Tillandsia juerg-rutschmannii and Tillandsia eizii Revisited: Two Pendulous Bromeliads of Chiapas
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Photographs by Robert Guess

In 1984, Jürg Rutschmann reported a new species of Tillandsia growing on the steep, limestone walls of Cañón del Sumidero, near Tuxtla Gutiérrez, the capital of Chiapas, Mexico. Astounded that this bromeliad with its large, striking inflorescence, could remain unknown within the confines of the popular Parque Nacional del Sumidero, he sent a specimen for verification to Werner Rauh in Heidelberg. Professor Rauh (1985) subsequently described the species and named it in honor of Rutschmann: Tillandsia juerg-rutschmannii Rauh (Lineham 1990).

How this extraordinary tillandsia escaped the attention of previous botanical surveys of the canyon is indeed problematic. At the time of discovery, Rutschmann (1984) noted that most of the specimens were in flower. While giving no indication of the relative abundance, he did mention the near absence of any immature or juvenile specimens. He further suggested that this was a highly synchronized plant community in which plants flower within a given span of time. Thus, unless an observer was fortunate to be in the canyon during this period, the species could go unnoticed.

Tillandsia juerg-rutschmannii is currently known to grow only at this cliff site. The plants cling to sheer rock faces that soar 800 meters above the Rio Grijalva as it flows through a deep, narrow channel in the gorge on its course to the Gulf of Mexico. The isolated habitat is located a few kilometers down river from the mouth of Cañón del Sumidero, a geological landmark defining where the Central Depression of Chiapas ends and the Chiapas Plateau or Highland Chiapas begins.

In January, 2000, we observed a flowering specimen of T. juerg-rutschmannii from the edge of the canyon at an altitude of 1200 meters. Needing a better look at the species, we engaged a boatman from the nearby embarcadero to transport us to the area on the river directly below. The launch, by far, provided the best viewing platform to examine a few examples at close range, and to scan others with binoculars. The population appeared to extend for about two kilometers on the river where we estimated some four hundred plants, in varying sizes and stages of development, scattered on the canyon walls. From our vantage point, we saw only solitary plants. Most grew on the shadier, east-facing cliffs, from slightly above the water level at an altitude of 400 meters up to the sharp rim of the canyon.
Figure 1. Viewed from below, the bracts of *Tillandsia juerg-rutschmannii* appear pale green.

Figure 2. Immature specimens of *Tillandsia juerg-rutschmannii* on limestone face of Cañon del Sumidero.

Figure 3. Cañon del Sumidero: habitat of *Tillandsia juerg-rutschmannii*.

Figure 4. Adventitious offset removed from a mature plant of *Tillandsia juerg-rutschmannii*.
The plant bodies form dense, upright rosettes that can be mistaken, from a distance, for a Vriesea or other soft-leafed, large-bodied Tillandsia. They attain a height of approximately 50 centimeters, with broad, green leaves, about 60 centimeters long and 10 centimeters wide. Even in the dry season, these rosettes fill with moisture from the mists that often shroud this breath-taking gorge. The pale-pink, pendulous inflorescences with pencil-thin scapes and spikes are well-camouflaged amidst the deep shadows cast by the soaring cliffs. The primary bracts, a rose color on the surface exposed to the sun, appear pale green when viewed from the underside.

We observed only two plants in flower: one, on the rim of the canyon, suspended precipitously from the edge; and the other, some five meters above the river. The small, delicate, violet flowers can barely be seen on the cascading inflorescence which extends to over 150 centimeters long. Although we noted no axillary offshoots on any of the plants, we did see adventitious offsets on the bases of several maturing specimens. Within our limited viewing range, we saw only six plants with dried inflorescences, most with evidence of recent flowering. Only one of the older specimens was in the dehiscent phase.

Of the over 160 species of Bromeliaceae recorded for Chiapas, Tillandsia eizii L.B. Smith is one with several characteristics similar to T. juerg-rutschnannii. Both are endemic, noteworthy for their pendulous inflorescences, known to reproduce primarily by seeds, and require years to reach maturity. In addition, adventitious offsets are often found on both species. They inhabit, however, different environmental niches.

In contrast to the relatively unknown, saxicolous T. juerg-rutschnannii, T. eizii, with a robust, pink inflorescence, up to two meters long, is a well-documented epiphyte of Highland Chiapas. It grows at altitudes ranging from 1200 to 2400 meters in the oak-pine forests of the Central Plateau, some fifty kilometers east of Cañon del Sumidero, and even farther afield in the Sierra Madre and northern highlands. Although T. eizii has also been reported in the Department of Huehuetenango (western highlands of Guatemala), we have no recent evidence that the species survives in this heavily-deforested region.

Tillandsia eizii is named after Eizi Matuda, a Japanese-born botanist who arrived in Chiapas in 1922, and later became a leading authority on the flora of the state with a special interest in bromeliads. In 1951, he collected a tillandsia from the forest at Síttepec, in southeastern Chiapas, at an altitude of 1200 meters, identifying it as T. violacea. The plant eventually made its way to the United States National Herbarium. A number of years later, L.B. Smith (1977) re-examined the specimen, described it as a new species, and named it in honor of Professor Matuda.

Even with its high visibility and notoriety, T. eizii has been plagued by an unfortunate confusion in nomenclature. This may in part be due to a somewhat superficial resemblance to other pendulous bromeliads from other states of Mexico, namely T. prodigiosa (Lemaire) Bake and T. violacea Baker. More importantly, however, T. eizii was not described until 1974, well after the appearance of numerous publications about a pendulous tillandsia used in Chiapas for religious ceremonies and decorative purposes. In these accounts, the plant was identified either as T. prodigiosa, or more often, as T. violacea.

While Blackburn (1982) clearly outlined the differences between T. eizii and T. prodigiosa, a similar distinction has not been made between T. eizii and T. violacea. Only Utley (1994) notes that since T. violacea is not known to occur in Chiapas, all references to a pendulous tillandsia in that state as T. violacea undoubtedly refer to T. eizii.

With an increasing population in Highland Chiapas asserting new demands for land once covered by dense forests, the numbers of T. eizii are in sharp decline. Where ten years ago the species could be easily seen throughout the Highlands, now it exists in abundance only in pockets of more remote forests. As an indication of diminishing numbers, during the Christmas season of 1999, when we would expect the market of San Cristóbal de Las Casas to be filled with bromeliads, we found only a handful of T. eizii.

Tillandsia juerg-rutschmannii appears to be relatively safe from the fate of T. eizii. Not only is its habitat located within the protected boundaries of a National Park, it is almost impossible to gather these plants from their precipitous perches. Wild fires which sporadically rage through the Park are the most formidable danger to this species. Such a conflagration occurred in 1997 causing severe damage to the vegetation along the west-facing walls of the Rio Grijalva Gorge. While currently unheralded, T. juerg-rutschmannii, when better known, will undoubtedly join T. eizii as another remarkable tillandsia endemic to Chiapas.

ACKNOWLEDGMENT
To clarify the confusion in terminology for ourselves, we examined forty-five herbarium specimens of T. eizii, T. violacea, and T. prodigiosa : five from California Academy of Sciences, and forty from the United States National Herbarium, including the holotype of T. eizii. Our thanks to Steve Junak, Herbarium Curator at the Santa Barbara Botanic Garden, who arranged for the shipment of the material from the Smithsonian Institution to Santa Barbara.

REFERENCES
Tillandsia juerg-rutschmannii Rauh spec. nov. Tropische ndef Subtropische Pflanzenwelt 52:54-56.
This key roughly follows the information given in the Monograph by Smith and Downs (Flora Neotropica no.14, 1974-77) which covered 46 genera. This was expanded in Lyman Smith’s paper in Beitr. Biol. Pflanzen 63 (1988) 403 - 411 to cover 51 genera where he added new genera Steyerbrornelia, Brewccaria, Pseudaechrnea, and Lymania. Lindmания was revived from synonymy of Cottendorfia. In the same issue but on pages 101-113, Elvira Gross reported findings on the germination processes of the three subfamilies and one facet is shown in the key below. The key was further updated in 1998 by L. B. Smith and W. Till to cover 56 genera in The Families and Genera of Vascular plants, Kubitzki pages 83 - 86 (1998) where Alcantarea, Werauhia, Ursulaea, Pepinia, and Racinana were added. Abromettiella had been placed in synonymy with Deuterocohnia Note that Streptocalyx was retained purely because the genus Aechmea is currently in a state of flux. However, Chevaliera has been resurrected to genus status because of its clearly delineated boundaries and is more of a natural group. Since this publication the genera have increased to 58 where Derek Butcher has now added Canistropsis, and Edmundoa, and made adjustments to Canistrum, Nidularium, and Wittrockia because of Elton Leme’s recent work Canistrum-Bromeliads of the Atlantic Forest (1997) and Canistropsis-Bromeliads of the Atlantic Forest (1998). The merging of Pepinia into Pitcairnia at generic level in Harvard Papers in Botany Vol. 4 no.1 195 - 202 (1999) by Robinson and Taylor has reduced the genera to 57.

1. Mature seed appendaged or if not (Pitcairnia in part and Navia and Brewcaria), then the fruit capsular and dehiscent; ovary superior or largely so in most genera to inferior; fruit capsular, or if not, (Pitcairnia in part), then the seed is appendaged.  

1a. Mature seed unappendaged; fruit baccate; ovary inferior; leaves mostly spinose-serrate: indument almost always of obvious scales; on seed germination the cotyledon remains in the seed; plants often terrestrial. (subfamily Bromelioideae) 26

2. Seed appendages entire or slightly divided (Brochinia paniculata) or lacking (Pitcairnia aphelandriflora) and (Navia); fruit usually dehiscent; leaves mostly spinose-serrate; indument of finely to scarcely divided scales; on seed germination the cotyledon moves out of the seed and becomes green; plants Usually terrestrial. (subfamily Pitcairnioideae) 3

2a. Seed appendages finely divided and forming a coma, always present; fruit dehiscent; leaves always entire; indument almost always of obviously radially symmetric scales; on seed germination the cotyledon remains in the seed; plants mostly epiphytic. (subfamily Tillandsioideae) 18

3. Plants monoecious or, if rarely dioecious (Cottendorfia) or polygam dioecious (Dyckia maritima, D. selloa, and D. hebedingii), then the petals yellow or orange
and plants native to north-eastern and southernmost Brazil. 4

3a. Plants dioecious with functionally unisexual flowers; petals rose or white; plants of Texas, Mexico, and northern Central America. Hechtia

4. Bases of the filaments separate from each other, but sometimes individually adnate to the petals and sepalas. 5

4a. Bases of the filaments forming a tube and adnate to the petals; petals yellow to orange: plants of Brazil, Uruguay, Paraguay, and Argentina. Dyckia

5. Seeds obviously and persistently appendaged. 6

5a. Seeds not appendaged at maturity. 16

6. Petal blades tightly spiralled after anthesis, broad, distinct from the bottom portion; leaf blades narrowly triangular, never contracted at base; ovary superior or slightly inferior; mostly Andean plants of open slopes and summits from Costa Rica and Guyana to Chile and Argentina. Puya

6a. Petal blades remaining separate after anthesis or, if sometimes slightly spiralled (Deuterocohnia), then not distinct from the bottom portion. 7

7. Ovary wholly superior, petals regular. 8

7a. Ovary partially to wholly inferior, or, if superior then the petals zygomorphic (Pitcairnia spp.). 14

8. Petals naked or with paired appendages (Steyerbromelia). 9

8a. Petals each bearing a single basal appendage; xerophytic plants of the southern Andes from Peru to Chile, Argentina, and W. Brazil. Deuterocohnia

9. Seeds with a sickle-like appendage; petal blades narrow, indistinct from the base; plants of NE Brazil. Encholirium

9a. Seeds bicuculate-appendaged. 10

10. Anthers basifixed, linear, coiled at anthesis, inner filaments adnate to the base of the petals; leaf blades thin, more or less contracted at base; mesophytic plants of Mexico to Argentina and W. Brazil. Fosterella

10a. Anthers subbasifixed to equitant, stout, straight; filaments usually free; leaf blades firm, not contracted at base; plants of the Guyana Highlands. 11

11. Flowers perfect; sepalas rolled-up lengthways, each with its left side covering the right side of the next. 12

11a. Flowers unisexual, dioecious; petals spiral in form with the abaxial overlapping both the adaxial, plants of NE Brazil. Cottendorfia

12. Petals naked; stigmas straight, erect; flowers mostly pedicellate. 13

12a. Petals with paired appendages; stigmas broad, strongly contorted; flowers sessile; inflorescence compound, lax. Steyerbromelia

13. Anthers subsbsifixed; petals brightly colored, more or less massed together after anthesis but not twisted; petals large and firm. Connellia

13a. Anthers equitant; petals white or rose, separate after anthesis; sepalas not over 10mm long, thin, flat. Lindmania

14. Petals large, naked, or appendaged, usually zygomorphic and forming a hood over the anthers; sepalas convolute with the left side of each overlapping the right of the next one; Mexico and the West Indies to Argentina and Brazil. Pitcairnia

14a. Petals minute, regular; sepalas spiral in form with both adaxial ones overlapping the abaxial; plants of the Guyana Highlands. 16

15. Epigynous tube lacking; inflorescence open and definitely branched. Brocchinia

15a. Epigynous tube well developed; inflorescence sessile, capitulate. Ayensua

16. Sepalas convolute; petals zygomorphic (Pitcairnia aphelandriflora 14

16a. Sepalas cochlear with both adaxial ones overlapping the abaxial; petals regular; oval superior (in most) to nearly inferior. Guyana highlands. 17

17. Petals naked; inflorescence scapose, pinnate, and more or less open or sessile and Capitate. Navia

17a. Petals with 2 appendages; inflorescence long-scapose, simple, densely cylindrical. Brewcaria

18. Ovary nearly or quite superior; seeds plumose on base or apex or largely on the base and only slightly on the apex. 19

18a. Ovary only half superior; seeds equally plumose-appendaged at both ends; flowers polystichous. Lesser Antilles, Trinidad, adjacent Venezuela. Glomeropitcairnia

19. Appendage of the seed wholly or largely basal, straight at maturity. 20

19a. Appendage of the seed largely apical, folded at maturity; sepalas strongly asymmetric in most species; flowers in at least slightly more than 2 ranks; leaves often crenate-coated on the inside. Florida, Mexico, West Indies to Brazil and Peru. Catopsis

20. Petal bases free or with very short tube exceeded by the sepalas; flowers distichous in most species. 21

20a. Petal bases conglutinated in a tube, equaling the sepalas or, rarely, the petals entirely included in the sepalas. 25

21. Petals naked; inflorescence of 1 or more distichous flowered spikes or racemes or rarely reduced to one or more polystichous-flowered spikes or to a single flower; southern United States to Argentina and Chile. 24

21a. Petal appendages on the inside of the petal base; Mexico and the West Indies to Argentina and Uruguay. 22

22. Seed with the apical appendage divided into a short coma; petals linear long, fusiform, usually 10-15 times longer than wide, soon flaccid and drooping. Alcantarea

22a. Seed with the apical appendage minute and undivided; petals elliptical, usually 5-10 times longer than wide, usually firm and remaining more or less erect after anthesis. 23

23. Flowers with brilliant coloration in most species, bright yellow, orange, or red, rarely dull to white, light yellow, or light orange: the adaxial petal pair arranged apically in respect to the abaxial; petal appendages tongue-shaped; stigmas with the convolute blade type morphology, that is, 3 obviously spreading lobes covered
with papillae.

23a. Flowers generally dull in color, white, grayish yellowish green, yellow, or light orange; the adaxial petal pair arranged basally in respect to the abaxial; petal appendages finger-like with 1-5 fingers of varying length; stigma with the cupulate type morphology, that is, 3 apical, capitate, cup-shaped lobes, without papillae.

Vriesea

24. Sepals symmetric or if slightly asymmetric, then ovate or lanceolate and broadest below the middle, free or variously connate; seeds usually with a distinct apical appendage.

Werauhia

24a. Sepals asymmetric, free or nearly so, broadest near apex, not over 12mm long; seeds without apical appendage.

Racinaea

25. Petal bases always naked; spikes always polystichous flowered. Florida, Mexico, and the West Indies to Brazil and Bolivia.

Guzmania

25a. Petal bases bearing appendages on the inside; flowers polystichous rarely secund or distichous. Colombia to Peru.

Mezobromelia

26. Sepals symmetric or nearly so.

Tillandsia

26a. Sepals asymmetric

27. Filaments forming a tube to which the fleshy petals are joined along their centers but with their margins free; sepals mostly free or nearly so; leaves very laxly and coarsely spinose-serrate.

27a. Filaments not connate but sometimes adnate.

28. Sepals with soft, usually broad apices; inflorescences compound. Mexico and the West Indies to Argentina and Uruguay

Bromelia

28a. Sepals spinose-mucronate.

29. Inflorescence simple, with almost no scape. Argentina.

Deinacanthon

29a. Inflorescence branched with terminal cone-like branches, with a scape. S Mexico, Guatemala.

Hohenbergiopsis

30. Terminal axes of the inflorescence visible.

30a. Terminal axes of the inflorescence covered by leaves or bracts.

31. Petals naked; sepals 0.5-7 mm long

31a. Petals appended; sepals mostly much larger.

32. Inflorescence compound; sepals broadly ovate or oblong, 0.5-2mm long. Costa Rica and Trinidad to Amazonian Brazil.

Araeococcus

32a. Inflorescence simple; sepals narrowly elliptic, 7mm long; flowers subsessile or pedicellate. Mount Itatiaia area in E Brazil.

Fernseea

33. Petals zygomorphic or tightly recoiled and flowers sessile. W Mexico and Central America to Argentina and Uruguay.

33a. Petals not zygomorphic.

34. Epigynous tube usually well developed.

34a. Epigynous tube shallow. W Mexico.

35. Petals erect. E Brazil.

35a. Petals recoiled at the top.

36. Flowers sessile.

36a. Flowers pedicellate.

37. Inflorescence simple, cone-like; flowers solitary in the axil of each bract

37a. Inflorescence compound

38. Scape short or none; cone-like branches nidular or axillary.

38a. Scape well developed, obvious.

39. Floral bracts leaf-like. NE Brazil.

39a. Floral bracts bract-like.

40. Scape distinct, its bracts shorter than the floral bracts; petals naked. Mexico and Venezuela to Chile.

Greigia

40a. Scape none or very short

41. Epigynous tube shallow, bowl-shaped (A. pitcairnioides) Brazil: Bahia.

Acanthostachys

41a. Epigynous tube cylindrical, deep. Chile.

42. Sepals obuse, keeled.

42a. Sepals acute to attenuate, pungent to mucronate, not keeled.

43. Scape erect, without bracts (A. strobilacea). S Brazil, Paraguay, Argentina.

Acanthostachys

43a. Scape covered with bracts.

44. Scape bracts leaf-like, scape erect. NE Brazil.

Orthophytum

44a. Scape bracts bract-like; scape prostrate. French Guiana and adjacent Brazil.

Disteganthus

45. Inflorescence obviously compound with several strobils on elongate floral axis.

45a. Inflorescence pseudosimple with hands or flat fascicles in axils of large bracts.

46. Floral bracts leaf-like, serrulate; cone-like branches sessile or sub sessile. NE Brazil.

Orthophytum

46a. Floral bracts bract-like, entire; cone-like branches on distinct scapes. Mexico and Venezuela to Chile.

Greigia

47. Outer bracts of the inflorescence leaf-like; sepals high connate; petals naked. NE Brazil.

Cryptanthus

47a. Outer bracts of the inflorescence bract-like, large, and covering most of the flowers. E Brazil.
48. Petals erect and apex distinctly obtuse cucullate, connate or agglutinated in a tube the height of the sepals. **Nidularium**

48a. Petals sub-erect to spreading at anthesis, free or nearly so. **Edmundea**

49. Inflorescence wool persistent after anthesis. **Aechmea** subg. 3. Aechmea

49a. Inflorescence wool not persistent. **Ortigiesia**

50. Stolons slender, flowers 20—35 mm long. **Canistropsis**

50a. Stolons stout or none, flowers 45—80 mm long. **Wittrockia**

51. Ovaries coalescing to form a compound fruit; inflorescence simple, strobilate. **Aechmea**

51a. Ovaries always remaining distinct. **Pseudananas**

52. Inflorescence with a small, inconspicuous coma, never producing basal shoots; plant propagating by elongate rhizomes; petals bearing vertical folds. **Paraguay and adjacent areas. Pseundananas**

52a. Inflorescence usually with a large conspicuous coma (lacking in *A. monstrosus*), often with basal shoots; rhizomes lacking; petals usually bearing well-developed scales. Probably native from Paraguay to the Amazon Basin, now pantropical. **Ananas**

53. Flowers pedicellate. **54**

53a. Flowers sessile or subsessile. **59**

54. Inflorescence nidular, simple in most species; petals naked. Amazonia, E Brazil. **Neoegelia**

54a. Inflorescence scapose **55**

55. Sepals more or less connate, long-mucronate; petals appended. E Brazil. **Portea**

55a. Sepals free or unarmed. **56**

56. Inflorescence simple; sepals without sharp tip. **57**

56a. Inflorescence compound. **58**

57. Petals naked. Colombia. **Pseudaechmea**

57a. Petals appended. Colombia and Guyana to NE Brazil. **Aechmea** subg. 2. Lamprococcus

58. Sepals 1.5-3 mm long; inflorescence glabrous; petals naked. Colombia to Suriname and Amazonian Brazil. **Araeococcus**

58a. Sepals 3.5-22 mm long; inflorescence lepidote; petals appended. Mexico to Peru. **Aechmea** subg. 1. Podaechmea

59. Petals appended with well-developed appendages. **60**

59a. Petals naked or with lateral folds or rudimentary or reduced appendages. **66**

60. Epigynous tube shallow or lacking; flowers in tubular cone-like branches; inflorescence mostly pinnate and lax, rarely digitate or simple (H. littoralis). Antilles to Venezuela and Brazil. **Hohenbergia**

60a. Epigynous tube well developed; inflorescence various. **61**

61. Sepals without a sharp tip. **62**

61a. Sepals with a sharp tip. **61b**

61b. Inflorescence not involucrate. N and S America **Aechmea** subg. 4. Ortigiesia, **Aechmea** subg. 6. Pothuava

61c. Inflorescence involucrate with large upper scape bracts and primary bracts. S. America. **Canistropsis**

62. Floral bracts attached basally, not decurrent nor forming pouches; flowers polystichous. **63**

62a. Floral bracts decurrent and forming pouches around the flowers; flowers often distichous. N and S America. **Aechmea** subg. 5. Platyaechmea

63. Inflorescence compound. **64**

63a. Inflorescence simple. **65**

64. Leaves distichous; blades marked with spots or bands; floral bracts minute; ovules obtuse (Q. marmorata). Brazil: Espirito Santo to Sao Paulo. **Quesnelia**

64a. Leaves polystichous or the blades concolorous; floral bracts large to lacking; ovules long-caudate. Colombia, Venezuela, Amazonian Brazil. **Aechmea** subg. 2. Lamprococcus

65. Ovules obtuse (no further distinction possible without keying by species). **Ananas**

65a. Ovules apiculate to caudate. Central America to Brazil and Argentina. **Aechmea** subg. 7. Macrochordion

66. Ovary deeply sulcate; inflorescence simple or compound. NE Brazil. **Lymania**

66a. Ovary evenly rounded. **67**

67. Inflorescence lax; axes visible. **68**

67a. Inflorescence dense. **71**

68. Inflorescence simple. Costa Rica to Peru. **Ronnbergia**

68a. Inflorescence pinnately compound. **69**

69. Flowers very small; sepals not over 3 mm long; ovules few; epigynous tube none. Costa Rica, Venezuela, Trinidad, Tobago, Guyana to Amazonian Brazil. **Araeococcus**

69a. Flowers small to large; sepals more than 3 mm long; epigynous tube distinct. **70**

70. Branches elongate, many-flowered; flowers perfect; anthers unappendaged. E and Amazonian Brazil and adjacent areas. **Streptocalyx**

70a. Branches short, digitately few-flowered; flowers functionally unisexual on different plants; anthers appended. Central America: Guatemala to Costa Rica. **Androlepis**

71. Flowers 2 or more in the axil of
WBC Notes on Terrestrial Bromeliad Genera

Here is the list of the eligible genera for the “Founder’s Award” Best Terrestrial to be awarded at the San Francisco WBC. Since this is a very mixed bag and hard to get handle on, we are going with the genera that have the designation of “All” and “Mostly” terrestrial members of the genus.

Eligible plants will be only from these genera even if they come from the “Some” category. To do anything else would be a nightmare for Classification.

TERRESTRIAL BROMELIAD GENERA [Includes lithophytes]

| Alcantarea | Cottendorfia | Fascicularia | Ochagavia |
| Ananas | Cryptanthus | Fosterella | Orthophytum |
| Ayensua | Deinacanthon | Greigia | Pepinia |
| Brewcaria | Deuterocohnia | Hechtia | Pitcairnia |
| Brocchinia | Disteganthits | Lindmania | Pseudananas |
| Bromelia | Dyckia | Nava | Puya |
| Connellia | Encholirium | Neoglaziovia | Steyerbromelia |

This information will be incorporated into the Show Schedule.

If you haven’t registered yet for the conference, or haven’t made your room reservations, you are reminded once again that the registration rates are now $130 until June 1, 2000. After that, the rates will go up to $150, payable at the conference, and that the block of rooms reserved for the conference will be released to the general public.

A new Tillandsia from the Dominican Republic

Renate Ehlers

Illustrations by the Author

Tillandsia kuzmae R. Ehlers, sp. nov. (figures 7-9)

A T. fasciculata Sw. foliis flexilibus, vaginis foliorum magis obscure, facie adaxiale foliorum viridibus nec griseis, inflorescentia spicis magis numerosis sed minoribus magis compressis composita, bracteis primariis longioribus, internodiis spicarum majoribus, bracteis florigeris acuminatis apice incurvatis, nervatis, tenuioribus, sepalibus alato-carinatis, petalis brevioribus apicis non revolutis et fauce corollae magis clausa differt.


Plant stemless, flowering 40—70 cm high, many leaves forming a spreading to erect rosette, 40—60 cm in diameter. Leaves thin coriaceous and elastic, narrowly triangular, green but densely covered by gray subapressed scales. Sheaths 9—12 cm long, 4—5 cm wide, ovate, on both sides minutely covered by very dark castaneous appressed scales. Blades 2—3 cm wide above the sheath, narrowly triangular evenly narrowed into a subulate apex, adaxially appressed gray lepidote appearing green, axially very densely gray lepidote. Scape erect, stout, shorter than the rosette, imbricately concealed by the subfoliature scape bracts. Inflorescence erect, 12—20 cm long, 3.5—5 (to 7) cm wide, cylindrically or narrowly elliptic, bipinnately compound of 11 to 17 densely erect spikes, (internodes ca. 1 cm), with the adaxial side flat, the rachis barely visible. Primary bracts half or one-third as long as the spike, the sheaths 1/3 as long, similar to the floral bracts, elliptic, the lower ones with a to 3 cm long filiform blade, the apical ones only acute. Spikes 5—8 cm long, 1.5—2 cm wide, narrowly elliptic, short stipitate, strongly complanate, composed of 4—9 non fragrant, sessile flowers and mostly 1—2 sterile bracts at the base. Floral bracts densely imbricate, internodes 1.5—2 cm, the rehashes not visible, 3—3.8 (to 4.2) cm long, 1.4—1.6 cm wide, ovate acuminate, cuneculate with hooked spine, alate-carinate, thin-coriaceous with iyaline margins, abaxially nerves, glabrous, yellow, adaxially stronger nerves, minutely brown lepidote. Sepals 2.6—3 cm long, 4—5 mm wide, lanceolate acute, thin-coriaceous, green, the posterior ones alate carinate and connate for 1/2 or 2/3 of their length, abaxially glabrous, adaxially densely brown lepidote. Petals 3.4—4.5 cm long spatulate, at apex 5 mm wide and pale violet, the tips not revolute, corolla throat closed around the filaments, 3 mm wide and white at the base. Stamens surpassing the flower; filaments in two series of unequal length, to 5.7 cm long, apical part 0.8 mm wide, oval, violet, thin and white at base; anthers 3.5 mm long, 1 mm wide, attachment 1/3 from base, brown, pollen egg yellow. Style 4.5 cm long, thin, white; stigma 2 mm long. 1.2 mm wide, lobes erect, not twisted,
slightly papillose, yellow-white, Type 11 of Brown & Gilmartin. Ovary 7 mm long, 2.5 mm wide at base, conical, greenish.

The plant seems to be related to *T. fasciculata* since the key from L. B. Smith leads to this plant. But it does not key out as the spikes are shorter than 10 cm. Assuming that the spikes are longer than 10 cm leads (due to the nerved, beaked, cucullate, hooked apex) to *T. fasciculata* var. *venosispica*. Pamela Koide of Birdrock Nursery in Carlsbad, California also assumes her plants might be var. *venosispica*.

But if we compare the inflorescence with the type *Sintensis 473* of *T. fasciculata* var. *venosispica* Mez which shows 4 digitate spikes with very short primary bracts, there is almost no similarity. Nor does the characteristic “...drying dark” fit, as the plant dries yellow-ivory.

*T. kuzmae* differs from *T. fasciculata* Swartz by the following characteristics: leaves not stiff and hard but thinner and more elastic, sheaths slightly inflated and dark, nearly black, the blades adaxially appearing green not gray. Inflorescence composed of more but smaller dorsi-ventrally more compressed erect spikes. Primary bracts longer, not many times shorter than the spikes and with nearly no blade but to half as long as the spike and with distinct blade. Internodes of floral bracts bigger, (only 2 - 3 times as long as the internodes instead of to 8 times), not acute but acuminate with hooked apex, nerved and thinner. Sepals adaxially brown lepidote, the posterior ones alate-keeled. Petals shorter, the throat closed, the tips not revolute.

The new plant is named in honor of Mr. Mieczyslaw Kuzma, Rheinfelden,
Harro Heidt, a member of German Bromeliad Sec. recollected the new plant at the same location between Constanza and Moca, in October 1993 (Paratype WU).

Pamela Koide, from Carlsbad, California also collected T. kuznzae in the Dominican Republic near Constanza. She has quite a number of plants in her collection and was kind enough to provide me with some photos she had taken in 1990.

ACKNOWLEDGEMENTS

My thanks to Dr. Walter Till, University of Vienna, for his assistance and for the Latin diagnosis and to Pamela Koide, Carlsbad for her assistance.

BIBLIOGRAPHY:


Kudos to the Bahama Bromeliad Society

BSI Vice President Hattie Lou Smith has advised us that ALL 20 members of the Bahama Bromeliad Society will be attending the San Francisco World Bromeliad Conference. This in spite of the fact that last summer’s hurricane did a tremendous amount of damage to the member’s plant collections.

The Bahama Bromeliad Society should be proud to have members of that caliber. They are setting a standard that other affiliates should at least attempt to emulate.
3.3 cm long, 1.5—1.8 cm wide, elliptic, acute, apex incurved, equaling the sepals or slightly longer, alate-carinate, adaxially nerved and minutely fine punctulate lepidote, abaxially red, glabrous except few apical trichomes. **Sepals** 3—3.3 cm long, 7 mm wide, lanceolate acuminate, membranaceous with hyaline margins, green, all three of them red-carinate, the posterior ones with thick alate keel and connate for 3—4 mm. **Petals** 5—5.8 cm long, erect, ligulate with a slight sinus, the blade to 7 mm wide the apex only slightly revolute, violet, (# 46 amethyst), the base 4 mm wide and white.

Stamens and pistil exserted. **Filaments** in 2 series of 3 each of unequal length, to 6 cm long, apical part 0.8 mm wide, flat in cross-section, broadened near apex lavender, thin and white at base. **Anthers** 3 mm long, 1 mm wide, versatile, attached 1/3—1/4 of the length from the base, brown, pollen dark yellow. **Style** 4.5—5.5 cm long, thin, white. Stigma 1.5 mm long, 1 mm wide, lobes erect, slightly twisted, papillose, light lavender, Type II of Brown & Gilmartin. **Ovary** 8 mm long, mm wide at base, cylindrical, green.

The new plant differs from *T. dugesi* Baker by leaves green, not gray pruinose-lepidote, sheaths twice as long and wide, blades wider and not linear-involute towards apex. Floral bracts longer, sepals all carinate, the posterior ones only short connate, petals longer. It differs from *T. aguascalientensis* C. S. Gardner by being a bigger plant, and by leaves being green, adaxial not gray lepidote. Inflorescence-bracts narrower, spreading to 50° (not only 15—20°). Floral bracts not conduplicate keeled, without lepidote margins. All sepals carinate, narrower, less connate. Petals narrower, without white edges. It differs from *T. schusteri* Rauh by plant without the typical stoloniferous offsets, leaves green, sheaths broader, blades more spreading. Inflorescence compound, of more branches and these more spreading. Rachis of the spikes not visible. Sepals all carinate, longer, the posterior 4 mm connate. Petals violet not green.
The plant is named for the Sierra de Morones where it is abundant on rock walls.

**Distribution:** Mexico. Zacatecas: on steep rock walls 1800 - 2000 m elev. in the Sierra de Morones, sometimes growing with *Tillandsia tortilis* Klotzsch ex Baker ssp. *curvifolia* Ehlers & Rauh, several mammillarias and *echinofossulocacti*. *T. erubescens* Schlechtendal, *T. aphyrostachys* E. Morren, *T. atroviridipetala* Matuda, and *T. recurvata* (L.)L. can be found in the bushes. The plant is so far known only from this area.

Many rock walls are covered with *T. moronesensis*, but it is not easy to get to the plants. We had been to Sierra Morones in 1987, but were only able to see the tillandsias and were unable to reach them. We therefore decided to return to the area to spend more time hoping to collect some plants. My notes from March 21, 1990 state, “We started very early in the morning and after 5 hours returned to the car at noon, very tired, but very happy, as we had managed to obtain some of the plants.”

The plants are growing very well in our collection in Stuttgart and some of the smaller collected plants now seem big enough to flower. I never lost any of the collected specimens. Some are mounted on wood and others are grown in pots, but all are doing very well.

**ACKNOWLEDGEMENTS**

My hearty thanks to Dr. Walter Till, University of Vienna, for his assistance in the Latin diagnosis.

![Diagram of Tillandsia moronesensis](image)

**Figure 13.** Tillandsia moronesensis. A, spike; B, floral bract; C, sepals; D, petals; E, filament; F, style.

**BIBLIOGRAPHY:**


**Contributions to the BSI**

We would like to thank the following individuals and organizations for contributions made recently to the BSI, the Bromeliad Journal color fund, or the Mulford B. Foster Bromeliad Identification Center. Several donation were received in memory of Wally Berg. Everyone who knew Wally would know he would have been pleased by that.

Hayward Bacon
Joseph Bruno
Derek Butcher
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Elizabeth Girko
Kevin Godbey
Anne Grabowski
Robert Griffith
Glenys Guild
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Ann Kemp
Eleanor Kinzie
Edgardo Ladores
Pamela and James Leaver
Manuel Lorenzo

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Thomas Lucero
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Pamela and James Leaver
Cary Yamauchi
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Donations may be made by check or international money order payable to THE BROMELIAD SOCIETY INTERNATIONAL. They may be mailed to Membership Secretary Carolyn Schoenau, P.O. Box 12981, Gainesville, FL, 32604; the editor, Chet Blackburn, 720 Millertown Rd., Auburn, CA 95603, or to treasurer Clyde Jackson, 21 Sherwood, Dayton TX 77535.
Internationally known botanist Dr. Werner Rauh died in Heidelberg on April 7, 2000 after a lengthy illness. His death occurred a few weeks before his 87th birthday.

Dr. Rauh's name has been closely associated with the University of Heidelberg, the science of botany, and particularly the University Botanical Gardens, since the post-war period. He was a respected scientist in the classical disciplines of systematics, morphology and geography of plants. His preferred objects of investigation were cacti and other succulent plants of the Americas and South Africa, the bromeliads of Central and South American rainforests, and the fascinating plant world of the tropical high mountain regions. They were subject to his treatment in countless scientific papers, fascinating lectures, and popular scientific books.

Born in Niemegk near Bitterfeld (Saxony), Werner Rauh showed an early interest in geography and biology and studied in the city of Halle under the great morphologist Wilhelm Troll. After receiving his doctorate in 1937 and his professorship in 1939, he came to Heidelberg as an assistant to A. Seybold in 1939.

Associate Professor Rauh began his overseas research activity during the reconstruction of the University of Heidelberg, traveling first to the Atlas mountains of North Africa, and then to Peru and Ecuador. In 1956 he received appointment to full professorship while on his first expedition to the island of Madagascar, and an offer of directorship of the famous botanical garden and botanical museum in Berlin - Dahlem. He declined the offer to remain at the University of Heidelberg. Subsequently in 1960, he received the newly created chair at the institute of Systematic Botany, Plant geography and Botanical Garden of the same name. There were only three greenhouses when he began his service as Director of the botanical garden. By his retirement, the collection had increased to 15 greenhouses, all filled with botanical treasures – a large proportion of which he had personally collected on numerous expeditions to the tropical and sub-tropical regions of almost the entire world. The garden became world famous, and since 1983 has been under the directorship of his successor Professor Peter Leins.

The published works of Werner Rauh contain more than 300 items, including two dozen books. The works centered especially on the tropical high regions as well as the plant worlds of Peru and Madagascar. He did much research in these regions during numerous expeditions, and returned to Europe with an abundance of plant material. He discovered and described many species of plants, and many of his discoveries were named after him. The Amaryllis genus Rauhia, the cactus Rauhocereus in Peru, and the orchid Rauhiella in Brazil are some examples as is Tillandsia rauhiii, an enormous bromeliad from Peru. The beautiful Aloe rauhiii from Madagascar has found its place as a decorative plant in succulent plant collections everywhere. The plants named after him belic his interests: Cacti and other succulents as well as bromeliads.

His outstanding illustrated books of these groups of plants are regarded today as standard literature.

Dr. Rauh’s numerous accomplishments brought him international recognition. He is an honorary member of numerous societies, and for many years was President of the International Organization for Succulent Plant Studies. The Republic of Peru and the Principality of Monaco both awarded him with medals. On the occasion of his 65th birthday he received the “Cactus d’Or” in Monte Carlo from the hands of Princess Grace. The golden Veitch Memorial Medal of the Royal Horticultural Society in London, and the Willdenow-Medal in Berlin are awards received for his accomplishments during his service as director of the botanical garden. He was still accumulating honors right up to the year of his death.

The Republic of Madagascar honored him in January 1999 through its Ambassador, His Excellency Rabesa, by awarding him the prize of "Knight of National Order" and in November he received the "Federal Distinguished Service Cross with Ribbon" from the hands of the mayor of Heidelberg, Beate Weber.

Since 1980, Werner Rauh was a corresponding member of the Heidelberg Academy of Sciences, and since 1968, has had a special and close relationship with the Academy of Sciences and Literature in the city of Mainz as a regular member.

His last great expedition in 1994 took him to Madagascar, but the time of great expeditions was coming to an end. His energy remained undiminished...
however, despite the inexpressible loss of his wife Hilde Rauh during the summer of 1997. During his later years he was busy with the completion of the second volume of his magnificent work, published in 1998, titled *Succulent and Xerophytic Plants of Madagascar*. It is fascinating eye-witness documentation of Madagascar's unique flora at a time when it was fast disappearing.

In spite of severe physical suffering, but with complete mental alertness, Professor Rauh continued to work on his manuscripts right up until his death and made weekly visits to his beloved botanical garden. An era of botanical research has ended with his death. Funeral services were conducted among the closest circle of family and friends on Friday, April 26, in Heidelberg.

We mourn the loss of a most remarkable human being and scientist.

Botanisches Institut und Botanischer Garten, Abt. Systematik und Biodiversitaet, Meckenheimer Allee 170, D-53115, Bonn, Germany

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Loss of Wally Berg

Well-known bromeliad collector Wally Berg lost his battle with Cancer on March 26, 2000. Wally was best known among the Florida affiliates where he provided numerous programs detailing his collecting adventures in far-flung places, donated time and money to worthy causes such as Marie Selby Botanical Gardens and the research on the "Evil Weevil" and was generally known as an all-around "great guy." A visit to his home, "The Berg Cage" was an experience for anyone interested in bromeliads. His extensive collection of rare bromeliads was always maintained in show condition. Although he never held a BSI office, his support of the BSI, especially in his many donations to the rare plant auctions, was strong. As a result, in 1999 the BSI board of directors established a new horticultural award, the "Wally Berg Award of Excellence" to be presented to deserving individuals at future world conferences. We will certainly miss him and offer our condolences to Dorothy.

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Harvey Bullis, Jr.: Portrait of a Plantsman

Chester Skotak

Whenever I think of interesting bromeliad hybrids coming out of south Florida, I can't help but think of Dr. Harvey Bullis, one of the most interesting people behind many of these hybrids. Dr. Bullis was known not only for creating many of these outstanding hybrids, but was also a respected marine biologist and head of the National Marine Fisheries in Pascagoula, Mississippi in the 1970s. As a marine biologist, he has had four species of fish named after him as well as one genus of teleost fish, four gastropod mollusks, two starfish, a shark, a skate and a squid.

Some people have a tendency to rest on their laurels, look back on their accomplishments, and just relax, but not Harvey. In Key Biscayne, Florida in 1973 he came upon an *Aechmea Chantinii* "Black" growing in a conch shell and that sparked an intense interest in bromeliads. Before long, he had incorporated as a business and was involved in growing bromeliads in a big way at his firm known as Key Biscayne Bromeliads. Demand for them was so great that in 1977 he purchased a house on five acres in Princeton, Florida. Harvey and his son Harvey III were soon building their first shadehouse and in 1978 began moving the plants into what would be eventually known as Bullis Bromeliads. The firm is now known worldwide for their large and exotic hybrids.

Harvey Bullis took his new business into uncharted waters, dedicating his efforts to growing high quality bromeliads for the landscape and interiorscape industries. The bromeliad industry at the time was primarily based upon species and a few of the smaller hybrids from Europe. Dr. Bullis had another idea, and that was to grow the large, the unusual, and the seldom seen bromeliads. This has proven to be no small accomplishment when you realize that the majority of his inventory consisted of hybrids that he had created himself, not only out of his own curiosity, but to sell in an untried market. His foresight has paid off and Bullis Bromeliads became a thriving business.

As a marine biologist, Dr. Bullis went on more than 100 exploratory cruises to the Caribbean, Gulf of Mexico, and the Atlantic. He also undertook many bromeliad collecting trips in Central and South America. Therefore, it came as no surprise to me when I was shown a photograph taken in the early 1980's of Harvey in Panama proudly holding a *Guzmania lingulata* 'Fortuna'. He truly loved bromeliads and looking for them in the wild. He had always intended to return to Salvador, Brazil to collect a beautiful urn-shaped *Hohenbergia* that he had seen growing there among sand dunes.

He developed numerous, high quality hybrids, many of which can be found in most grower's collections. Among them are *Neoregelia* 'Little Rose', the large *Neoregelia concentrica* 'Bullis' and the now famous *Aechmea 'Little Harv'*
which was named after his son, Harvey Bullis III. Dr. Bullis would explain that
this *Aechmea* was not a hybrid but an “appomix” - it came from a single seed
from a specific type of *Aechmea chantinii*.

On August 24, 1992, Hurricane Andrew struck southern Florida changing
the lives of many people forever. At that time Bullis Bromeliads had 1.5 million
bromeliads in stock and lost them all in the storm. Harvey was the first to roll up
his shirtsleeves, assess the damage, and to make plans for rebuilding the nursery.
Although Harvey Bullis was 68 at the time, no one doubted that he would have
done it. Dr. Bullis passed away that same year on November 15th, 1992. His
courageous outlook on life was one of the main reasons that the nursery was
rebuilt against all odds. Harvey Bullis has left a legacy that would make anyone
proud.

Bullis Bromeliads is once again a thriving business. Dr. Bullis’s wife Lois
still gives her support, his son Harvey Bullis III, serves as president, and his wife
Patricia Bullis, inspired by Dr. Bullis’s work, continues to create new hybrids for
the future. Not only will the nursery itself continue to bear his name, but he will
be remembered by all involved for his tenacity, his diverse interests, his creativity
and for his vibrant sense of humor, especially when relating his experiences in
the field. He gave a lot to the bromeliad world and was a giant among us. We all
owe him our thanks.

Animal species named after Harvey R. Bullis, Jr., Director, SEFC

- Squid — *Rossia bullisi* - Gulf of Mexico (G. Voss, 1956)
- Sudid fish — *Stemonosudis bullisi* - Gulf of Mexico (R.R. Rofen, 1963)
- Skate — *Raja bullisi* - Dry Tortugas (H.R. Bigelow & W.C. Schroeder 1962)
- Shark — *Etmopterus bullisi* - new species, off northeastern Florida (H.R.
  Sigelow & W.C. Schroeder, 1959)
- Hermit crab — *Pagurus bullisi* - new species, Gulf of Mexico (M.R. Wass, 1963)
- Deepwater squirrelfish — *Holocentrus bullisi* - Campeche Banks, Pucatan,
  Mex. (L.P. Woods 1955)
- Abuissal fish — *Grimatroctes bullisi* - Gulf of Mexico (M. Grey, 1958)
- Gastropod mollusk — *Chicoreus bullisi* - off east coast of Nicaragua (E.H. Vokes, 1974)
- Gastropod mollusk — *Siphonochelus bullisi*
- Bivalve mollusk — *Lima (Acesta) bullisi* - 75 mi. S. of Mobile Bay. (H.E.
  Vokes, 1963)
- Gastropod mollusk — *Calliostoma bullisi* - new species, ESE of Cabo Orange,
  Amapa, Brazil (Clench & Turner, 1960)
- Starfish — *Drachmaster bullisi* - Caribbean starfish — new species (M.E.
  Downey, 1970)
- Deep sea eelpout — *Lycenichelys bullisi* - Gulf of Mexico Starfish
- Starfish — *Linckia bullisi* - (D.R. Moore, 1960)
- Snail — *Fasciolaria bullisi*
A Bromeliad Population monitoring Network
Ed McWilliams

The Bromeliad Society International has broad goals that include promoting research on the preservation and distribution of bromeliads. As a former member of the board of directors of the bromeliad society, I know that actually carrying out some of these goals is difficult.

We enjoy bromeliads for their unique forms and their often colorful bracts and flowers. As biologists are well aware, bromeliads, especially Tillandsia species, are adapted to their environment in unique ways. One group of tillandsias has long been known as extreme atmospherics. Tillandsia species, including balimoss, T. recurvata, are some of the most widespread plants in the New World. These plants reach their northern limits in several southern states. In the southwest and Mexico it often difficult for the individual student or researcher to locate land owners, much less to gain permission to monitor populations on private land.

Historically climate and the chemical characteristics of the atmosphere have changed over short and long term time scales. Various studies have shown that tillandsia species are sensitive to subtle changes in temperature, moisture and air chemistry. I suggest that population changes in bromeliads, including both local and regional range expansions and contractions, can be useful indicators of changes in climate and atmospheric chemistry. Although, I have noted that the geographical range of T. recurvata has expanded in parts of Texas, the range of even this single species is too broad for an individual to monitor effectively. A society based monitoring system can potentially be a longer-term program than one an individual can carry out. Students are excellent for initiating monitoring projects but it is often difficult for them to continue such studies once they graduate. A society-based monitoring system can again provide the continuity that eventually eludes the individual.

Besides changes in the local geographical range of populations, changes in numbers of plants and sizes of plants may be early indicators of environmental change that are of biological significance. Admittedly, very detailed ecological and physiological studies are ultimately needed to explain how and why bromeliads respond to certain environmental changes. However, before anything can be done, researchers have to be aware that changes are occurring at all.

Although I have emphasized using the plant as a kind of plant meter or photometer, monitoring of rare and endangered species could be a goal that more members of the society would be interested in. As recent issues of the Bromeliad Society Journal indicate, members are already actively involved in monitoring the survival of rare species of bromeliads. However, a network of people dedicated to monitoring certain species should survive longer any individual can.

Bromeliads or air plants, particularly the epiphytes and saxicoles, may become important to society as a whole, not just the bromeliad society during the 21st century. I would be interested in corresponding with members of the bromeliad society that have an interest in establishing one or more bromeliad population monitoring networks.

College Station, Texas, U.S.A.

World Conference Notes

By the time you receive this Journal, it will be too late to register for the San Francisco World Bromeliad Conference by mail at a reduced rate. Registration can still be accomplished on site at the Hyatt Regency Hotel in San Francisco where the conference is being held. The registration fee is $150...a bargain even at the full rate. (Registration fee does not include lodging at the hotel). A world class show, seminars on a variety of topics by leaders in their fields from around the world, plants and other items for sale by numerous nurseries and individuals, a rare plant auction, tours, and best of all, advice, information and socializing from bromeliad enthusiasts from around the world. You won’t want to miss it.

The next World Conference (after San Francisco) will be held in Clearwater, Florida in 2002. Start making your plans now.
Affiliates in Action
Gene Schmidt

The Illawarra Bromeliad Society (Aus) has officially announced their society has taken on the challenge of putting on Australia's 11th Bromeliad Conference, entitled “Brom-a-Warra”, scheduled for October 12-15, 2001. Further details will be coming, but please contact Graham Bevan at 25 Tallawong Crescent, Dapto, NSW, Australia, 2530, phone: (02) 4261-1173; or phone Eileen Killingley at (02) 9544-4726, E-mail address: john.killingley@det.csiro.au (Illawarra Bromeliad Society, Inc. Newsletter, Jan. 2000)

The Florida Council of Bromeliad Societies has announced that the Caloosahatchee Bromeliad Society (FL) will host the yearly Extravaganza at Terry Park, the Lee County Extension Service Building in Fort Meyers, Florida on Nov. 11, 2000. This event will be held in conjunction with the two-day sale of the CBS. The Florida Council also announces that Nat DeLeon has been given an honorary trusteeship in the Florida Council. Nat was also recently named an honorary trustee of the BSI. The Bromeliad Society of South Florida, of which Nat is a member, offers him their warmest congratulations on these honors, in recognition of his years of contributions to the world of Bromeliaceae. (Caloosahatchee Meristem, Caloosahatchee Bromeliad Society, Feb. 2000) (Sarasota Bromeliad Society Newsletter, Vol. 5, #44) (The Bromeliad Advisory, Bromeliad Society of South Florida, Vol. 43, #3, March 2000)

Our thoughts and prayers go out to many in the world of affiliated bromeliad societies with the death of several local society members. Geoff Johnson of the Bromeliad Society of Central Florida passed away quite unexpectedly in February. Geoff had most recently taken over Pineapple Place in Florida after the death of his mother, Carol; and also had just finished his term as president of the BSCF. Donations to the Florida Council Weevil Fund in memory of Geoff can be sent to Ed Hall, Chairman, Florida Council of Bromeliad Societies, 1111 Glen Garry Circle, Maitland, FL, 32751. (The Bromeliad Society of Central Florida Newsletter, Vol. 26, #2, Feb. 2000)

William: “Wild Bill” Fickeisen passed away in December of 1999, and had been past editor of “The Commentary”, newsletter of the Bromeliad Society of Broward County (FL). He wrote the highly regarded newsletter until suffering a stroke in 1998. Bill was also a charter member and third president of the Horticultural Study Society of Florida, Inc. (Forwarded by Polly Pascal, President of the BSBC)

The Bromeliad Society of New York lost two of its members in December, both past directors and active volunteers in their Flower Show exhibits. Edward Sard was stricken with a heart attack on the way to the December meeting of the NYBS and passed away days later. Ed was a charter member of the NYBS, and during his 37 years as a member was a vital force in the society's work. He was a two-term president and was active on the Board of Directors almost the entire period. Leannore Drogin assisted in designing the Flower Show exhibits and volunteered in many capacities for the society. (The Bromelianna, New York Bromeliad Society Newsletter, Vol. 37, #2, Feb. 2000)

The San Diego Bromeliad Society reports that one of its founders and first president passed away last October. Jackie Hardin was a Life-member of the SDBS, and had a life-long pursuit of growing plants after helping her dad in his plant nursery and owning a cactus and succulent nursery later in life with her husband. (The Bromeliad Blade, San Diego Bromeliad Society Newsletter, Vol. 26, #11, November 1999)

These affiliated society members obviously influenced and touched many, and had an impact on their societies with their tireless work and many contributions. Let us keep alive their memories by trying to duplicate their efforts and by giving of ourselves.

Switching to a happier theme, progress continues for the 50th Anniversary World Bromeliad Conference to be held in San Francisco, CA. Affiliated societies are to be honored throughout the conference through table top displays that we are encouraging societies to bring; by having an affiliated societies meeting on Saturday morning, and by presenting new affiliation certificates to societies at the conference banquet. Please be creative with your displays, as top prize for the displays will be $100 and each society who sets up a display will take home a Tillandsia CD-ROM. If you need more information, please contact me at the address listed on the back cover or E-mail me at GENOPS@aol.com.

Grace Goode wrote about Australia's 10th Bromeliad Conference in the Bromelette, the journal of the Bromeliad Society of Australia. "One hundred and fifty delegates and their partners arrived in Cairns for the 10th Bromeliad Conference. We were all looking forward to meeting old friends and making new ones. We were not disappointed. When the Cairns Study Group volunteered to host the 10th conference, some were apprehensive that such a small group could stage it, but they eclipsed all our hopes. The consummate artist, Doug Upton, the Leonardo da Vinci of the Queensland Bromeliad Society, beautifully executed the bromeliad display in the competition room. His owl made entirely of bromeliad material (except for the large eyes made of pearl shell) was a supreme work of art and richly deserved First Prize in the Arrangements section. Pamela Koide was a stimulating speaker and a delightful person. I congratulate the Cairns Study Group on the Herculean task they did in putting on the conference. It will be a hard act to follow." (Bromelette, Bromeliad Society of Australia, Inc., Vol. 38, #1, Jan.-Feb. 2000)

Duluth, Minnesota
Some Pet Peeves Concerning Current Judging Practices
Bill Timm

After discussing some recent shows with fellow exhibitors, I've come to the conclusion that our rules for bromeliad shows appear to encourage "allowable cheating"...or maybe a nicer term might be "permissible misrepresentation". Please consider:

"An exhibitor must have grown his plant at least 6 months prior to the show." Now, this is well and good, but there is no way to determine if the exhibitor has, in fact, grown his plant at least 6 months. Of course all exhibitors are completely honest and would never consider deliberately entering a new plant from their collection, but perhaps "accidents" do sometimes occur. Besides, that rule does not mention that the plant may be grown in one pot but be repotted just prior to the show. Please note, in the schedule of points for judging CATEGORY II Horticulture, as listed in a local Bromeliad Society's show schedule, 50% of the points are assigned to CULTURAL PERFECTION and CONFORMATION. The balance is assigned to color and marking, inflorescence, and maturity of plant. Nowhere can we find where points are assigned to "plants centered in pots, dirty pots, unattractive potting medium, etc," where we often see points deducted.

We frequently see trimmed leaf tips on award winner's plants. Why were the tips trimmed? Most likely to remove evidence of tip damage caused primarily by something lacking in its culture. Of course the plant looks better with trimmed leaves, but it still has a fault in CULTURE.

We are taught to repot our plants just prior to the show, resetting the depth of the plant and centering it in the pot. Many of our plants are displayed in shows potted in some type of medium other than that in which the plant has been grown. Tillandsias are an excellent example. We like to grow many of our potted tillandsias in empty pots, then plant them in a mix just prior to the show. The judges would "kill" us score-wise if we exhibited them in empty pots the way we actually grew them.

Almost anyone can, with practice, repot a plant and get it centered in the pot. Shouldn't growing of a plant in the center of a pot be considered in the cultural perfection in the point schedule?

Now, let's look at those mounted plants. In Division IV: HORTICULTURE DISPLAYS (still in CATEGORY I) "Single specimen or 2 or more mature plants", plants allowed to grow and multiply in a natural fashion with emphasis on HORTICULTURE EXCELLENCE.

"Plants should show evidence of root attachment or at least look established and not recently attached to the mount" i.e. NOT just remounted (which could also be read "repotted"). We are taught to hide the end of the stem of those plants that very seldom have roots. (T. duratti, T. latifolia, etc.) How do we do this? Sometimes we drill a hole in a piece of wood or cork bark, then stick the stem into the hole and glue it from the back. Now wait a minute... is this displaying the plant in a "natural fashion with emphasis on horticultural excellence"? These plants do not grow in holes in pieces of wood in their natural habitat. Some of them grow over rocks and sand dunes and hosts of other things.

Now let's look at the schedule of points used for "JUDGING HORTICULTURAL DISPLAYS"

FOLIAGE

| 20 | Cultural perfection          |
| 30 | Conformation of plant        |
| 25 | Color and marking of plant   |
| 15 | Overall balance and symmetry; permanence |
| 10 | Maturity of plant            |

Nowhere in this schedule does it list points for 'appearance of rooting'. Remember, some plants of cultural perfection will never have roots!

We can go two ways with this. Leave it as it is, as most "SENIOR" bromeliad growers will, no doubt, loudly insist on, or make a few changes somewhat akin to those outlined below.

CATEGORY I: HORTICULTURE
Division I Individual Specimen Plant – Blooming
Division II Individual Specimen Plant - Foliage

Since this is a HORTICULTURE category with emphasis on culture and conformation, either remove those repotted/leaf tip trimmed plants from Category I, or allow the judges to deduct points since repotting and leaf trimming are needed only when there is a FAULT in culture. Also, there should be points allowed for general appearance (dirty pots, water spotting, mineral deposits etc). I would like to see these repotted/leaf trimmed plants placed in CATEGORY II Artistic Design. After all, there is an art in repotting and leaf trimming. Of course, these would not fit in Division VI Decorative Containers or VII Artistic Arrangements, but how about a division for ENHANCEMENTS?

Now let's return to those mounted plants. A recently remounted plant is certainly as enhancement to the culture of that plant. Sticking the end of a non-rooted plant into a hole in a piece of wood is also an enhancement. Any plant that is exhibited in or on any media in or on which it has not been grown is certainly an enhancement.

I think it is about time we exhibit our plants in an honest fashion. No more re-potting or re-mounting of plants entered in horticulture displays. Also, no
leaf-trimming to hide a definite cultural fault. Let's actually grow our plants to perfection and then display them that way. If we have to enhance our plants in ANY WAY, let's enter them in an enhancement division in the Artistic Category.

North Port, Florida. U.S.A.

Book Review
Jason R. Grant


From the introduction to the flora: “Flora of North America North of Mexico is a synoptic floristic account of the plants of North America north of Mexico; the continental United States of America (including the Florida Keys and Aleutian Islands), Canada, Greenland (Kalâtdîlt-Nunât), and St. Pierre and Miquelon. The flora is intended to serve both as a means of identifying plants within the region and as a systematic conspectus of the North American flora.”

Volume 22 of the Flora of North America is the fourth published volume of an anticipated 30-volume flora. This volume covers 30 families, 89 genera, and 423 species of monocots. It comprises many aquatic families such as the Alismataceae, Hydrocharitaceae, Lemnaceae, Potamogetonaceae, and the Typhaceae. Other important families covered are the Arecaceae (palms), Commelinaceae (spiderworts), Eriocaulaceae (pipeworts), Juncaceae (rushes), and Xyridaceae (yellow-eyed-grasses).

The Bromeliaceae (pages 286-298), various groups contributed by Harry Luther, Gregory K. Brown, Kathleen Burt-Utley, and John F. Utley, comprise 4 genera (Catopsis, Guzmania, Hechtia, and Tillandsia), and 19 species, one of which is endemic to Florida (Tillandsia simulata). Most of the species of Bromeliaceae consist of rather wide-ranging species that reach their northernmost extend in North America. In Catopsis, there are three species, C. berteroniana, C. floribunda, and C. nutans, and in Guzmania, G. monostachia, with two varieties, the typical, and var. variegata, all known from Florida in the flora. There are two species in Hechtia, H. glomerata, and H. texensis, both only known from Texas in flora area.

Within Tillandsia, there are 13 species, and 2 natural hybrids including T. baileyi, T. balbisiana, T. bartramii, T. fasciculata, T. flexuosa, T. x floridana, T. pauciflora, T. pruinosa, T. recurvata, T. setacea, T. simulata, T. x smalliana, T. usneoides, T. utriculata, T. variabilis. Notable is Tillandsia usneoides that has the widest distribution in the family, ranging from the northernmost outpost of the family in southern Virginia, to Florida, Texas, and the southward to Argentina.

There are very brief descriptions of the family, each genus and species, providing the basic information necessary for identification. There are well-written keys, a map of the distribution of each taxon, and an 9 small illustrations of Catopsis berteroniana, Guzmania monostachia, Hechtia glomerata, Tillandsia baileyi, T. balbisiana, T. bratrmi, T. recurvata, T. utriculata, and T. variabilis.

Since the Bromeliaceae only comprise 13 of 352 pages in the entire book, it may not be desirable for everyone. However, if you are interested in the North American flora, and especially the native bromeliads of the United States, particularly Florida, then this is certainly a worthwhile investment.

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Welcome New Members

The following individuals joined the Bromeliad Society International in the last several months. The BSI welcomes them aboard and thanks them for their support.

Donald Armstrong
Carl & Margie Bauer
Duncan Bee
Sheryl Breckenridge
Alyn & Martha Busch
Claudio Casciotti
Barbara Castor
Grace Cook
William Crump
James Cunningham
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Miguel Nicolas
Norman Noble
Christopher Paterson
Linda & Paul Quinn
Ellen Rankin
Russell Spence
Robert Streul
Riana Swart
Tetsuufumi Terashima
Mark Thompson
C. Turner
C. Underhill
Sandra Vargas
Robert Westcott
Guzmania claviformis Luther, a Remarkable Species

Eric Gouda

Photography by the author

Guzmania claviformis Luther was described in the JOURNAL OF THE BROMELIAD SOCIETY in 1991. The type originated from Ecuador (Morona-Santiago), but the plant is also known from Peru.

It is a very large and spectacular species. It is not readily available in cultivation however, probably due to its large size. I vividly recall the first time I laid eyes on this large beautiful species. It was just coming into flower at Bak's nursery in the Netherlands. The inflorescence was over 1.5 m and the diameter of the rosette was over 1 m. At that time (June 1988) the species had not yet been described (although the senior Mr. Bak had advised me that Harry Luther was in the process of describing it.)

Of course I was greatly interested in the plant. I was both happy and a bit befuddled when Mr. Bak said that I could take one home. How could I possibly get it into the trunk of my little French car without destroying that magnificent inflorescence? However, I did manage to get the plant home in one piece and my wife was dumbfounded to find me standing there in the doorway with this huge plant in my hands. I had not been in the habit of bringing flowers home to her, and now to be confronted with this! It looked as if I'd gotten a bit carried away.

Living in a small apartment, we could not keep the plant, but at least I'm happy that I could make some nice slides of the Costus (Ginger) like inflorescence. One day it flowered with two circles of flowers, which perhaps is not normal, but is nonetheless spectacular! The spike was nearly spherical and over 10 cm long.

This plant was originally collected by Lee Moore, presumably from Peru and mentioned by Harry Luther (as a paratype) when he described the species. This particular specimen has since been lost but I would love to grow one in the Utrecht Botanic Gardens, when I can get my hands on it again. I doubt that anyone would deny that it is well worth growing.

University Botanic Gardens Utrecht, The Netherlands

Figure 17.

Guzmania claviformis, a large and spectacular species from Ecuador.

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1 Curator, University Botanic Gardens, Utrecht, The Netherlands
2 J. Bromeliad Soc. 41:6-8
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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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Werner Rauh (left) and Wally Berg (right), pictured here together in Florida's Fakahathee Strand in 1988, represented opposite ends of the bromeliad spectrum, but nonetheless were two of the best known and most respected men involved with bromeliads. Both had worldwide reputations; Werner Rauh for his scientific contributions and Wally Berg for his famous collection - one of the best private collections in the world. Besides their love for bromeliads, they had several other things in common. Both were known for their energy and enthusiasm in pursuing their respective goals and both traveled the world in achieving them. The death of both of them within a few weeks of each is a stunning loss to the bromeliad world, but it is a better world for their having been part of it.

**Calendar**

10-11 June   The River Ridge Bromeliad Society will hold its annual show and sale at the Esplanade Mall, 1401 W. Esplanade Ave., Kenner, LA. Sale hours are 10 a.m. to 9 p.m. Saturday & noon to 6 p.m. Sunday. Show hours are 1 to 9 p.m. on Saturday and Noon to 6 p.m. on Sunday. Contact Al or Shirley Alcock at 601-799-4813

26 Jun –5 Jul The Bromeliad Society International will commemorate its 50th anniversary at the World Bromeliad Conference to be held at the Hyatt Regency Hotel in San Francisco, California. Tours, seminars conducted by leading bromeliad authorities from around the world, competitive show, sales of plants and other items, banquet, rare plant auction, social gatherings, and educational displays.

5-6 Aug       The South Bay Bromeliad Associates year 2000 show and sale will be held at Rainforest Flora's new location at 19121 Hawthorne Blvd, Torrance, CA. Show hours are none to 4:30 p.m. on Saturday and 10 a.m. to 4:30 p.m. on Sunday. Plant sale hours are 10 a.m. to 4:30 p.m. on both days. There is no entrance fee and parking is free. Contact: Bryan Chan, 8110 Murieta Ave., Panorama City, CA 91402; telephone (818) 787-4265; e-mail bcbrmcd@aol.com