

Journal of The Bromeliad Society



VOLUME 47

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SEPTEMBER–OCTOBER 1997

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NUMBER 5

Journal of the Bromeliad Society

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Vol. 47, No. 5

September–October, 1997

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Cover photographs. Front: *Tillandsia imperialis* E. Morren ex Mez, a spectacular *Tillandsia* from Mexico discussed in text beginning on page 195. Photograph by Miguel J. Chazaro. Back: *Tillandsia imperialis*, drawing by Mercedes De La Mora.

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The *Journal*, ISSN 0090-8738, is published bimonthly at Orlando, Florida by the Bromeliad Society, Inc. Articles and photographs are earnestly solicited. Closing date is 60 days before month of issue. Advertising rates are listed in the advertising section. Permission is granted to reprint articles in the *Journal*, in whole or in part, when credit is given to the author and to the Bromeliad Society, Inc. Please address all correspondence about articles and advertising to the editor.

Subscription price (in U.S. \$) is included in the 12-month membership dues: single—\$25.00, dual (two members at one address receiving one *Journal*)—\$30.00, fellowship—\$40.00, life—\$750.00 Please add \$8.00 for international surface mail, except for life members. For first class mail add \$10.00, for airmail please add \$18.00.

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Printed by Fidelity Press, Orlando, Florida.

Tillandsia imperialis

Miguel J. Chazaro¹ & Burl L. Mostul²

This is the second of a series of articles on some of the interesting taxa of Bromeliaceae found in central Mexico. We hope to provide specific data and photos of the plants observed in habitat. The first of the series dealt with *Tillandsia grandis*.

In 1866, the French botanist E. Bourgeau was collecting plants in the vicinity of Orizaba in the State of Veracruz, eastern Mexico. His collection number, *Bourgeau 2389* became the holotype of *Tillandsia imperialis* and is now deposited in the Kew Herbarium, London, England.

Bourgeau was a naturalist stationed at Orizaba for a year during the French intervention in Mexico between 1864 and 1867 (known to the French as the Maximilian of Hapsburg Empire). Some Mexican plants, especially some found in the Orizaba region, were named after him including *Tillandsia bourgaei*, *Agave bourgaei*, *Sedum bourgaei*, *Arenaria bourgaei*, *Vitis bourgeana* and others.

Tillandsia imperialis was first named by the Belgian botanist Edouard Morren and later validated by Benedict Roezl in 1881.³

The name *Tillandsia strobilantha*, described by Baker in 1888, should be regarded as a synonym since it was also based on the collection *Bourgeau 2389* located in the Kew Herbarium (Smith & Downs, 1977).

The specific epithet for *T. imperialis* chosen by Morren is an appropriate one because of the regal appearance of this bromeliad.

Orizaba is an industrial city located at the southeastern edge (on the leeward slopes) of Volcan Pico de Orizaba, that at 5700 masl (17,100 feet), is the highest point in Mexico. It is snow-capped the year round.

At elevations between 1400-2700 m (4200-8100 feet), moist air coming from the Gulf of Mexico condenses and forms frequent fog that shrouds the woodlands in this belt. The cloud forest formed consists primarily of pine (*Pinus patula*) and oak (*Quercus laurina*). This is the home of *Tillandsia imperialis*. It is an epiphytic species found abundantly on the branches and boles of trees of the cloud forest. We have even seen it growing on lianas in nearby ravines.

We have also seen and collected this plant at Cofre de Perote Volcano (west of Xalapa); Sierra de Chiconquicaco (north of Xalapa); both in the central part of Veracruz State, the easternmost section of the trans-Mexican belt; as well as at

¹ Geography Department, University of Guadalajara. M. Barcena y Av. Maestros, 44280, Guadalajara, Jalisco, Mexico.

² Rare plant Research, 13245 S.E. Harold, Portland, Oregon, 97236, U.S.A.

³ De Rebus Bromeliacearum I, Selbyana 15:35

Sierra de Huayacocotla (part of the cretaceous limestone of the eastern Sierra Madre) in northern Veracruz.

Its common name is "Suchil" an Aztec word meaning flower.

The blue flowers appear from December to April (Chazaro, 1987 & 1988), protruding from between bright-red bracts on a stout, cylindrical inflorescence.

We have collected it at Rincón Grande on January 22, 1983 and on December 29, 1989 (both in bloom); and on the trail from Ayahualuico, Veracruz to Patlanalan, Puebla, on April 9th, 1983, also in bloom.

In November and December people from rural areas occasionally collect *Tillandsia imperialis* to be used to decorate Nativities as well as religious arches placed in front of churches and shrines. To quote Graf (1978): "*Tillandsia imperialis*; showy epiphyte at home at 5,000-8,000 feet altitude, and largely used by Mexicans at Christmas time to decorate for their Navidad, because of the festive spirit radiated by the flaming red central inflorescence, looking like a candle or slender cone; remaining in brilliant color through summer into winter; flower purple; the dense formal rosette of broad smooth leathery leaves a pleasing light green, about 1.5 ft. long."

The geographical distribution of the plant follows the oriental side of the eastern Sierra Madre (Hidalgo and Oaxaca) and the eastern portion of the trans-Mexican volcanic belt (at Pico de Orizaba or Citlaltépetl volcano and Cofre de Perote volcano) as well as a disjunct population occurring in El Salvador.⁴

The range of distribution is from Smith and Downs (1977), McVaugh (1985), and Garcia-Franco (1987), however we disagree with them on some points.

We agree on these localities: Hidalgo, Zacualtipan to Tlangistengo, *Moore* 2376; Veracruz, Orizaba, *Botter* 333, Oaxaca, Villa Alta, *Reko* 4013; El Salvador: Santa Ana, Cerro Miramundo, Matapan, *Carlson* 929.⁴

We disagree with the Garcia-Franco (1987) report from Nueva Leon since there is not a voucher specimen.

We also question the Jalisco report given by Smith & Downs (1977) as well McVaugh (1989); east side at 6700 feet, Nevada de Colima volcano, 13 July, 1985, *Goldsmith* 26 (US). We believe there was either a misidentification or mixed label since it is very far west from the rest of its range in eastern Mexico. Furthermore, we and other modern collectors have visited this volcano several times and have never found it.

We also question the accuracy of the *Arsène* 1922 (US) collection (cited by Smith & Downs 1977), not seen) reportedly to have come from Puebla, Puebla,

⁴ According to Harry Luther, Director of the Bromeliad Identification Center at Selby Gardens, the citation for this locality may be *T. candelifera* Rohweder.



Figure 1.

Miguel Chazaro

The author holding a specimen of *Tillandsia imperialis*.

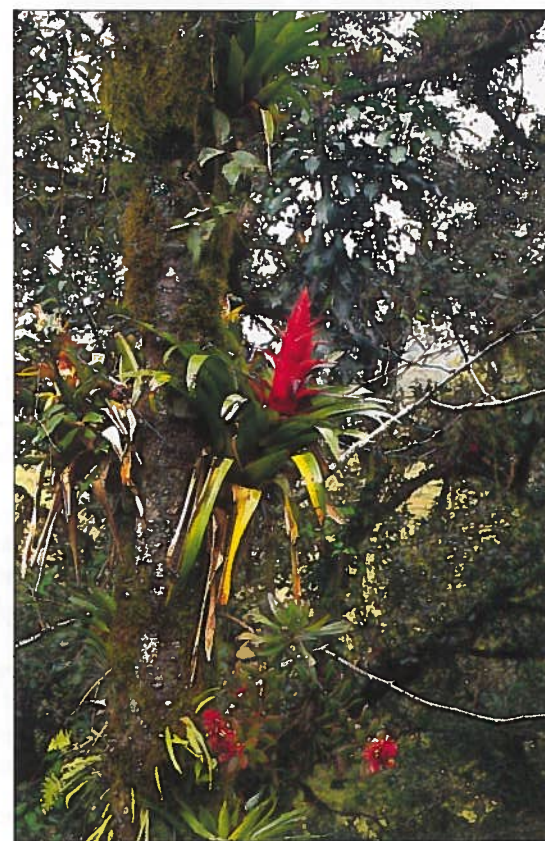


Figure 2.

Tillandsia imperialis in habitat at Rincón Grande.

Patricia Hernandez

because this town is so far inland (in a mountain rain shadow), and is too dry a habitat for *Tillandsia imperialis*, a plant that loves moisture. Perhaps Arsène used Puebla not as a specific locality but a huge region, since we are sure that *Tillandsia imperialis* could grow at Teziutlan and Zacapoaxtla, Puebla State, 60-80 km further east than Puebla City. Being in the eastern Sierra Madre its climate is appropriate.

We would like to point out that all the exsiccata (herbarium specimens) cited by Smith & Downs (1977) are fairly old (1950's and earlier). We wonder why this is. *Tillandsia imperialis* is certainly not a rare plant. It is fairly abundant locally. We presume there must be more recent specimens. This taxon was not included among the rare, threatened or endangered species of Mexican plants given by Vovides (1981); however SEDESOL 1994) considers it a threatened species.

ACKNOWLEDGMENTS

We thank Hector Oliva and Patricia Hernandez for their help in field work; Dr. Hugh H. Iltis, Director of the Herbarium (WIS) of the Botany Department, University of Wisconsin, Madison, U.S.A., for providing funds for field trips carried out mostly by M. Chazaro; and we thank Raul Acevedo who typed this manuscript.

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Zapopan, Jalisco, Mexico

TRIBUTE TO LYMAN B. SMITH

Lyman B. Smith – In Memoriam

Robert W. Read



Figure 3. Photograph by Walter Singer
Dr. Lyman B. Smith at a lecture given to the New York Bromeliad Society in 1964.

Lyman Bradford Smith (1904-1997), Curator Emeritus in the Department of Botany, Museum of Natural History, Smithsonian Institution, passed away on May 4, 1997 in Manhattan Kansas, of complications related to a stroke. He had moved to Kansas to be with his family following failing health after retirement.

Few men have had as great an impact on their chosen field as has Lyman Smith. For half a century, his name has almost been synonymous with bromeliad taxonomy. Countless articles and discussions on bromeliad taxa have begun with the qualifying statement, "According to Smith and Downs..."

Dr. Smith retired from the Smithsonian in 1984 after 37 extremely productive years, working on a monograph of the Bromeliaceae, the Flora of Santa Catarina, Brazil, and numerous other publications on tropical American plants.

He was born in Winchester, Massachusetts near Boston where he was taught at home by his mother, a former school teacher, until his sophomore year in high

school. During his schooling, Dr. Smith explored New England natural history, collecting and keeping lists of his findings of everything from invertebrates and fungi to postage stamps. He was a botanist at the Gray Herbarium in Cambridge, Mass., before joining the botanical staff of the Smithsonian. He attended Harvard University where he received an A.B. in 1925, an A.M. in 1929, and his Ph. D. in Biology in 1930.

He was certainly one of the most prolific and productive botanists to have ever worked with bromeliads. One can only wonder what state the taxonomy and research on bromeliads would be today had he chosen another profession.

Naples, Florida

[Ed. note: Between 1951 and 1994, Lyman Smith either authored or coauthored more than 90 articles in the JOURNAL and its predecessor, the BROMELIAD BULLETIN. Their content ran the gamut from descriptions of new species and information on the practical uses of bromeliads, oddities among them, collecting experiences, to personalities in the bromeliad world and a series on Morren's paintings.

From his first article, "Why Bromeliad?," published in Volume 1, number 2, to his last article, *Racinaea*: a new genus of Bromeliaceae (Tillandsioideae), (coauthored with Michael Spencer) and published in volume 44 issue number 4, Dr. Smith has been one of the JOURNAL's most frequent and important contributors.

It would, of course, be impractical to reprint all those articles...it would take more than 200 pages...or for that matter even to provide a listing of them. Instead, it seems to me that a more appropriate tribute to Dr. Smith would be to repeat the words of tribute and admiration expressed by other influential bromeliad personalities in the pages of the JOURNAL over the years...CHB]

Know Our Taxonomist Better

Mulford B. Foster

Lyman B. (Bromel) Smith, the botanical father of bromeliads in the Americas, needs no introduction to a bromeliad audience, but an appraisal of his work in the Bromeliaceae is long over-due.

He has been a tireless and indefatigable worker on the taxonomy of the bromeliad family which presents many discouraging and conflicting confusions in nomenclature. His sincere efforts in clearing up these confusions has been an inestimable work of merit. His enormous production of the descriptions of new species has enriched bromeliad literature extensively.

Out of Dr. Smith's 135 publications, 80 have been on the subject of Bromeliaceae, seven of these have been in the BROMELIAD BULLETIN, plus that major contribution, *The Subfamilies and Genera of the Bromeliaceae* in our Cultural Handbook.

Space limits a description of these works but a major portion of his work has been in a series of *Studies of the Bromeliaceae* started in the Contributions of the Gray Herbarium when he was a member of that staff and continued since 1947 in the U.S. National Herbarium publications when he became associate curator at the Smithsonian Institution.

A long list of significant contributions to the Floras of Latin American countries gives his work extensive scope. The "Geographical Evidence on the Lines of Evolution" in the German BOTANISCHCE JAHRBUCHER was a significant answer to the theories of Carl Mez in his monograph. Dr. Smith's section on Bromeliaceae in the North American Flora is a valuable record for those who strive to know the family better.

He reads and writes in five foreign languages, German, French, Spanish, Portuguese and Latin, and not a few of his publications have been written in these languages.

He has visited and gathered data in most of the large Herbaria of Europe and North and South America. The horticultural world often neglects the work of the taxonomic botanist but it is the purpose of this BROMELIAD BULLETIN to bring the two worlds together in a mutual appreciation of the significance of each other's work.

Reprinted in part from the BROMELIAD SOCIETY BULLETIN 4(1):7-8. 1954.

The Men Behind the Scene - Lyman B. Smith

Victoria Padilla

I have often wondered where we bromeliad growers would be today if we did not have Dr. Lyman B. Smith, taxonomist and senior botanist at the Smithsonian Institution in Washington, D.C., to act as our mentor and to guide us in the identification of our plants. Of all the men behind the scene, he is by far the most indispensable, for he is ever ready to help us in the many dilemmas that confront us in our collecting of bromeliads.

It goes without saying that Lyman B. Smith is the foremost bromeliad authority in the world today, having devoted practically all of his life to the study of these plants. A native of Boston, he attended Harvard where he pursued the study of botany. In 1926 he started his graduate work, choosing the then little-

known (in the United States) plant family - the Bromeliaceae. Until that time he had been strictly a local floral botanist, but since then bromeliads have been his overwhelming interest and line of research. After two years of graduate study he received a Sheldon Traveling Fellowship to go to eastern Brazil. There he was able to see at first hand the plants which he had studied usually from dried materials only and to study at the Instituto de Botanica, São Paulo, under the directorship of Dr. Hoehne. After one more year of study at Harvard, he completed his dissertation - a monograph on one subgenus of *Tillandsia* and an account of the bromeliads of British Guiana.

In 1931 Dr. Smith joined the staff of the Gray Herbarium of Harvard University at Cambridge, Massachusetts, where he had access to its great library and collection and was given the opportunity to go abroad a number of times and to do considerable work at the British Museum and Kew Gardens in England and at the botanical museums of Brussels, Léige, and Paris. He was able to examine many of the older herbarium collections and he photographed the original types of many of the first bromeliads brought into cultivation. In 1947 he left Harvard to go to the Smithsonian Institution, where he is now Curator of Phanerogams of the U.S. Museum of that Institution.

Unlike many botanists who are content to pursue their studies with dessicated herbarium specimens, Dr. Smith seizes every opportunity to visit South America and to examine bromeliads in their native habitat. As a result of his many studies in the field he has published a number of works pertaining to the flora of specific Latin American countries.

However, Dr. Smith's writings do not end here. For many years he has identified thousands of bromeliad specimens that have been sent to the Gray Herbarium and the Smithsonian Institution. The number of new species which he has described is legion. These descriptions generally appear in the publication PHYTOLOGIA, which is a gold mine of bromeliad information. In past issues he has written the keys to *Vriesea*, *Tillandsia*, *Pitcairnia*, *Puya*, *Bromelia*, *Dyckia*, *Guzmania*, and *Neoregelia*. Dr. Smith reads and writes five foreign languages: German, French, Spanish, Portuguese and Latin, and not a few of his publications has been written in these languages.

At present Dr. Smith is busy on a key to the entire bromeliad family, which will be the greatest treatise on the Bromeliaceae so far published. He has found that the great monograph of Carl Mez, published in 1935, is no longer accurate, so he has set out to rectify the many inaccuracies prevalent in the earlier work. Dr. Smith now recognizes 45 genera in the place of the 50 given by Mez, discarding *Aregelia*, *Chevaliera*, *Disteganthus*, *Sodiroa*, and *Lindmania* while at the same time creating new genera, such as *Fosterella*. Dr. Smith's work will be in three separate volumes: *Pitcairnioideae*, *Bromelioideae*, and *Tillandsioideae*. At this writing only *Pitcairnioideae* is completed.

We bromeliad growers cannot praise too highly the great work that Lyman

B. Smith is doing. According to Mulford B. Foster, "His tireless industry and enthusiasm surpass all the former authorities in this family; he has dedicated his life to the study of bromeliads, and a more devout and sincere student this family has never known."

Reprinted in part from the J. BROMELIAD SOC. 23(2):43-45. 1973

An Award of Appreciation - Lyman B. Smith Sue Gardner

In recognition of his many years of work on the Bromeliaceae, a plaque of Appreciation was presented to Dr. Lyman B. Smith by the Bromeliad Society, Inc. Dr. Smith became interested in bromeliads as a graduate student at Harvard University in 1927 and wrote his doctoral dissertation on the genus *Tillandsia* subgenus *pseudocaptosis*. After graduation, he continued his study of bromeliads both in the field and in the herbarium. He visited many herbaria in North America and Europe and cultivated close associations with botanists and hobbyists who were interested in bromeliads and who provided him with many specimens. Probably foremost among these associations was his relationship with Mulford B. Foster. Their joint interest in bromeliads resulted in the description of many new species.

Dr. Smith's work appears in many publications, among which are the bromeliad sections of *The Flora of British Guiana*, *The Bromeliaceae of Brazil*, and *The Bromeliaceae of Colombia*. The culmination of his work with bromeliads is the three volume monograph published as part of the *Flora Neotropica*. The first volume is one the subfamily Pitcairnioideae and was published in 1974. The second volume on the subfamily Tillandsioideae was published in 1976, and the final volume on the subfamily Bromelioideae appeared in 1977 - 50 years after he first began working on bromeliads.

He is still very active in botany. He holds the position of botanist emeritus at the Smithsonian Institution and goes to his office daily even though he was officially retired in 1974. Currently, he is preparing work on begonias, grasses, vellozias, and material for the flora of Santa Catarina, Brazil. He continues to work on bromeliads and short addenda to the monograph will be published in Phytologia and the Journal of the Bromeliad Society.

Dr. Edward McWilliams gave an introduction to Dr. Smith and his work to those attending the banquet of the 1982 World Bromeliad Conference. Since Dr. Smith was unable to attend as planned, Dr. Robert Read, an associate at the Smithsonian Institution, accepted the plaque which read: "Presented to Dr. Lyman B. Smith in appreciation for 55 years of dedicated work on the

Lyman B. Smith: On His Eightieth Birthday

Thomas U. Lineham, Jr.

Lyman B. Smith, botanist emeritus at the Smithsonian Institution, honorary trustee of the Bromeliad Society, and principal author of the most comprehensive monograph series on the Bromeliaceae yet written, will be eighty years old on the 11th of September this year. It is our privilege to wish him well on this occasion.

Dr. Smith has studied bromeliads since beginning his graduate work at Harvard University in 1926. The information he gathered during his frequent visits to South America to observe and collect plants and his years of study of herbarium specimens, combined with his remarkable ability to analyze, to remember, and to describe, have brought him recognition as the foremost bromeliad authority in the world.

His exceptional abilities have been acknowledged by horticulturists in many ways. In 1952 he served as a malaria researcher under the auspices of the Rockefeller Foundation and taught Brazilians to identify host bromeliads so that they might concentrate their mosquito-fighting operations.¹ He was a staff member of the Gray Herbarium of Harvard for 17 years, including five as curator. He then served the National Museum of Natural History of the Smithsonian Institution for 28 years, retiring in 1974 as senior botanist.

At various times Dr. Smith has conducted research in the significant herbaria of Europe and the United States, and has lectured at the George Washington University in the District of Columbia. He was the first to photograph the Morren paintings of bromeliads at Kew Gardens and made some of these photographs available to members of the Society in recent issues of the *JOURNAL*.

For many years there was the team of Mulford Foster in the field discovering plants and enthusiastically announcing "new" species, and Lyman Smith in the herbarium at home systematically preparing the documentation of these finds, sometimes playing down the "new" claims, but more frequently supporting the validity of Mr. Foster's assertions. This combination proved to be

¹ *NEWSWEEK* magazine (Aug 4, 1952) and the *WASHINGTON POST* (July 22, 1952) featured articles on Dr. Smith's work on bromeliads and mosquito control.

eminently successful in promoting bromeliads to the attention of both professional botanists and to amateurs. Throughout the years Dr. Smith has continued to support all interested students, giving freely of his time and sharing generously his store of knowledge, but always tempering criticism with humor. At the same time, he accepts suggestions with appreciation and has been known even to admit wryly that *Aechmea marmorata* when carefully keyed had to be a *Quesnelia*. "My only mistake," he was heard to say. Or, when a student or an associate complains that a specimen does not agree with the keys, he will respond with smiling encouragement, "It happens to me all the time."

Dr. Smith's publications, not counting hundreds of articles written for various periodicals including *PHYTOLOGIA* and this journal, began in 1938 with his studies on the flora of various Latin American countries. That activity continued through 1971 with his description of the Bromeliaceae in *Flora of Venezuela*. There is no question that his most important and comprehensive work is the three-part series published for the Organization for Flora Neotropica: *Pitcairnioideae* (1974), *Tillandsioideae* (1977), and *Bromelioideae* (1979). His coauthor in these, as in earlier monographs, was his sometime student Robert Jack Downs. His systematic treatment of these subfamilies includes keys to the genera, subgenera, and the species, maps showing the geographic distribution of the plants, the exquisitely detailed drawings edited by or originated by Dr. Downs, and the descriptions. No other study approaches the scope and accuracy of this work.

Dr. Robert W. Read, Curator in the Department of Botany of the National Museum states:

I can't stress enough the value of Lyman's monograph to the advancement of research in bromeliads. It is the most complete gathering together of such information, in English or any other language, ever published. One may have difficulty still with the keys and descriptions, but if one realizes the small amount of material available for a tremendous number of species, the monograph will be recognized as the best that will be available for a long time to come. It is an indispensable reference for the support of any other kind of work in bromeliads. It will be the basis of all future taxonomic research in the family.

Dr. Smith, although retired, still works at the Smithsonian arriving bright and early every day (even on weekends) preparing a supplement with errata and a new taxa published since the final manuscript of his great monograph. Although he rode his bicycle until recently, he now allows himself the luxury of commuting with his youngest son, Steve, also a botanist at the Museum.

The entire world of bromeliad lovers, and particularly the members of the Bromeliad Society, thank Dr. Smith for his unsurpassed contributions to this field of knowledge and wish him continued health and productivity.

Reprinted from the *J. BROMELIAD SOC.* 34(5):195-7. 1984

Congratulations, Lyman

Robert W. Read

Dr. Lyman Bradford Smith deserves congratulations on his 90th birthday as much for his long life as for his many scientific productions. His list of publications is long and marvelous to behold. Foremost is his three-volume monograph on the bromeliad family published in the Flora Neotropica series in 1974, 1977, and 1979. This great work has been the source of most of my beginnings with bromeliad studies. I have found the information in this monograph essential as a starting point for my studies. At times it provided more information than I needed.

Lyman's ability to recognize immediately a species, or at least to point to a group of related species has been phenomenal. It was an invaluable opportunity for me to work with him while he compiled Part 3 of the monograph and to be his partner with many publications of new species. While working closely with Lyman over a period of twenty years, I learned more than I ever expected to learn about bromeliads. There is still much for us to learn about bromeliads and too few scientists with Lyman's ability.

Lyman has received many honors and awards for the work of his tremendously productive life. Our gift to him on his 90th birthday is to remember the prodigious efforts and great contributions to the study and understanding of bromeliads.

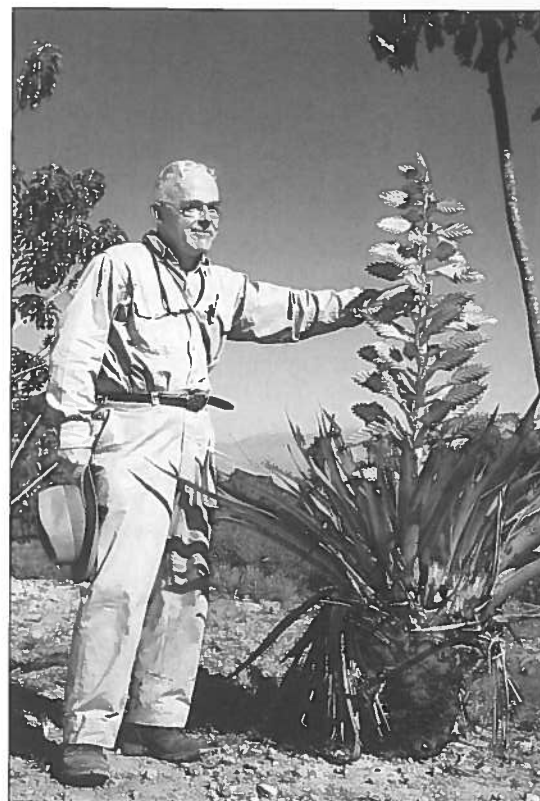
Reprinted from the *J. BROMELIAD SOC.* 44(5):196. 1994.

The Plants Named in Honor of Dr. Lyman B. Smith

Jason R. Grant

By the date of his ninetieth birthday, the eleventh of September 1994, one genus, one hybrid, and 41 species of plants had been named in honor of Dr. Lyman Bradford Smith. Of these, the genus, the hybrid, and 20 species, are bromeliads. Most of the others were based on collections made by Dr. Smith during his expeditions to southern Brazil in 1928-29, 1952, 1956, and 1964.

Nearly all of the taxa names are of the usual etymological sort, a Latinization of either Dr. Smith's first or last name, or a combination of the two. One name, however, stands apart from the rest providing a glimpse of one of Dr. Smith's activities that few of us have known about. John J. Wurdack (1962:198)



Photograph by Hollings Andrews

Figure 4.

Dr. Smith was an instructor during the 1966 Organization of Tropical Studies Tropical Epiphytes course. The photo was taken 3 km southeast of Sabalito, a town just east of San Vito, Costa Rica.

named and described *Leandra luctatoris*, based on plants that Dr. Smith collected in Santa Catarina, Brazil. He stated: The epithet refers to both the classificatory courage and avocational activity of Lyman B. Smith." The Latin *luctator* means wrestler.

In order to find out more about his athletic interests and the plants named after him, I spoke to Dr. Smith at his home in Kensington, Maryland, on July 28th of this year (*Ed note...1994*). I learned that he had been an avid Greco-Roman wrestler during his undergraduate years at Harvard. Later, he wrestled as a member of the Boston Athletic Association and for the Washington, D.C., Y.M.C.A., winning numerous awards in the 125 lb. category. He spoke with great enthusiasm while describing his athletic achievements, especially his invention of a wrestling move he termed "the spinner."

While on the subject of sports, Dr. Smith recalled that it was during his high school days while playing golf with his father that he first became interested in botany. It seems that while standing in the middle of the fairway, he spied a *Carex* (sedge). Knowing that carices don't usually grow in such areas, he immediately began to examine the plant, forgetting the score, and losing interest in the game.

After discussing sports and the species named after him, Dr. Smith asked if I had checked *Hechtia*. I told him yes, there is a species in that genus named after him. Seeming pleased, he then asked about *Navia*. I told him that there was not. Thinking he had set me up, he replied quickly: "That's your assignment." With that, there was the perhaps too often-encountered line, "well...I mustn't take any more of your time," a clear indication that he was eager to get back to his own work.

The following list of taxa named in honor of Lyman B. Smith was compiled by searching INDEX KEWENSIS on CD-ROM, the lists of type specimens at both the U.S. Gopher Server on the Internet, and simply asking the wise. Once separate lists were generated for those names with the potential of having been named in honor of Dr. Smith, each record was scrutinized and excluded on the basis of its publication date or verified in its original publication.

De Plantis in Honorem L.B. Smithii Nominatis Bromeliads:

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 —Basionym: *Connellia smithiana* Steyermark & Luteyn, J. BROMELIAD SOC. 35:152. 1985.
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- X Neophytum x lymanii* M.B. Foster, BROMELIAD SOC. BULL. 8:73. 1958.
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- Orthophytum lymanianum* E. Pereira & I. de Azevedo Penna, BRADEA 4(1):3-4, 7. 1983.
- Pitcairnia lymanii* Matuda, AN. INST. BIOL. MEXICO 23:99. 1953.
 == *Pitcairnia saxicola* L.B. Smith, CONTR. GRAY HERB. 17:29. 1937.
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 == *Wittrockia amazonica* (Baker) L.B. Smith, ARQ. BOT. S. PAULO II. 2:197. 1952.

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- Eryngium smithii* Mathias & Constance, SELLOWIA 23:47. 1971. (Apiaceae)
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ACKNOWLEDGMENTS

I thank Dr. Lyman B. Smith for his thought-provoking and always entertaining conversation and Hollings Andrews for making his photograph available for publication.

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Reprinted in part from the J. BROMELIAD SOC. 44(6):254-6. 1994.

[Finally, a letter received recently from another Honorary Trustee of the Bromeliad Society, Olwen Ferris, from Queensland.]

Editor:

It is with deep regret that I received the news of the death of our dear friend and teacher, Dr. Lyman B. Smith.

In the 1960's he was the first person to answer my request for information on bromeliads. I had a number of plants without names, but he soon put me on to books that changed this for me. I joined the Bromeliad Society and got to know Victoria Padilla, who was loud in her praise of Dr. Smith. Adda Abendroth was another person I corresponded with who said Dr. Smith helped her immensely in the work she did in Brazil.

Olwen Ferris
Queensland, Australia



Figure 5.

This photograph was sent by Dr. Smith to Tom Lineham in November, 1992.

Good-bye Lyman, and thank you.

On the Diversity and Biogeography of the Genus *Fosterella* L.B. Smith (Bromeliaceae) With the Description of a New Species From Eastern Bolivia

Pierre L. Ibisch, Elvira Gross, Georg Rauer & Dirk Rudolph

The genus *Fosterella* was established by L.B. Smith in 1960. However, half of today's known species had been described in other genera by the 1940s (figure 6). In the last few decades the descriptions of new species has increased significantly and there are undoubtedly more species remaining to be discovered. In his taxonomic revision of the genus, Read (in prep.) will describe five new species. Ultimately the number of *Fosterella* species may approach 30.

The first species discovered was the central American *Fosterella micrantha*, described as *Pitcairnia micrantha* by Lindley in 1843. The latest described species, and the ones still to be described, grow in the Central Andes or in the humid lowlands of central South America. Bolivia, in particular, is a country where new, even surprisingly spectacular species (like the red-flowered *Fosterella spectabilis* H. Luther 1997) can still be discovered. Bolivia is also the region where, in 1993, the authors found the new species described below:

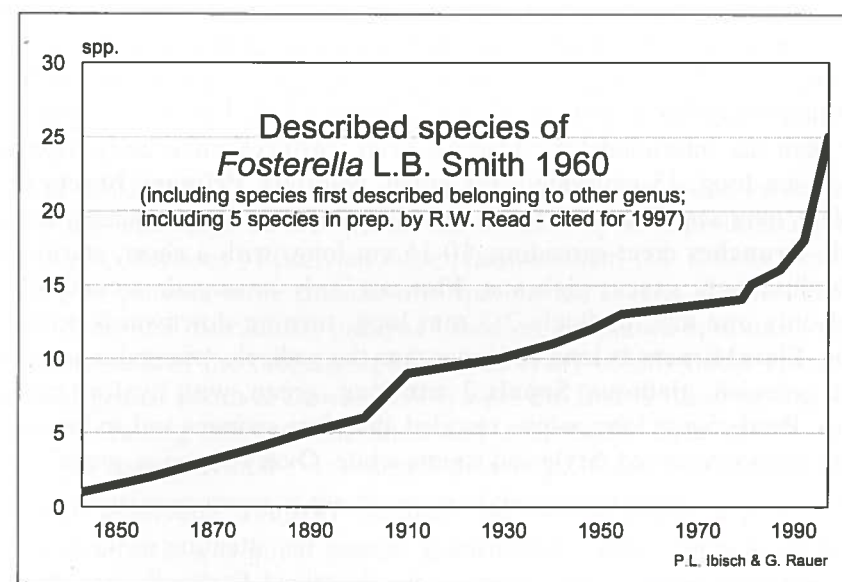


Figure 6.

The history of discovery of *Fosterella* species. A considerable number of the species known today have been described in recent times.

Fosterella vasquezii E. Gross & P. Ibsch, sp.nov. (figures 8-9).

Type. Bolivia. Prov. Velasco: Dept. Santa Cruz: Parque Nacional "Kempff Mercado", growing on steep sandstone rocks of the Serrania de Huanchaca, a mountain chain on the Bolivian-Brazilian border, at an altitude of about 200 m above sea level. The specimen was collected nearby the "El Encanto" waterfall, a site characterized by rather humid conditions with water in all probability permanently running down the stone wall on which, among others, a species of *Utricularia* grows. The surrounding forest is humid and semi-evergreen. Among the typical tree species to be found is *Swietenia macrophylla*,¹ collected 27 Aug 1993, P. Ibsch No. 93.0652, C. Ibsch, G. Rauer & D. Rudolph (holotype, HEID. isotype, LPB).

Plants from the type collection are cultivated in the Botanic Gardens of Bonn (No. 14748) and Heidelberg (No. 102322).

Fosterella vasquezii affinis est *F. elatae* H. Luther, sed differt ab ea in characteribus sequentibus: Folia ad basim non angusta, 2 cm, non 4 cm lata. Bracteae scapi omnes longiores quam internodia. Bracteae florales sic longae vel longiores quam pedicelli. Sepala aequabiliter viridia, non rubro-maculata. Petala alba, non ruditer alba et rosea.

Plant stemless, flowering up to 50 cm high. **Leaves** forming a rosette up to 70 cm in diameter, at flowering time flattened. **Sheaths** broad-ovate, 2 cm high and 5 cm wide, somewhat succulent, yellowish white, glabrous, lustrous, margins obscurely serrate. **Blades** lanceolate, flat, 40 cm long, 2 cm wide, not narrowed at the base, obscurely serrate, green, densely lepidote beneath, glabrous above, only at the center of the rosette white lepidote, somewhat undulate at the margins. **Scape** erect, 20-30 cm long, 4 mm thick, glabrous, green, nerved. **Scape bracts** erect, small-triangular, acuminate, the lower imbricate, densely white lepidote, all longer than the internodes, the margins even. **Inflorescence** laxly tripinnate, erect, 30 cm long, 15 cm wide, axes green, glabrous. **Primary bracts** small-lanceolate, long acuminate, the lower up to 25 mm long, nerved, densely lepidote beneath. **Branches** erect-spreading, 10-15 cm long, with a short, sterile base. **Rachis** thin, light green, glabrous. **Flowers** laxly arranged, secund, nutant, opened only one day; pedicels 2-3 mm long, turning downwards with fruit ripening. **Floral bracts** as long or longer than the pedicels, triangular-acuminate, nerved, greenish, glabrous. **Sepals** 2 mm long, green, with hyaline margins, glabrous. **Petals** 5 mm long, white, recoiled, therefore stamens and style exposed. **Anthers** yellow, recurved. **Style** and stigma white. **Ovary** superior, green.

The species name honors Mr. Roberto Vasquez, specialist of several Bolivian plant groups who is increasingly turning his attention to the bromeliad family, and who collected and observed the described *Fosterella* species at the type locality.

¹ Currently intensive floristic studies of the region are being carried out by T. de Centurión, Herbario del Oriente Boliviano, T. Killeen, Missouri Botanical Garden, and co-workers.

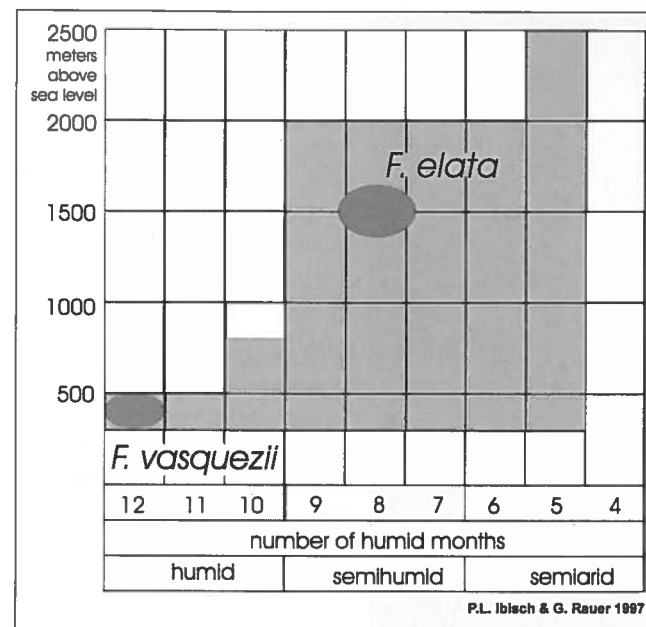


Figure 7. Preliminary ecogram of *Fosterella vasquezii* and the most closely related species *F. elata* with regard to altitude (temperature) and humidity. The grey area represents a first assessment of the ecogram of the genus *Fosterella*.

Fosterella vasquezii is the second species found in the Bolivian lowlands. *Fosterella penduliflora* has been recorded from Roboré in the Southern Chiquitanía (Smith & Downs 1974) where the climate is markedly drier. The nearest record of a *Fosterella* species belongs to *F. windischii* in Mato Grosso, Brazil (Smith & Read 1992). However, probably the most closely related species to *F. vasquezii*, *F. elata*, is found in the semihumid Andes of La Paz (Yungas) at an altitude of about 1,500 metres above sea level (Luther 1981) (figure 7).

DISTRIBUTION AND DIVERSITY OF THE GENUS FOSTERELLA

The collections of *Fosterella* specimens are still very poor, so remarks on the ecology and range of the species are necessarily of a preliminary nature. Soon, large collections of Bolivian *Fosterella* specimens (M. Kessler, pers. com.) will help to provide more precise information for several species. However, without doubt the distribution patterns based on the known specimens permit a first assessment of the biogeography and diversity of this rather species-poor bromeliad genus. Smith & Downs (1974) were the first to illustrate the range of *Fosterella*. Taking into consideration new records for both known and new species, we have provided a new distribution map, which for the first time also tries to give an assessment of the diversity of the genus (figure 11).

Fosterella is a tropical genus which enters subtropical forests only in Argentina. It is marked by a disjunct distribution. An isolated partial distribution in Central America is formed by *F. micrantha*. All the other species are known from central South America: in the Andes from Peru (Huanucu) in the north to Argentina (Salta) in the south, and in the lowlands from Bolivia (Santa Cruz) and



Figure 8.
Fosterella vasquezii sp.
nov. Flowering type
specimen in the Botanic
Garden Bonn (P.L. Ibisch,
May 1995).

Photograph by Pierre Ibisch



Figure 9.

Photograph by Pierre Ibisch

Detail of the inflorescence of *Fosterella vasquezii* sp. nov.
(P.L. Ibisch, May 1995).

Brazil (Mato Grosso) to Paraguay. A clear diversity center is located in the dry to semihumid inter-Andean and foothill region of the La Paz Yungas where about 50% of the species are concentrated. A zone of high *Fosterella* diversity is found in an adjacent area in Southern Peru. With regard to the other genera of Bromeliaceae, *Fosterella* is probably unique by having its diversity center in this region.

In all other known ranges, it is not likely to find more than one or two species within a small region. Up to now the distribution in the Bolivian Andes seems to be discontinuous. It is possible that new records may fill the distributional gaps. Most of the *Fosterella* species are not found in very humid forests such as those that are present in the mentioned gap of the Cochabamba Yungas. Most of them occur in dry to semihumid forests like those typical for inter-Andean regions and the edge of the Chaco. The new species, *F. vasquezii*, seems to be one of the few species which are adapted to very humid conditions. In the South American lowlands the *Fosterella* species apparently depend on mountain chains and rocky slopes. Here, none of the species is found on forest floors. In the Andes, most of the species are found below 1,500 metres in elevation; *F. albicans* and *F. schidosperma* are even known from sites at altitudes around 2,000 metres.



Figure 10.

Photograph by Dirk Rudolph

Habitat of *Fosterella vasquezii* sp. nov. - humid sandstone slopes of
the Serrania de Huanchaca

ENDEMISM AND CONSERVATION ASPECTS

Currently more than 80% of the *Fosterella* species have to be considered as local endemics. A high tendency to endemism is observed within most genera of the subfamily Pitcairnioideae. The small seeds, which are not dustlike, are not suited for long-distance dispersal. So, especially those taxa which live in more or

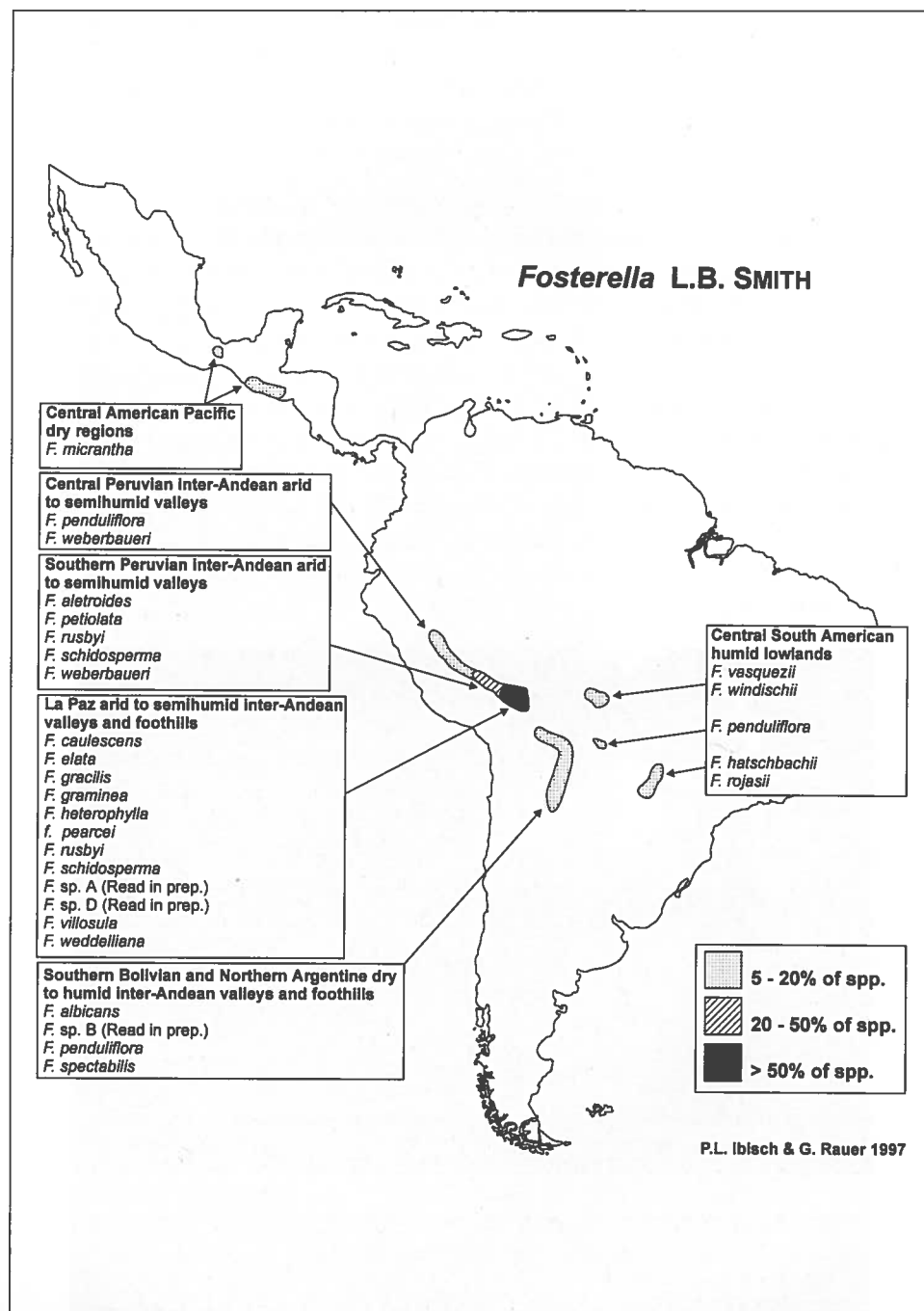


Figure 11.

Species diversity and distribution of the genus *Fosterella*. The map is based on the known records of the described species and some species which will be described by Read (revision of the genus; in prep.).

less isolated dry or semihumid forests may evolve species characterized by small ranges. The diversity center of the genus *Fosterella* in Bolivia is, at the same time, the center of local endemics which up to now only have been found at or nearby the type locality.

Probably none of the *Fosterella* species is currently endangered. Many of the local endemics live at azonal sites like rocks or the habitats that are not suffering such transformations that might prove detrimental to their existence. Furthermore, the species are not very attractive for many horticulturists, so over-collecting would not seem to be a potential threat. The new species, *F. vasquezii*, grows within the National Park Noel Kempff Mercado and can be considered to be well protected.

ACKNOWLEDGEMENTS

We appreciated the help of the personnel of the National Herbarium of La Paz (LPB) for facilitating and supporting the botanical research of P.L. Ibisch, G. Rauer & D. Rudolph in 1993 which was carried out in the framework of a bilateral cooperation between LPB and the Botanical Institute Bonn. We are very grateful to Dr. Robert W. Read for providing his unpublished manuscript on the revision of the genus *Fosterella*. Mrs. Anita Munch prepared the Latin diagnosis. Furthermore we want to express special thanks to Mr. Dieter Roth, horticulturist of the Botanic Garden Bonn, who achieved the flowering of the type specimen and maintains a living collection of the new species.

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Bonn/Heidelberg, Germany

Selby Gardens Receives Grant

Selby Gardens has received a grant of \$32,527 from the William G. Selby and Marie Selby Foundation in support of its Environmental Education Program. This project supplements efforts of the Sarasota County School District to strengthen science and environmental programs by providing a comprehensive curriculum that helps students develop an understanding of and appreciation for nature and the environment. Major funding from this grant will be used to transport school children to Selby Gardens for educational programs during the 1997-98 school year.



Figure 12.
The *Tillandsia paleacea* clump
in Allantaytambo, Peru in
January, 1989.



Figure 13.
Several generations later, the
offspring of the rescued clump
flowers in August, 1996.

Inca Treasure

Tom Koerber

Photographs by the Author

I remember it well. On a bright January day in 1989, I was visiting the Inca ruins above Ollantaytambo, Peru. The tour guide was telling us at length of the skill of the ancient Incas in building massive stone structures without the aid of metal tools or draft animals. I looked down and there at my feet in a drainage ditch was a little clump of bromeliads. I stooped down for a closer look. The plants were a caulescent *Tillandsia* species with short recurved leaves heavily covered with gray trichomes. There was no name tag; a significant disadvantage. But then, there was no price tag either; a definite advantage. Then, I am almost certain I heard a plaintive whisper. "We have fallen and can't get up. Please rescue us before we are eaten by a goat." I couldn't resist. The little *Tillandsia* clump slipped smoothly into my pocket and I rejoined the tour group.

In the evening, back at the hotel, the plants got a quick bath in the wash basin and were placed on a towel to dry. The plants endured ten days in a suitcase with my dirty socks and finally arrived, more or less intact, in California. The next day they were soaked for twenty minutes in Orthene insecticide and Captan fungicide and left to dry on paper toweling. A few days later I glued the plants to a slab of lava rock and hung them on a trellis partly shaded by a large pine tree.

The little *Tillandsia* clump survived the winter rains and two or three light frosts. In April there were six new shoots and three roots. In August, the new shoots each produced three marvelously fragrant violet blossoms. At that point I consulted my books and concluded that I had acquired *Tillandsia paleacea*.

The little *Tillandsia paleacea* clump has grown to become one of the most prized treasures of my collection. The plants have continued to grow and multiply. Every year, in April, new shoots are produced doubling the size of the clump. In August there is another crop of violet blossoms, although no seed has ever been produced. The original little clump of plants has been divided and subdivided, and in spite of having given away more plants than I started with I still have two large clumps, each with scores of plants.

If you should hear any bromeliads begging to be rescued you should certainly do so. They may well become the treasures of your collection.

Berkeley, California

Vriesea breedloveana: A Flower in Plain Brown Wrappers

Robert Guess

Photographs by the Author

Breedlove (1986) lists eight species of *Vriesea* from his collecting expeditions in Chiapas, Mexico. One of these, *Vriesea breedloveana* L.B. Smith, is highly visible to travelers along portions of the 85 kilometer stretch of the Pan-American Highway (Mexico 190) between Tuxtla Gutiérrez and San Cristóbal de Las Casas. The approximately 16 kilometer section along which the species grows in abundance is a steeply inclined, twisting, heavily trafficked passage that affords little relaxed viewing for a driver and few places to pull off the road for closer inspection of the plants.

Physiographically, this region is a transition zone between the Central Depression of Chiapas and the highland Chiapas Plateau. The Central Depression is characterized by semi-arid thorn woodlands, large portions of which have been replaced with tracts of cultivated land and expanded population settlements. The Chiapas Plateau, by contrast, is cool, moist, and covered with tropical deciduous trees and pine-oak forests. *V. breedloveana* occupies a specific niche in the rugged terrain and rocky outcroppings of this zone.

According to Smith and Downs (1977), the type form of *V. breedloveana* was initially procured in 1966, from a steep cliff face near the hamlet of Navenchauc in the Municipio of Zinacantan, at an altitude of 2100 meters. The site is approximately 20 kilometers from San Cristóbal. While only minimal documentation on the distribution of this endemic species appears in the literature, recent observations indicate it continues to thrive in the region where the initial specimens were collected. These plants are surviving in spite of a nearby steadily growing population center where the indigenous people are clearing more land for dwellings and *milpas* (cornfields).

Throughout three months from December, 1995, through February, 1996, a search was conducted to determine if a general range and distribution pattern for *V. breedloveana* could be established in this area. Defined by the physical barriers of the environment and difficult offroad access, observations were made only along and adjacent to the Pan-American Highway. A total of nine major growing sites between Kilometer 55 and Kilometer 71 were recorded with altitudes ranging from 1886 meters to 2258 meters.

Since the highway loops back and forth following the mountain contours for this 16 kilometer span, a more representative straight line measurement using local topographic maps yielded an actual growing range of only 8 kilometers. It is highly probable that the plants in these sites, even though separated by significant distances, still comprise a single population. These gaps may be attributed to the extensive utilization of all arable land.

Not until reaching the Valley of Jovel in which lies the city of San Cristóbal de Las Casas did any additional sighting of the plant occur. There, several small isolated groups were seen growing high on the rugged west side of the valley at an estimated altitude of 2350 meters and visible from the highway entrance to the city.

The largest and by far the most significant assemblage of *V. breedloveana* occurs between Kilometers 55 and 56. In this approximately 750 meter long area, many of the plants grow well up the adjacent hillside on rocky outcroppings extending several hundred meters above the highway. Here this plant appears to be saxicolous, growing vigorously on exposed undisturbed rock faces but only on the up-slope side of the highway. No plants were seen on the down-slope which is deeply covered with soil, debris, and *milpas*. One can only speculate that in the late 1940's during the construction of the Pan-American Highway, cut and fill may have buried the needed rocky limestone substrata and thus foreshortened or halted *V. breedloveana* expansion to this area.

Although *V. breedloveana* is saxicolous in most instances, many plants are found growing in shallow pockets of trapped soil along cliff faces. Of the plants examined, however, most had their roots well anchored in or on the underlying rocky base. With few exceptions, growing sites were situated on shaded hillsides, generally facing west, northwest, or infrequently, north. In these positions, exposure to direct sunlight occurs only in the late afternoon.

During most of the year, the sites along the highway are covered with *V. breedloveana* in various stages of development. The inflorescence of mature plants range from 1.5 to 2.5 meters in height; the number of spike-bearing branches varies from two to seven. The spikes are between 35 and 40 centimeters in length with approximately 20 potential flowers per spike.

Individual flowers on the spikes are moderately large, with three thick, fleshy petals up to 2.7 centimeters in diameter and 3.8 centimeters long when fully developed. They exude copious amounts of thick, sweet-smelling nectar. Seldom does more than one flower appear on an individual spike at any given time. The flowers, a subdued cream color with fine reddish striations, open in the predawn hours or shortly after sunrise. They usually last 48 hours, although a few remain open as long as 72 hours. The process of flower development is proximal to distal on each spike.

In January, 1996, flowering *V. breedloveana* were noted to attract numerous insects as well as several species of hummingbirds at the recorded sites. Two of the latter were identified as the Green-Violetear, *Colibri thalassinus*, and the White-eared Hummingbird, *Basilinna leucotis* (Howell and Webb 1995).

Offsets of *V. breedloveana* occur but are infrequent. One was observed to develop and outgrow its parent plant within a single year which is not uncommon in *Vriesea*. Generally, *V. breedloveana* uses seeds as the primary reproductive vehicle. Of the many hundreds of plants observed, ruptured seed capsules were in



Figure 14.

Freshly opened flower of *Vriesea breedloveana* exuding nectar.



Figure 15.

Spike and mature flower of *V. breedloveana*.



John Clark

Figure 16.

V. breedloveana in habitat.

evidence on most of the older dried inflorescences. To test maturation time, several seedlings, judged to be less than a year old, were removed from one of the sites and placed in a garden setting with large limestone rocks as substrata. Four years and eight months later, the plants flowered giving a rough indication of the time required to develop full cycle.

Mature individuals of this handsome plant form a rosette with height and diameter of more than a meter. Its leaves are strap-shaped and well adapted to carry up to four liters of water during the rainy season. The primary bracts of the inflorescence are very thin, tan to light brown in color, often masking a bright kelly-green scape. The floral bracts are broad, shield-shaped, with a pronounced keel. They are also tan to light brown in color although somewhat darker than the primary bracts, displaying a deeper brown hue on the upper (outer) surface and hence the drab over-all appearance of the inflorescence.

The historical distribution of *V. breedloveana* has no doubt changed over time. The rapidly exploding human population and concurrent land clearing in this region suggests that perhaps only a fragment of its former range exists. Today

these survivors tend to occupy only those niches deemed undesirable by the local inhabitants. Fortunately for *V. breedloveana*, they prefer more dramatic appearing species for their decorative needs and tend to ignore the relatively colorless inflorescence and pale-hued flowers of this plant.

Several projects related to this endemic species present themselves. The circumscribed growing range of *V. breedloveana* holds promise as a subject for those individuals interested in survival aspects of plant populations. Although this plant undoubtedly occurs elsewhere in Chiapas, these locations require documentation. Some question exists as to whether or not *V. breedloveana* is a synonym of *V. werckleana*. According to Utley (1994), further investigation is needed to determine the status of these plants. Meanwhile, tracking down population sites of *V. breedloveana* remains a challenging quest. The author would greatly appreciate any additional information on other known locations of this species.

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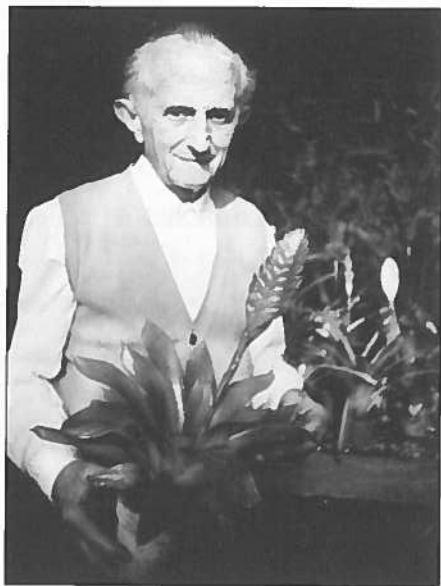
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Dr. Walter Richter

Dr. Walter Richter, prominent bromeliad grower, hybridizer, photographer, author, and Honorary Trustee of the BSI, passed away on February 10, 1997, at the age of 94.

Born on June 16, 1904 in Crimmitschau, Saxony, Walter Emil Richter was exposed to tropical plant cultivation at an early age. His father had founded the tropical plant firm "Emil Richter" in 1890, and young Walter began his horticultural apprenticeship in 1918 at the age of 14. His father's firm began assembling bromeliads as early as 1929. By 1930 Walter had already established his own nursery and had begun growing bromeliads. He took over management of his father's firm upon his father's death in 1944. The business was located in what was formerly known as East Germany, and during his management, he had to face problems most of the world's commercial growers and hybridizers did not have to face, including the aftermath of the Second World War, the incredible hardships and political turmoil of the postwar period, and orders from the communist government in East Germany that the greenhouses on the property were to be used to grow vegetables. There were also fuel shortages to contend with and limited access to Western markets. The firm was nationalized in 1972 and became known as VEB Orchideen-Bromelien Crimmitschau. Dr. Richter remained on as director.



That he was able to save much of his tropical plant collection during these difficult times provides testimony to his tenacity and love of bromeliads, a love that remained with him throughout his long, productive life.

He was not only a renowned grower, but a noted hybridizer, with more than 60 hybrids credited to him in the BSI's "A Preliminary Listing of all Known Cultivar and Grex Names for the Bromeliaceae" compiled by Don Beadle. Among them are some of our better-known hybrids, including *Aechmea* Rakete, *Billbergia* Fascinator, *Cryptanthus* Mars, *Cryptanthus* Silber Lila, *Guzmania* x intermedia, *Guzmania* Magnifica, *Neoregelia* Avalon, *Neoregelia* Takamura Grande, *Neoregelia* Vulkan, *Vriesea* Favorite, *Vriesea* Flammendes Schwert=(V. Flaming Sword), *Vriesea* Gigant, *Vriesea* x hoelscheriana, and *Vriesea* Komet.

His photography and writing skills were evident in the 7 books he authored and in numerous articles on tropical plants in other publications. His first book on bromeliads, *Anzucht und Kultur der Bromelaceen*, was published in 1950. He was a regular contributor to the Bromeliad Society Bulletin during its early years. His best-known book, *Zimmerpflanzen von heute und morgen: Bromeliaceen*, ("Bromeliads: House Plants for Today and Tomorrow"), published in 1965, remains valuable today as one of the best books available on the cultivation of bromeliads. A good portion of it was translated into English by Adda Abendroth and published by the BSI under the title "Bromeliads" in 1977. Translations from the book were also the source for a series of 18 articles printed in the JOURNAL between 1967 and 1970.

He was awarded an honorary doctorate degree by the Humboldt University at Berlin in 1984.

New Members

The BSI would like to welcome the following new members and/or former members who have returned to the fold:

William G. Cain IV
Charlotte M. Cranberg
Margaret Anne Dix
Tamir M. Ellis

Jo Ann Forman
Albert M. Frint
V.G. Marshall

Welcome to the BSI!

At Last! Some Good News About Endangered *Puya raimondii*

In a follow-up to the article on efforts to preserve *Puya raimondii* in last month's JOURNAL, Rosemary Scoffield of Arequipa, Peru, commented in a letter to PLANT TALK magazine (the original source of the article) that a large population of *Puya raimondii* was recently discovered at Canchayllo in the province of Jauja in Peru. Canchayllo is a small village to the northwest of Jauja, which can be entered from the main road to Pachacayo. She reports that a newspaper article estimated as many as 30,000 plants occur at the site including many of enormous size. Plant Talk is a magazine devoted to worldwide plant conservation. For subscription details contact them at P.O. Box 65226, Tucson, AZ, 85728-5226, USA.

To Hang or Not to Hang

Derek Butcher

How much importance would you consider a botanist should put on whether an inflorescence is upright or upside down? I would have thought this to be somewhat important, especially to a potential pollinator. I can imagine a hummingbird having sufficient intelligence to think upside down but not a buzzy bee! There may be some advantage for some plants to flower up tall and others to let it all hang out.

This particular problem involves *Tillandsia* and I referred to my taxonomic Bible, Smith & Downs. On page 687 I found five species next to each other in the key...namely *T. standleyi*, *T. orogenes*, *T. prodigiosa*, *T. violacea*, and *T. eizii*, and all of these had pendent inflorescences. What I could not understand was that there was no reference to their pendant state. What were the chances of this not-particularly-common feature occurring five times in a row if it were not at the back of the mind of the compiler?

I then referred to my biology Bible (The Biology of Bromeliads by David Benzing) for some sort of explanation. All I could find was on page 41 where you read about geotropism. This is where bromeliad stems show negative geotropism by growing in the opposite direction to gravity, whereas their roots show positive geotropism by growing downwards. Mind you, there are others like *Tillandsia ionantha* which don't seem to mind which way they grow and this is called ageotropism. However, their roots must "know" they must stick to the nearest solid object and this is called being "positively thigmotropic".

All these "tropic" suffixes didn't help me with my inflorescences. I could understand that the funnel shaped plants needed to be upright to catch the rain but never a reference to upside-down flowering.

If we return to Smith and Downs, we find that they refer to their keys as artificial and bear little relationship (in most cases) to the various subgenera. However, while pendant inflorescences don't seem to rate a mention in *Tillandsia* keys, they do in *Vriesea* keys (see page 1076, subkey IV for one example). Let us now look at the new species that have been named since 1979 and which appears in De Rebus I (see SELBYANA Vol 15 (1) 1994).

	Species	Inflorescence	
No. 338	<i>T. macrochlamys</i>	erect	
No. 339	<i>T. prodigiosa</i>	hanging	
No. 339.1	<i>T. cossonii</i>	erect	new
No. 339.2	<i>T. wulfinhoffii</i>	hanging	new
No. 339.3	<i>T. mirabilis</i>	hanging	new
No. 339.4	<i>T. hromadnikiana</i>	hanging	new

	Species	Inflorescence	
No. 340	<i>T. violacea</i>	hanging	
No. 340.1	<i>T. sierra-juarezensis</i>	hanging	new
No. 341	<i>T. eizii</i>	hanging	
No. 342	<i>T. carlos-hankii</i>	erect	
No. 342.1	<i>T. alfredo-lauui</i>	hanging	new
No. 342.2	<i>T. nuyooensis</i>	erect	new

If we follow the premise that a hanging inflorescence does have some relevance then clearly *T. cossonii*, *T. carlos-hankii*, and *T. nuyooensis* are out of place. Because of its probable hybrid status, I feel that *T. alfredo-lauui* would be better placed with No. 340, *T. violacea* or No. 339, *T. prodigiosa*. The problem child is *T. cossonii*.

In 1982 Sue Gardner did her Doctorate dissertation on *Tillandsia* subgenus *Tillandsia* where she resurrected *T. cossonii* from *T. prodigiosa*. She even described *T. cossonii* from her plant, *Gardner 1639*, so we have a more comprehensive description than that done by Baker in 1887.

However, this is a Doctorate dissertation and not accepted as a "true" publication, although an article in BSIJ 1984 page 9 may have legalized it! The name *T. cossonii* has been used ever since.

It does seem strange how the name *T. cossonii* came to be resurrected. Remember, Mez in 1935 and Smith and Downs in 1979 treated *T. cossonii* as synonymous with the hanging *T. prodigiosa* and one wonders what prompted Gardner to seek out the herbarium specimen of *Bilimek 440*. One would have thought her investigations would have turned towards the erect flowered species, such as *T. macrochlamys* or even *T. bourgaei* as suggested by McVaugh in his book FLORA NOVO GALICIANA, Vol 15, 1989. Was she trying to put a plant to a name rather than a name to a plant? Much is made of trichomes falling off the herbarium specimen to help relate a new discovery with a herbarium specimen and it must be considered strange that all trichomes disappeared. Secondly, did Gardner look at all three herbarium specimens? As I understand it, these are held at GH, K, and US. Did all lose their trichomes?

I believe there is sufficient doubt not to link *Gardner 1369* with *T. cossonii* Baker. Is there a legal way to solve this dilemma because there are certainly loose ends?

I would prefer that we wipe the slate clean and give *Gardner 1639* and other recent collections by Ehlers and others a new name and new description. After all, it is a very attractive plant and I'm hanged if I know the answer!

Fulham, Australia

Neoregelia 'Charm'

Carol Johnson

In my lifetime I have diapered three babies and housebroken countless puppies and kittens, but NEVER have I smelled anything so foul as *Neoregelia* 'Charm' at the peak of blooming. This hybrid between *Neoregelia chlorosticta* and *N. marmorata* by Grace Goode is a very nice plant producing a fine rosette of wide, red, speckled leaves and is larger than average size. I first noticed the smell when I entered a nice specimen in the Tampa World Conference, but considered it then as an isolated incidence. But, it has happened again and again. Check it out. On the other hand, there are neoregelias which are delightfully fragrant, at least in the morning. *Neoregelia oligantha* is the best, along with many of the small *N. ampullaceae* types.

On another topic, about 50 percent of the plants in my greenhouse are grown from seed, both species and hybrids. In the growing year 1996 there were NO seeds produced on neoregelias in my nursery. The seeds from pitcairnia and dyckias did not germinate, and seeds from berried bromelioideae that were viable produced very few seedlings, and those contained stunted and/or freaked specimens. I have no explanation for this phenomenon, but would like to know if it occurred elsewhere. 1997 is starting well. There is good germination from seed of *Quesnelia marmorata* and *Aechmea corymbosa*.

Longwood, Florida

Reprinted from the May/June 1997 issue of the Florida Council of Bromeliad Societies Inc. newsletter, Vol 17 (1):2.

New Directors and Committee Chairmen

Jerry Raack

Congratulations to John Anderson and Peggy Bailey on their recent election as directors to represent Texas and Florida respectively. Both are currently serving as directors and have been re-elected by their constituents in these two states.

Our congratulations also to Gene Schmidt, who was elected as Affiliated Societies Chairman, and Christopher Krumrey who was elected as Slide Program Chairman by the BSI Board of Directors at their annual meeting in July in Denver.

I look forward to working with all of you.

Pataskala, Ohio

A Beautiful New *Pitcairnia* Species from Western Ecuador

Harry E. Luther

Pitcairnia ferrell-ingramiae H. Luther & Dalstrom (figures 17-18).

Type. Ecuador. Prov. Imbabura: Los Cedros Reserve, 1550–1600 m. Wet cloud forest. 25 March 1996. *S. Dalstrom, S. Ingram & K. Ferrell-Ingram 2236* (holotype, SEL).

A *P. arcuata* (André) André, cui similis, inflorescentia horizontalibus (non pendente), bracteis florigeris persistentibus (non fugacibus) differt.

Plant terrestrial or a scandent hemiepiphyte, flowering to 2 m tall. Leaves laxly imbricate along the 1.5 cm diameter stem, polymorphic, the larger leaves spreading or arching, 1.5–2.0 m long. **Leaf sheaths** elliptic to ovate, laxly serrate, nerved, brown-floccose lepidote. **Leaf blades** lacking or linear and serrate or pseudopetiolate; the pseudopetiole channeled, 20–40 cm x 4–6 mm, variably serrate with 1–3 mm long dark spines; the blade elliptic to oblanceolate, acute to acuminate, 10–13 cm wide, entire, channeled, thin-coriaceous, appressed lepidote, bright green. **Scape** erect to arching, 15–35 cm x 5 mm, glabrous, orange or red. **Inflorescence** simple, cylindrical, arching to nearly horizontal at anthesis, 25–45 x 3–4 cm, 25- to 50- flowered. **Floral bracts** erect, imbricate, elliptic, acute to acuminate, 45–80 x 20–28 mm, thin-coriaceous, nerved, more or less persistent and not becoming necrotic and deciduous after anthesis, orange or red. **Flowers** with a 2–5 mm long stout pedicel, more or less evenly and polystichously arranged around the axis before and after anthesis, somewhat secund-erect at anthesis. **Sepals** elliptic, long acuminate, 45 mm long, the 2–3 mm long spine-like apex becoming recurved and hooked, coriaceous, nerved, red or yellow and red. **Corolla** zygomorphic, arcuate. **Petals** narrowly oblanceolate, acute, 75–80 x 8–10 mm, each with a broad, erose, 15 mm long basal appendage, bright yellow. **Ovary** 3/4 superior.

Pitcairnia ferrell-ingramiae, which closely resembles *P. arcuata*, can be distinguished from that species by the inflorescence that is more or less horizontal at anthesis (not pendent) and persistent floral bracts that retain their color after anthesis (not becoming necrotic and falling after anthesis). This species was illustrated by Manzanares (1996) as *Pitcairnia cf. arcuata*. *Pitcairnia arcuata* is present at Lita (pers. obs.); it can be assumed that the two species are sympatric there. Further south, *P. ferrell-ingramiae* is probably sympatric with the somewhat similar *P. clarkii* H. Luther; the latter species has narrower leaves and purple petals.

The name honors one of the collectors, Karen Ferrell-Ingram.

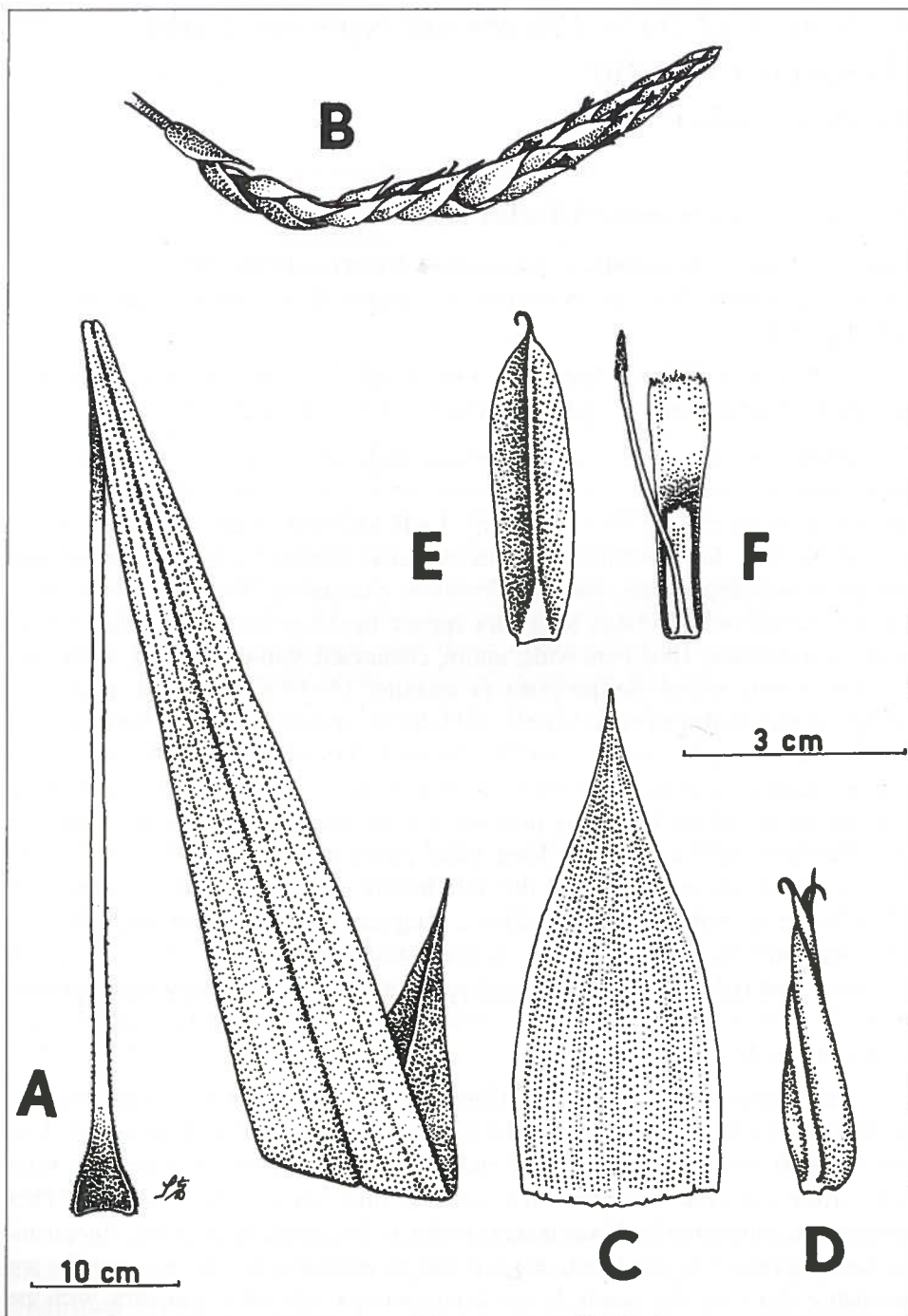


Figure 17.

Stig Dalstrom

Pitcairnia ferrell-ingramiae, drawn from the type collection (Dalstrom et al. 2236).

A, leaf; B, inflorescence; C, floral bract; D, flower (pre-anthesis); E, sepal;
F, petal base (pre-anthesis).

Paratype. Ecuador. Esmeraldas: Quinindé Cantón, Mache-Chindul Ecological Reserve, Mache Mountains, 35 km W of Quininde, 5 km W of Santa Isabel, 00° 21' N, 79° 44' W, 500 m. Premontane wet forest. 22 October 1996, John L. Clark 2984 (SEL, MO, QCNE).



John Clark

Figure 18.

Pitcairnia ferrell-ingramiae, a paratype collection (Clark 2284.)

ACKNOWLEDGMENTS

I thank the collectors for the specimens, Stig Dalstrom for the illustration, and John Clark for the photograph.

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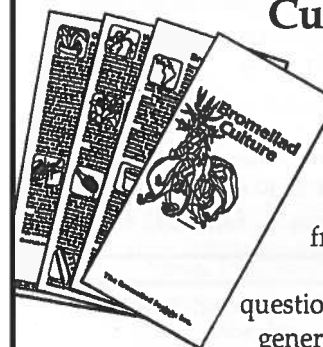
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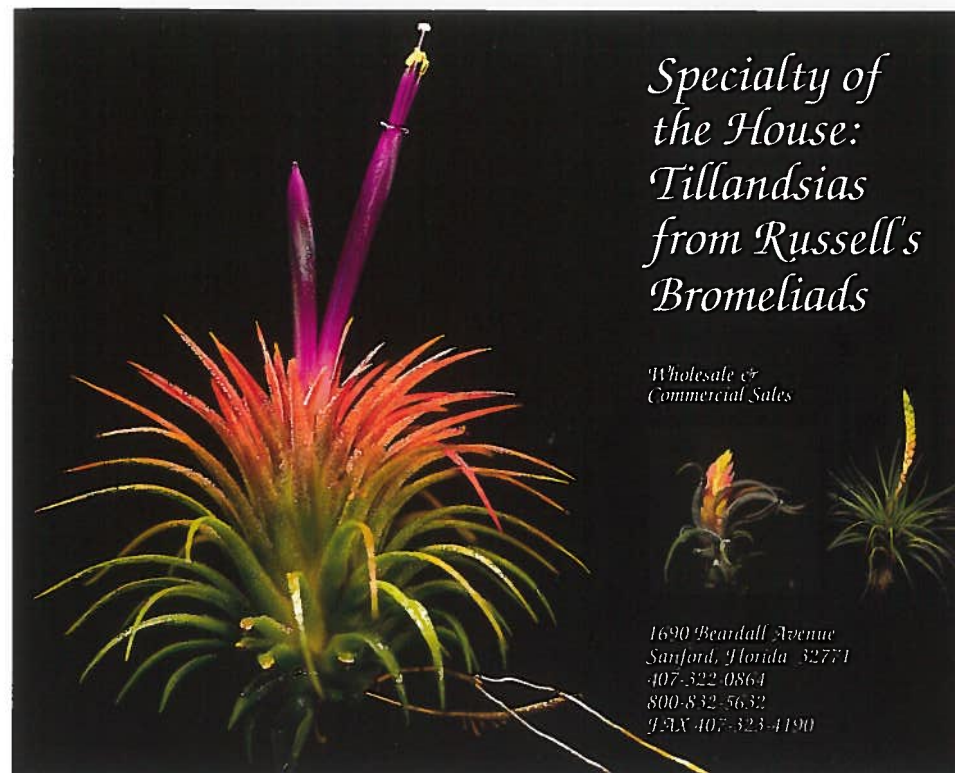
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The purpose of this nonprofit corporation is to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world. You are invited to join.

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Drawing of *Tillandsia imperialis* done by Mercedes De La Mora from a photograph taken by Miguel Chazaro. The species is discussed in text beginning on page 195.

Photograph by Miguel Chazaro

Calendar

- 20 Sep Bromeliad Extravaganza hosted by the Bromeliad Society of South Florida and the Broward County Bromeliad Society; Holiday Inn, 2905 Sheridan St. at I-95, Fort Lauderdale, Florida. Plant sales, seminars, rare plants, and auction to benefit the Weevil Fund. Hours are 9 a.m. to 5 p.m.
- 20-21 Sep-3 The South Bay Bromeliad Associates annual show and sale; South Coast Botanical Gardens, 26300 South Crenshaw Boulevard, Palos Verdes Peninsula, California. Hours are from noon to 4:30 pm on Saturday and 10 am to 4:30 pm on Sunday. There is an admission fee to the Botanical Gardens. Contact: Bryan Chan 818-787-4265
- 20-21 Sep River Ridge Bromeliad Society 16th annual show and sale; City Park Botanical Gardens, 1 Palm Drive, New Orleans, LA. Show hours 1 to 5 pm on Saturday, 10 am to 5 pm on Sunday. Sale hours 10 am to 5 pm on both days. \$3.00 admission to benefit City Park Botanical Gardens. Contact: Shirley Alcock 601-799-4813.
- 26-29 Sep Western Bromanza: Ninth Australian Bromeliad Conference in Perth, South Australia.
- 4-5 Oct Houston Bromeliad Society Fall Arboretum Sale; Houston Arboretum and Nature Center, 4501 Woodway, Houston, TX. Hours are 9 am to 5 pm on Saturday, 11 am to 4 pm on Sunday.
- 26-29 Oct Bromelia '97: exhibition, conferences and plant sale sponsored by the Sociedade Brasileira de Bromelias, Parque Lage, Rio de Janeiro, Brazil. For information contact: Secretariat, Host Eventos e Turismo, Rua Sao Clemente, 407, Botafogo, 22260-001, Rio de Janeiro - RJ - Brazil. Phone 55 21-286 3536, Fax 55 21 537 2265, or by E-mail at hostrio@ibm.net.
- 8-9 Nov The Caloosahatchee Bromeliad Society will hold its annual show and sale at the Lee County Garden Council & Activities Center; 2624 Cleveland Ave. (U.S. Rt. 41), Ft. Meyers, Florida. Hours are 9 to 5 on Saturday and 10 to 4 on Sunday.