenaventura, a large bustling port city that carries huge amounts of freight into and out of the country. This route is served by two roads, the old and the new and, as always, it's the old road that has the best places to stop and look at plants. The old road rises up over the range then branches off to the south towards Queremal. This was our base for a couple of days as we drove down the Anchicaya Valley.

The mountains also create some strange rainfall patterns with areas that receive next to no rainfall only 10-15 km away from areas that can get between 8-10m. In one of the dry pockets, as they are known, we saw cacti growing with low scrubby trees. Growing in this arid area were large numbers of *Tillandsia mima* (fig. 1) and *Tillandsia elongata*, both flowering while we were there.

Figure 4. Car wash in the Anchicaya region

The Anchicaya region is one of the wettest places I have travelled, with average rainfall ranging between 8-10m per year; luckily for us it mainly fell at night even though we were there in one of the two dry seasons. Anchicaya is a local Indian name that means 'the

Figure 5. Bruce Dunstan with *Pitcairnia squarrosa* var. *colorata*. Photo by Carla Black

mountains that cry', a direct reference to the almost constant falling rain (fig. 4). At higher elevations *Tillandsia fendleri* is very common as well as *Catopsis* and *Racinaea* species.

As we started heading downwards along the road from Queremal, we came across *Pitcairnia mutiflora* and *P. maidifolia*. This was to be the first of 14 *Pitcairnia* species that I noticed along the road to Buenaventura. Also at the higher elevations were plenty of *Guzmania* and what looked like *Tillandsia pinnata* or *truncata,* but without flowers, identification is tough. Flowering *Guzmania rosea* were plentiful as well as *Pitcairnia dolichopetala* and *P. barrigae*. Also growing in the forest are amazing *Heliconia* species, the main reason for our trip, along with bountiful representatives of *Gesneriaceae, Araceae, Costaceae, Melastomaceae, Marantaceae* and pretty much any other wet loving tropical plant group you could imagine.

Continuing to lose elevation, we came across more species in flower including *Guzmania lingulata* and *G. hollinensis* (I assume, due to its huge size, plicate foliage and tall-branched, green inflorescence). *Pitcairnias* kept changing species. There was a species that had long, bright red inflorescences and white flowers, that reminded me of images I have seen of *P. altensteinii*, a Venezuelan species. Also another white flowered species with bright red, showy bracts was just starting to flower. We saw a tall, sparsely-branched species with red flowers, that was 2m tall, maybe *P. paniculata*, as well as *P. spectabilis* but with differing colours to the forms found in Northern Ecuador. We spotted a beautiful bright yellow and red *Guzmania* flowering high above us that may have been a hybrid or potentially a new species, but we'll never know as it was so far away. I was able to clamour up a roadside bank and find flowering examples of *Pitcairnia brongniartiana, Vriesea monstrum, Guzmania harlingii*, as well as what was my favourite of the day, *Pitcairnia squarrosa* var. *colorata* (fig. 5). I've seen *P. squarrosa* growing in Panama with greenish-bracted inflorescences and last time we were there we saw some with what looked to have purplish bracts, but var. *colorata* has to be seen to be believed. The inflorescence is shaped like *P. nigra*, with red bracts that darken towards the peduncle to almost black, but flowering bright purple.

This plant was described in exactly the same spot back in 1948 and to me illustrates what I noticed when I was getting ready to do this trip: the known Colombian species had mainly been collected during the '40-'70s and all there were to look at were descriptions, herbarium specimens and the odd line drawing, if you were lucky. The bulk of the plants of Colombia just haven't seen the light of day for a long time, let alone been photographed or cultivated.

The Florapix website (http://botu07.bio.uu.nl/tropical/?gal=brom) allows someone like me to post images while I'm on the road and have taxonomists give their opinions on what my camera has captured. After this trip I've decided it's time to invest in a better camera with a larger optical zoom. My colleagues' images were superior to mine as well as having the ability to zoom onto far flung plants that otherwise would miss out on having their picture taken by me.

As we kept heading down hill we continued to see more diversity. *Guzmania globosa* was spotted with its bright red leaf bases and peduncles. The green inflorescences were covered in clear mucilage through which the yellow flowers must poke to be available to the hummingbird pollinators. *Guzmania musaica*, with very dark banding on the foliage, was in flower as well. At the bottom of the hill, in the flat country around Buenaventura, we saw more *Guzmania rosea* as well as *Guzmania musaica* var. *concolor*, an entirely green-leafed

Figure 6. *Pitcairnia sp. nov* or *Bromelia sp. nov*

variety with the orange and white inflorescence common to the patterned-leafed form. Also growing down there and, in fact, all the way down at every stop, was *Pitcairnia multiflora*; it was interesting to see one plant grow right through the different elevations. Down in the low elevations we saw lots of what looked to be big green *Werauhia* species, in trees, with green inflorescences.

The next areas we wanted to look at were the elevation changes of the road that heads down into the Chocó Province between San Jose del Palmar to Quibdo.

This meant leaving Cali and heading north up the Cauca River valley through fields of sugarcane, grapes and passionfruit, to the beautiful little town of El Cairo. We drove through miles and miles of coffee plantations that lined the steep mountainsides. Emilio told us that coffee cultivation has been one of the largest causes of deforestation in Colombia. We were greeted in El Cairo by one of Emilio's friends, Cesar, who works in an NGO (a Non-governmental organisation) that helps farmers conserve their watersheds, rivers and streams. Colombia suffered huge damage in record floods in November 2010 and by preserving some of the natural forests around their rivers and streams, it helps prevent soil erosion, landslips or worse landslides or even mudslides that can carry away farms and villages with little notice and much tragedy.

As we headed from El Cairo to San Jose del Palmar, we travelled down a very rough dirt road that the large buses, carrying people and goods between the towns, had really chopped up. It meant very slow going and what had looked on the map to be a short distance was

going to take much longer than we had planned. As we gained elevation to go over the pass between the mountains, once again the plants changed and we saw red *Cavendishia*, relatives of azaleas, that are pollinated by hummingbirds, plenty of orchids and the bromeliads also changed. We came across what I thought was an *Aechmea* that appeared to have finished flowering (fig. 6). As I started to photograph it I noticed it was actually juststarting to flower with its first flower emerging on the side of the inflorescence away from the road and me. Harry Luther has suggested it should be considered a *Pitcairnia* with some affinity to *P. guzmanoides*. Peter Tristram thinks it could be *Bromelia* after contemplating that flower. Further along the road we found the *Heliconia* we were looking for, so for a little while we had the 'Heliconia blinkers' on and saw nothing else. One plant that opened my eyes again was a scarlet-red bracted *Pitcairnia*, in flower with yellow and white-petalled flowers - a stunning little plant that would be a perfect-sized, flowering pot plant. As usual there were only flowering individuals and it was a little early for seed. We also found what looked to be yellow-flowered *Pitcairnia mutiflora* rather than the common white we had seen all along the Anchicaya Valley.

At the top of the pass and as we started to head down the hill into Chocó, we noticed lots of different *Guzmanias*. There were 7 different species I noticed in only a small area and the heavy rainfall and higher elevation seems to have allowed the proliferation of so many species there. We noticed small clumping plants that had fluoro-orange leaves. They had flower buds down low in their central leaves but were still a few weeks away from flowering, more frustrations to the travelling plant enthusiast. This plant may have some relationship to *Guzmania nidularioides*. We saw this species further along the road growing in full sun, although with all the rain that falls in this wet area it may see more clouds than sunshine. This species had very thin leaves that were bright red and also had a caulescent growth habit. The bracts surrounding the flowers changed to a bright canary yellow. Once again we were a week or two early to see its white flowers.

Figure 7. *Guzmania kresii*. Photo by Emilio Constantino

Further along the road we saw shady banks covered in tiny, caulescent *Guzmania oligantha*, their leaves looking like thin, wispy grass and having tiny buds with red and yellow bracts. If not for the buds I would have thought they were a grass or sedge and walked straight past. The most spectacular *Guzmania* we saw was *G. kressii* (fig. 7). This large plant looks a *G. squarrosa* but has seemingly wider leaves and was a fantastic, lurid, hot pink. The individuals we did see were well past their best, holding mature seedpods within the inflorescence, but still retained their amazing, bright-coloured bracts. The plant, with its broad leaves, made a magnificent sight as we drove down into San Jose del Palmar.

Figure 8. *Guz. sp. nov aff. nidularioides*

I should add it was John Kress who was probably one of the major reasons why I got to Colombia finally. John co-authored a book on Colombian *Heliconia* and, when he signed my copy back in 1999, wrote: 'Bruce now you can really fanaticize about what I missed in Colombia'. This playful 'dig' had kept my motivation going all these years, and we did find some really amazing things that I'm looking forward to showing John when we get together next year in Panama.

Further along, closer to town, we found another *Guzmania* that looked like *G. weberbaueri,* flowering away happily in landslides alongside the road, and on one bank we saw a few flowering clumps of another which has turned out to be *Guzmania rugosa*, a plant with meter long, red, branched flower spikes. All the yellow flower buds were covered in dripping, clear mucilage. This plant was discovered back in the '70s and we might be the first people to photograph it. Also along the road were a number of *Pitcairnias*: a red-bracted species with a tall, club-like inflorescence and black flowers; another red-flowered species with a tall, branched inflorescence, as well as *Pitcairnia susannae*, another species originally collected in northern Ecuador.

We eventually arrived in town to find that the road down into the Chocó does not go through San Jose del Palmar as our map showed. We would need to head further north to Apia and then onto Pueblo Rico if we wanted to get down to Quibdo. Well, it was lunchtime, so we stopped in the only restaurant in town and had fried Tilapia, beans, fried plantain and rice. Mmm, yum, just what we needed - more fuel for plant collecting.

We were looking for a particular *Heliconia* in this area, which was known from two collections along this road. After driving through to town and not spotting it, we decided to walk the 2kms between collections that had been made 30 years previously. This was the one day it really decided to rain while we were in Colombia, so in driving rain we walked slowly, peering into the forest longingly, looking for *Heliconia intermedia*, a species where the inflorescence emerges from the pseudostem half way up rather than from where the leaves emerge. As it happened we missed seeing the plant but, as I was getting more frustrated, I walked towards the edge of the road and what appeared to be solid ground. After one too many steps, the foliage I was standing on disappeared from underneath me and I fell about 5-6 feet down into a creek bed that had been covered with climbers. After I had stopped swearing and collected myself, I thought, 'Well, while I'm down here, I may as well have a real look', as this plant wasn't jumping out of the forest to be seen. I walked about 10m and there, staring me straight in the face, was not *H. intermedia* but *H. robertoi*. It was growing pretty much right on the rocks of the streambed I fell into and in full flower. After not finding what we were searching for, this was a pretty good second prize.

The next day we headed north and found the road leading out of Pueblo Rico was closed further along, due to roadworks, till at least 3:00 p.m. Emilio was able to convince the roadworks' foreman we were crazy tourists who only wanted to drive the road looking at flowers, not people who were hoping to beat the late afternoon rush to the provincial capital, Quibdo. So, off we went on yet another road with some great changes in elevation and great plants in turn. We found more Heliconias that we were looking for, as well as some hybrids and varying colour forms, so there was no time for bromeliads that really didn't jump out at us.

Figure 9. *Heliconia robertoi*

Colombia has to be seen to be believed. I was in total plant overload some afternoons with what I had seen across a whole range of different plant groups. It was all we could do but to sit down with a cold beer, download images onto my laptop and stare at what we'd seen each day, still in amazement.

If this sounds interesting to you please look at the post conference trip offered by the Heliconia Society International next August and visit www.heliconia.org for details. This trip would allow you to travel to these areas with a group of fellow plant enthusiasts and be taken directly to the plants. I can remember my first trip to the Neotropics in 1991 on a trip to Ecuador organised by Fred Berry and Betsy Feuerstein - it changed my life! If you would like a more personal tour, contact Emilio Constantino at econch@gmail.com but be warned - I've booked Emilio for the 2nd and 3rd weeks of July, 2012.

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

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Tillandsia magnispica (Espejo et Lopez-Ferrari) in Australia

Peter Tristram

Figure 1. *Tillandsia magnispica*

Every 2 years a group of Tillandsia crazies attends the 'Tillnuts' conference somewhere 'neutral' in Australia. Those who attended the BSI World Conference in Cairns might have watched an abridged version of this auspicious event, the day before the conference proper. Observers would have watched from the 'outer circle', while in the 'inner circle' were the Nutters doing their thing.

Among the many and varied topics this time were presentations/discussions on the *Tillandsia fasciculata* group, always a hot topic. With lots of flowering plants to examine, one became the centre of attention. Was it a form of *T. fasciculata* (Schwartz)? Was it *T. jalisco-monticola* (Matuda)? There was one sure way to solve this: the magnificent inflorescence was

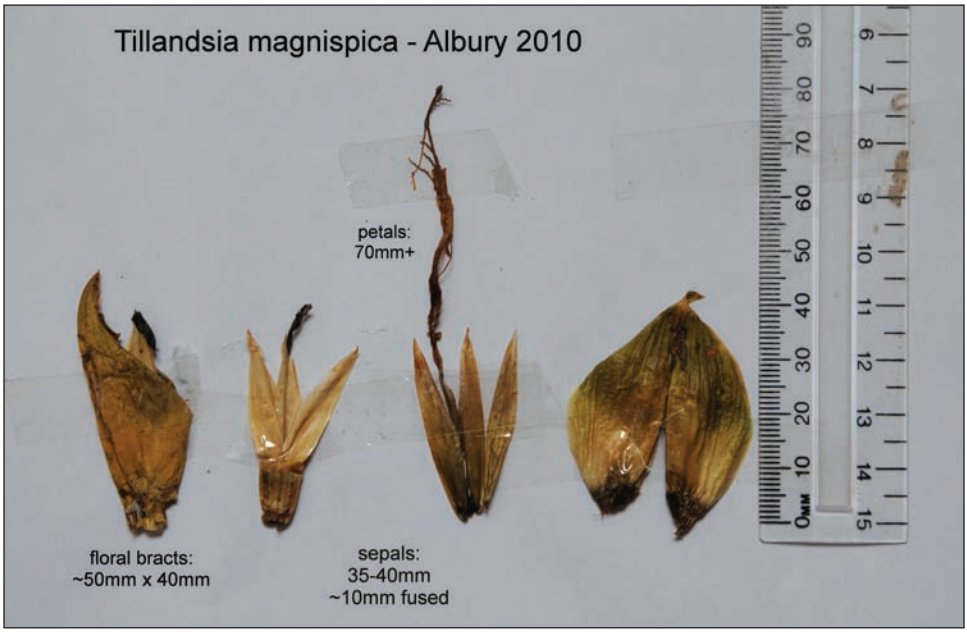

Figure 2. *T. magnispica* floral bracts and sepals close-up

unceremoniously snapped off and the floral bits ripped apart. These were then spread like plunder among the 17 attendees. Descriptions, courtesy of Uncle Derek's Tillandsia DVD, were scrutinised, measurements taken, even a microscope employed and much discussion entered into.

During the examination process, *T. jalisco-monticola* was eliminated immediately due, especially, to the narrower dimensions of the leaves and of the inflorescence and the presence of partly fused posterior sepals, free in *T. jalisco-monticola*. The incredibly variable *T. fasciculata* seemed a last resort, a disappointing possibility, but fortunately the author was familiar with the recently published description of *T. magnispica* so that plant's description was referenced. From leaf sheath to flower, BINGO, Perfect match! We're not so nuts after all!

Interestingly, original specimens can be traced to the 1980's, labelled *T. fasciculata* var. *unispica* as one remembered name, most likely others including *T. jalisco-monticola* or *T. sp.* as well. The plant always has a single, tricolour spike and is easier to grow in cooler climes than the chunkier, more temperamental *T. jalisco-monticola*.

So, the outcome was conclusive and agreement unanimous, rare in this deranged group: the plant in question was, without a doubt, the recently described *Tillandsia magnispica*.

Fortunately there was a second plant also in bloom or remaining evidence would have been destroyed. The photos are of the examined plant's 'sibling' pup as well as some floral parts for the always discerning taxonomists.

Rarely do plants of questionable identity so accurately fit a description.

Bromelia 'Aurelia'

Geoff Lawn, BSI Cultivar Registrar

Figure 1. *Bromelia* 'Aurelia' inflorescence. Photo by Dennis Cathcart

Around 1995 in a garden in San Jose, capital of Costa Rica, a variegated Bromelia was being ripped up to make way for building construction. Chester Skotak from Dura Flor Nursery in Palmeres (40kms. away) acquired this rare marginated bromeliad and re-established it in his nursery garden. Later, Chester identified his clumping specimen as *Bromelia hemisphaerica* and named it 'Aurelia' in honour of his secretary, Romanian-born Aurelia Bajenaru who still lives in Costa Rica. My enquiries from elsewhere regarding confirmation that this 'Aurelia' is *B. hemisphaerica* proved unsuccessful. Many of the 58 known Bromelia species are difficult if not impossible to identify positively from blooming photos only. Close botanical examination of a live flowering specimen is required.

Probably, *B.* 'Aurelia' was wild-collected originally from within Costa Rica as no other reports have recorded its existence. Eventually this variegate reached Florida through Tropiflora Nursery in Sarasota. Owner Dennis Cathcart advises that his nursery stock is potted and grown under shade screen. An individual rosette reaches 2-1/2 metres (8 ft.) diameter, arching leaves to 1-1/2 metres (5 ft.) long each and 4cms. (1.75 inches) wide mid-leaf. Of course the main attraction is the wide cream-marginated variegation which has remained 100% stable over the 16 years or more in cultivation. The blushing vivid pink foliage heart and scape-bracted compound inflorescence are spectacular but short-lived as with most Bromelias. Fertile fruits are more or less hidden in the sunken flower head and are not particularly visible. The densely-leaved rosettes are heavily armed with spines, a deterrent to man and beast alike. Offsets are produced on stolons to 30cms. (1 ft.) long but are usually difficult to remove safely. Protective clothing, long-handled secateurs and heavy-duty gloves are mandatory.

This huge stunning terrestrial would make an outstanding background feature if planted out in the landscape where there is plenty of room for it to multiply, in tropical and subtropical climates. Maybe *B.* 'Aurelia' is best described as "wickedly beautiful".

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Figure 2. *Bromelia* 'Aurelia'. Photo by Dennis Cathcart

Figure 3. *Bromelia* 'Aurelia' closeup of inflorescence. Photo by Dennis Cathcart

New Cultivar: *Billbergia* 'Allan Ladd'

Geoff Lawn, BSI Cultivar Registrar

In early 2007, northern New South Wales breeder Allan Ladd crossed *Billbergia pyramidalis* var. *pyramidalis* with reportedly *Billbergia* 'Windigig Special'. The resultant mixed seedling batch were attractive, some plain green, some pinkish but others with red leaf reverses and pale cross-banding. By 2009, Allan decided not to keep any of the progeny but selected 3 advanced seedlings each with a few thin pale vertical stripes, 1 each to go to 3 Aussie growers, including Ross Little at Pinegrove Nursery, Wardell, New South Wales. At this stage none of the grex had flowered nor been named.

Ross Little got the bulk of the progeny to grow on as stock plants in his nursery garden beds, although some were potted. The eventual blooming en masse showed clonal differences of red, pink and salmon-orange scape bracts, but strong uniform resemblance to the erect, torch-like *B. pyramidalis* inflorescence, typically short-lived (2-3 weeks) but eye-catching. Ross's pale-striped single specimen duly flowered, but the few random foliage lines had not improved with maturity, hence its nickname of "Faint Lines". However, the red leaf reverses with slight silver cross-banding and contrasting green obverses were evident, suggesting *Billbergia euphemiae* var. *purpurea* or a hybrid thereof was a more likely pollen parent, although the seed parent *B. pyramidalis* appeared very dominant.

Figure 1. *Billbergia euphemiae* var. *purpurea*. Photo by Derek Butcher

By pure chance the first (and so far only) pup from this one parent plant "Faint Lines" turned out strong, wide, central creamy-yellow variegation and showed no sign of reverting or changing pattern as it matured and spiked with the characteristic scarlet torch and purple petals. The next generation of variegated offsets are showing the same stability in foliage markings. Average mature rosette size is 40cms. diameter by 35cms. high, spiking to 50cms. tall. By April, 2011 Ross Little named and registered his clone *Billbergia* 'Allan Ladd' in honour of its breeder. Once in circulation, this choice semi-hardy cultivar surely will rival in popularity such adaptable *B. pyramidalis* progeny as 'Kyoto', 'Foster's Striate' and similar variegates.

Figure 2. *Billbergia* 'Allan Ladd' photo by R Little

Figure 3. *Billbergia* 'Allan Ladd' inflorescence photo by R Little

Events Calendar

AUSTRALIA / NEW ZEALAND:

OCTOBER 29-30, 2011. Bromeliad Society of New South Wales Spring Show, Concord Senior Citizens Centre, 9-11 Wellbank Street Concord.

MARCH 15-18, 2013. Cool Broms Conference, Auckland, NZ. Info by emailing coolbroms@bsnz.org or check out www.bsnz.org for conference news.

UNITED STATES OF AMERICA:

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

CONFERENCE CORNER

ORLANDIANA 2012
20TH WORLD BROMELIAD CONFERENCE
ORLANDO, FLORIDA

Orlandiana'12 is only one short year away – have you made your reservations?

Registration information and hotel rates can be found on the web site, www.bsi.org. Check the site often for conference updates.

The Florida Council is planning an outstanding event at a beautiful resort, so make plans now!

In case you haven't heard, Harry Luther has accepted an invitation to speak and will present a seminar on Bromeliad Diversity. Dean Fairchild is Seminar Chairman and promises educational and informative sessions – don't miss them!

It's almost time to choose a site for WBC 2014 and we would like your input! Where would you like to go for the next WBC?

There is more to this decision than you might think: can the local club support the effort, does the immediate area have supplemental tours and entertainment for significant others? Are there enough vendors in the area and enough local interest in bromeliads to support a sale?

As a point of reference, WBC 2010 returned nearly $6,000 to the New Orleans Treasury and the Plant Sale reported gross sales of $100,000. Could your affiliated society use a shot of cash? It's worth thinking about!

If you or your club would like to learn more about what it takes to host a conference, just e-mail: vicepresident@bsi.org.

Bonnie Boutwell, BSI Vice President

The BSI Seed Fund has found a new chairman! Many thanks to Bryan Windham of Kenner, Louisiana for taking on this responsibility.

More information to follow soon!

The Bromeliad Society International

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

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