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Cover Photographs. Front: Bromeliad display by Lynn Hudson at Bromeliads XIII in Australia. Photograph by Birgit Rhode. Back: Agricultural penetration into montane rain forest in La Hoyada, Bolivia. Photograph by Pierre Ibisch.

For descriptions of plants on front cover see Figure 6, page 11.

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In This Issue

Leo Dijkgraaf from the Netherlands leads off with an adventure tale, **searching for Tillandsia tectorum in the Southern Andean highlands of Cuenca**, Ecuador. Still in the "wild," on page 42 Elton Leme describes a new species from Brazil, *Lymania languida.*

Bruce McCoy, Vice President of the Bromeliad Society of San Francisco, gives us what I hope will be the first of many "how-to" articles especially for affiliated societies with examples of interesting and rewarding programs they can consider for their members. This one, on page 9, details **ways to organize and attract publicity for your Society**. BSI President Joyce Brehm (page 13) tells us **how BSI World Conferences are financed**, and **invites members to the BSI annual meeting** to give us your views. Continuing the Conference theme we have articles on the **Bromeliads XIII Conference in Australia** held October last (page 27) and the **Caloosahatchee Bromeliad Society biennial show** (page 31) held the same month.

BSI Conservation Chair Pierre L Ibisch provides a **comprehensive overview of conservation issues relating to bromeliads**, and introduces a proposed mandate for the role to be played by the Bromeliad Society International. There are many serious issues to be thought through: should we be more involved? if so, how should we go about it? is it any of our business, as a group, to interfere in the business of soverign nations? as a relatively affluent group, should we act in the name of conservation against native peoples trying to survive in their homeland by agriculture? how do we draw the line, if there is one to be drawn, between the mass destruction of habitats by corporations supplying bulk goods to industrialised nations and the small scale operations of local villagers? All sorts of questions spring to mind, and Pierre is calling for us to speak up, as members, and contribute your thoughts to the BSI's officers.

In forthcoming issues we hope to introduce you to some of the **commercial bromeliad nurseries**, particularly those engaging in international trade. On page 15 Karen Andreas introduces us to Michael's Bromeliads of Venice, Florida in the US. The Editor will be happy to hear from other nurseries, and overjoyed if they contribute some advertising as well!

Individual members are encouraged to send us in short stories of their interesting and/or informative experiences with their bromeliads. In this issue we have a couple: Kerry Booth Tate's experience with **Guzmania 'Claret' and an awful beast** on page 23, and the **Editor is in the Doghouse over his watering efforts** on page 21.

Cultivar Registrar Derek Butcher sent us an **interesting article about Nidularium 'Litmus'** by Peter Waters (page 25) and finally - but importantly - we **introduce three new BSI Directors** on page 46.

In Quest of *Tillandsia tectorum* in Ecuador

Leo Dijkgraaf[1]

Photgraphs by the author

Figure 1. Clump of *Tillandsia tectorum* in Ecuador

Ever since I saw the pictures in the *New Tillandsia Handbook* (Shimizu, 1998) of *Tillandsia tectorum* in its Ecuadorian habitat I wanted to visit that place some day. My first opportunity to do so was in 2002 when, after going to the Galapagos Islands for the seals, iguanas, and blue-footed boobies, I had some days left before flying home. The preparation for my search was modest. I only had a vague clue where to look, namely near the town of Santa Isabel in the province of Azuay, and I reckoned that showing a black and white copy of the photo on the cover of the Handbook would suffice to be directed by the local people to the right spot.

As it turned out I was mistaken in that. Santa Isabel is situated a kilometer off the road that links Cuenca to the coastal town of Machala, about halfway between those

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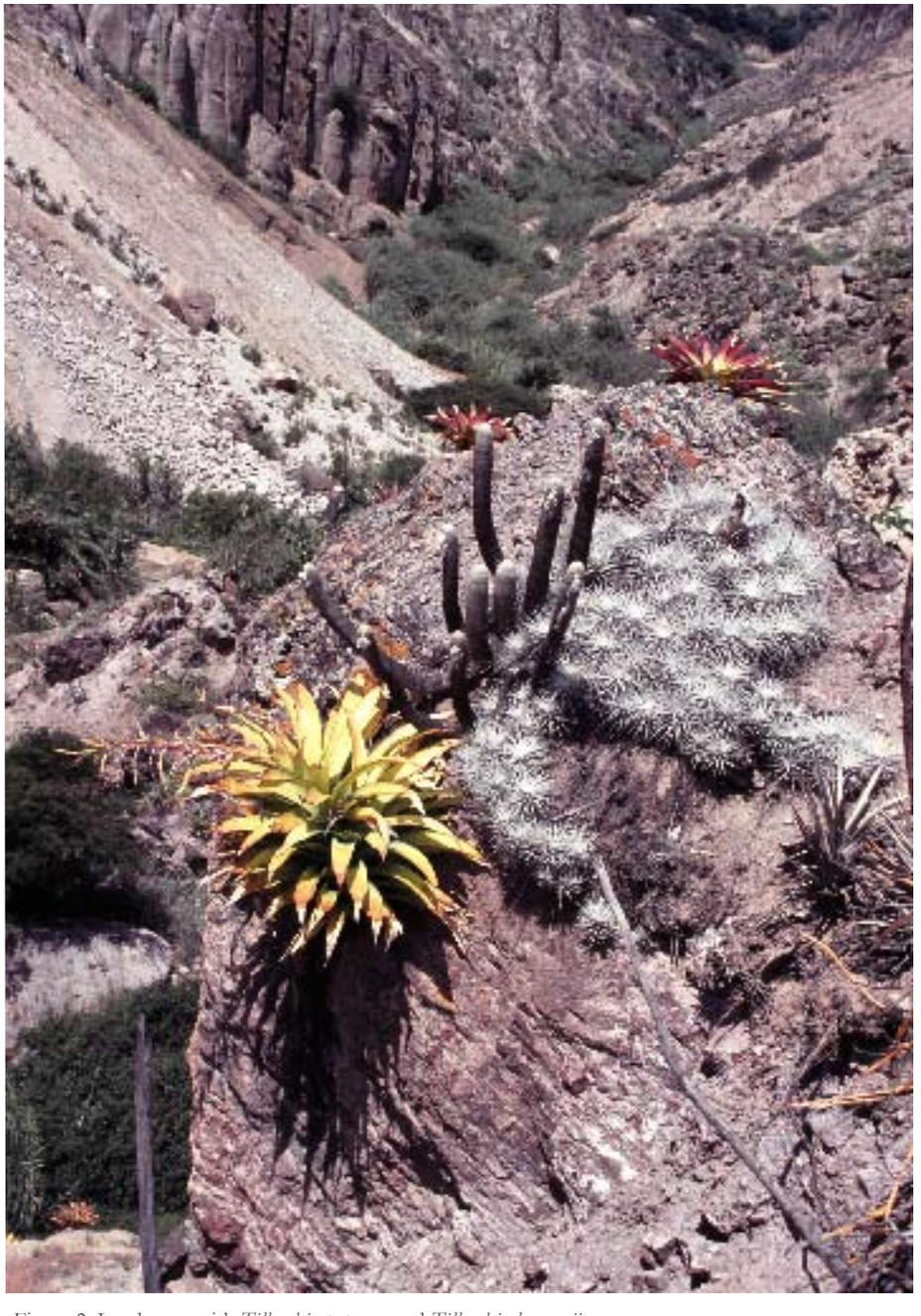

Figure 2. Landscape with *Tillandsia tectorum* and *Tillandsia lymannii*

cities. Upon arriving there on a local bus, I waved around with my copy of the picture and asked where to find these plants: ¿ Busco estas plantas, donde estan ?. I still think this was understandable and although in hindsight the image on the copy could be

misinterpreted as representing some porcupines, people certainly must have realised I was looking for plants, even if they did not know which specific ones. My questions to everybody were all of no avail and I decided to walk back to the main road. There a man directed me to a dirt road that would surely lead me to the plants in question. I walked for two hours, came to a bridge along a river and followed that river for one more hour. The bromeliads I saw on the way were *Tillandsia latifolia* var. *divaricata* and

Figure 3. Bromeliads clinging to a rockface.

T. recurvata. I was disappointed and pretty tired from walking under the burning sun, sitting at the side of the road wondering how to make it back to Santa Isabel, when a youngster on a crossmotor offered me a lift. The ride back took only 15 minutes, but far more time was needed to recover from the cramps one gets when sitting on the buddyseat of such a vehicle. Returning to my hotel in Cuenca I knew I would be back here some time in the future.

That time came in May 2005, when I was traveling overland from Quito to Cuzco in Peru. Now I was better informed; I had to go about 10 km south of Santa Isabel between places called El Tablon and Abanin. Unlike my first attempt some years ago this time I had a travel companion, who knew nothing about bromeliads, but was very welcome if only for safety reasons in this desolate area. I again used public transport, this time it was the bus from Cuenca to Machala. We asked the bus driver to let us out on the desired spot and so he did - it was near a side road to the right. And the right place it was too, for on some hills near that road the white cushions formed by *Tillandsia tectorum* were visible. Climbing such a hill meant taking two steps up and gliding one step down, due to the gradient and the loose soil. Eyeing the columnar cacti growing

here and remembering what happened to me as a kid when sliding backwards from a sanddune in Holland, ending - very prickly indeed - in blackberry bushes, I decided that we should retrace our steps. Instead we searched our way down a ravine on the other side of the main road. I soon found myself in a paradise that was not visible from that road (Figures 2 & 3). This was what I was looking for, *Tillandsia tectorum* (Figure 1) all around me. Some other species were present too, like *T. lymanii* and in far less numbers *T. mima* and *T. disticha*. A little river was running below, the stream that flows as the Rio Jubones to the Golfo de Guayaquil, partly as a border between Azuay province to the north and El Oro and Loja provinces to the south. Around Santa Isabel there are plantations of banana and papaya, but at this location a little more south, the landscape looks barren with little signs of life and yearly rainfall is only 600 mm, almost all of it in January through April. So for the largest part of the year the tillandsias here must get their moisture from the morning mist.

Here I thought of myself as being on the roof of the world, not in reality of course as the altitude is only about 1200 meters, but maybe because of the serene stillness of the place and also regarding the name of these tillandsias, the Latin 'plantae tectorum' meaning 'plants of roofs'. It was Edouard Morren who in 1877 gave the plant this new name and Lyman Smith (1977) states in the description of this species in Flora Neotropica: 'distribution saxicolous and cultivated on roofs, 980-2700 m., Ecuador and northern Peru'. However in the location I visited I did not see *Tillandsia tectorum* on the roof of any building. There was a grey tillandsia here, densely covered with

Figure 4. Leo back home with his collection.

trichomes, that puzzled me for a while. Later I realized that it were the young plants of *Tillandsia lymanii*, a species that gradually changes into a tank-type bromeliad; in the fullgrown plants the concentration of trichomes on the many big leaves that collect

Figure 5. Rockgarden with *Tillandsia tectorum* and cacti, the leaves of *Tillandsia lymanii* are turning to red.

the water is lower than in the juveniles. The leaves become covered with a waxlayer and in full sun may turn to a wine-red color (Figure 5).

After one false start I succeeded in my quest for one of the prettiest forms of Tillandsia tectorum. Mission accomplished.

Literature Cited

Shimizu, H. and H. Takizawa. 1998. New Tillandsia Handbook.

Smith, L. B. and R. J. Downs. 1977. Flora Neotropica Monograph no.14, part2 Tillandsioideae.

Gaining Local Media Attention: A "How-To" for local Bromeliad Societies

Bruce McCoy[1]

It seems that an ongoing and persistent problem for local bromeliad clubs and societies is publicity. How do we generate local interest in the plants and in our local organization? As Vice President of the Bromeliad Society of San Francisco, I decided early in 2005 to generate as much publicity for our local club as I could and to learn from doing this what works well and what doesn't.

Now that the year is drawing to a close, it seemed fitting that I should sit down and spend some time thinking about the successes we had this year and then share these ideas with other bromeliad societies through an article in The Journal. This article is a result of that effort.

When I think about what I did this year and what seemed to work, I come up with a few key points/working questions that became very relevant to getting good publicity:

1. What activities are we doing as a group that are really interesting and might be seen as "newsworthy"?
2. Which media in our local area already cater to gardening interests generally? Are there specific sections or programs that already exist that we can "attach" ourselves to?
3. How do we keep our "message" fresh? How can we engage ongoing media interest?
4. What can we do to get more than just a listing in the garden events calendar?
5. Maintaining relationships with the media – keep them interested in what we're doing and give them new ideas to help them gain interest and engagement from their readers.

Early on in 2005 I saw that an important annual event would likely be a cornerstone for the publicity we do: our annual bromeliad plant sale at Golden Gate Park in San Francisco. We do this every summer in conjunction with the local succulent and cactus club and in the past, we've sort of ridden on that club's coat tails given their (much, much) larger size and presence.

Several months prior to our sale, I sat down and compiled a list of all ongoing gardening events and calendar listings and programs in the San Francisco Bay Area. This list eventually included all the gardening sections of local newspapers as well as a television program on KRON TV, hosted by Henry Tenenbaum, called Henry's

1 Bromeliad Society of San Francisco (bmccoy@jupitermedia.com)

Garden. For my list, I detailed all the contact information I could find and then anything I could find out about what their deadlines were for inclusion. This would become my database for mailings about our events. I created a template for sending out garden section events listings (monthly meeting notices, sales, et al). These kinds of listings are routine for newspapers and there is generally a person at each newspaper whose job it is to collect and prioritize the listings. It's important to keep the listings coming so they learn to expect them. Know that you'll only get a sentence or two, so keep your information short and provide a "pay-off"… why should someone attend? What's really interesting about the program? And be sure to provide a phone number or website the newspaper can refer the public to for more information about the event. It's also important to list the precise location of the event, any timing information, and then also a phone number for the newspaper to call to contact YOU with questions, if they have any.

After creating my garden events listings database, I identified a few larger media vehicles that I decided I would target for special attention. I wanted to get more attention for bromeliads for our club than is offered with a mere garden event listing. I selected the San Francisco Chronicle and Henry Tenenbaum's TV show on KRON TV for special attention.

Knowing that I would spend some extra time and attention on The Chronicle and KRON's Henry's Garden program, I did some research to figure out who the key decision makers were for these. I determined that the home and garden section editor was very important to what kinds of articles were included in the newspaper (she hires writers and decides what to include) and with KRON TV I identified the host (Henry Tenenbaum) and also the producer of the program. Armed with this information, I set about getting to know these folks and established an email correspondence with them. Once they knew who I was and that I had ideas about stories they could use, I pitched them on what I thought was an interesting story for this area; "Bromeliads in the Northern California landscape". There is a widely held belief here in San Francisco that bromeliads are tropical plants that can only be grown as houseplants; this would be a good "angle" the newspaper and KRON could use to capture reader attention.

It worked! After talking by email and phone with the KRON producer, they agreed to shoot a short segment on bromeliads for Henry's Garden. It took about an hour to get 6 minutes of tape, but they used this for a segment prior to our annual sale on the Saturday morning news and this boosted attention and drove attendance for our sale. We heard from many folks that they'd not heard about the sale anywhere else but had seen the TV segment on the morning news. As it turned out, KRON used the footage for a longer segment on the Henry's Garden show later in the summer, which turned into more publicity for bromeliads and our club.

Working with the newspaper actually turned out to be a more difficult proposition. I learned that the home & garden section editor was extremely busy and that she didn't have much time to think about the ideas, so I kept sending emails to her and eventually she agreed to hire a writer for the story based on my ideas. I suggested that the writer

attend our annual summer tour of members' gardens and write the story based on that experience. As it turned out, The Chronicle hired an amazingly talented local writer named Katherine Grace Endicott. She joined us for our August garden tour event and wrote an incredible story complete with photographs that became a front-page feature on the cover of the home and garden section with a front section page colour photo of a bromeliad!

SF Chronicle link:

www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2005/10/05/HOGNLEN11522.DTL

The success we had this year with publicity resulted in the local society growing with several new members this past year, and we also had one of our best bromeliad sales in recent years given the extra boost we received with the segment on TV.

I believe that cultivating relationships is a real key to ongoing success, so I've kept in touch with Henry Tenenbaum the host of Henry's Garden, the show producer at KRON, the home & garden section editor at the Chronicle as well as with Katherine Grace Endicott. All have indicated interest in further stories and features on bromeliads moving into 2006. I'll be working with all of them on new ideas and new stories about bromeliads that will be compelling for their readers and will help us drive interest in the plants and our local club. Another idea I'll be working on this year is compiling a database of garden/plant-specific writers whose work often appears in The Chronicle. Once I have this list, I can pitch garden stories specific to bromeliads to a focused audience of garden writers who may find one of our topics interesting and get the story published. This effort should also position us as a source for information regarding horticulture related stories which they may be doing that aren't directly related to bromeliads, but could include us in some way.

To summarize my recommendations, it would be to develop a list of relevant local media contacts and then keep in touch with them on an ongoing basis. Learn to understand what they need (attract readers/viewers) and then help develop story ideas about bromeliads that assist them in achieving their objectives: more readers and viewers. Keep in mind that these folks are incredibly busy and may not respond to you immediately. If you are persistent and position yourself as a friendly source of information, you will succeed.

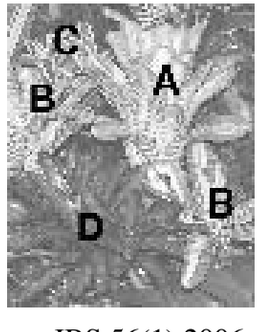

figure 6

The Bromeliads on the front cover

A: *Aechmea* 'Samurai' propagated by tissue culture in Japan.
B: *Aechmea chantinii* variegated
C: *Aechmea* 'Ensign,' cultivar of *Ae. orlandiana* variegated, named by Edward Ensign.
D: *Neoregelia* 'Margaret' purchased from Rainforest Flora, California, in 2004. All plants owned by Lynn Hudson,

Message from the Bromeliad Society International President Did You Know?

Joyce Brehm, BSI President

The Bromeliad Society International Inc. has an annual meeting for you, the General Members? This meeting is held prior to every Annual Meeting of the Directors. It is an opportunity for you, the members of BSI to bring any ideas, issues or resolutions to the attention of your board and have them acted upon. This meeting is usually not attended by any General Members, but I think you are missing an opportunity to help the Bromeliad Society International serve you, the General Members. The next meeting will be on 6 June 2006 in San Diego, CA. I invite all of you to attend, just let me know (858-277-1030 or email joycesjoy@aol.com) so that seating can be provided. This is your chance to make your BSI work for and with you. See you there.

WORLD CONFERENCES

The BSI sponsors the World Bromeliad Conference with support from the host society. The BSI and the host society work hard to make the Conference a show case of the Bromeliad World. The BSI underwrites the Conference, giving the host society 50% of any profit up to $10,000.00 and allowing a percentage of any profits over that amount. If there are losses for any World Conference, the BSI covers that loss. The registration fee for early registrants covers only the cost of the food events, the audio visual equipment, registration bags, and Conference Program and room nights for the Seminar Speakers. Each speaker is given one free room night for each presentation they give during the conference. Scientific Speakers are given two room nights. WBC Cups and Pins are purchased by the BSI and are sold to you at almost cost.

The only profits for the BSI and the host society are a percentage of sales from our loyal Bromeliad Vendors. These vendors have participated in the World Conference for years and never fail to support the BSI. That support along with BSI Member Sales is actually the only profit for the BSI or the host society. Any BSI member registered for the conference may sell Bromeliads or related articles in the Sales Room during the Conference. New Book Authors or Promoters are allowed to sell new books for ½ of the percentage of vendor and member sales percentages. Barcodes are used for all sales and must be ordered at least six weeks in advance of the Conference to ensure timely delivery to you. The use of barcodes has speeded the line on opening night and decreased the time and confusion for getting the money due the vendor or member back to them.

EVENTS CALENDAR

Australia

April 29-30, 2006. Bromeliad Society of New South Wales Autumn Show. Wellbank Street, Concord.

October 28-29, 2006. Bromeliad Society of New South Wales Spring Show. Wellbank Street, Concord.

United States

March 25-26, 2006. Harry P. Leu Gardens Annual Spring Sale. Harry P. Leu Gardens, 1920 N. Forest Ave., Orlando, FL 32803.

April 1-2, 2006. Bromeliad Society of Houston Spring Bromeliad Sale. Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Apr 1, 9-5, Apr 2, 11-4. For more information, contact bromeliadsocietyhouston.com or 713-858-3047.

April 22-23, 2006. Bromeliad Society of South Florida Annual Show. Fairchild Tropical Botanic Gardens, 10901 Old Cutler Road, Coral Gables, FL 33156. For more information, contact Robert Meyer, at 305-668-3344.

May 26-28, 2006. Bromeliad Society of Houston Standard Bromeliad Show & Sale. Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Sale: May 26, 12-5, May 27, 9-5, May 28, 11-4; Show: May 27, 2-5, May 28, 11-4. For more information, contact bromeliadsocietyhouston.com or 713-858-3047.

June 7, 2006. World Bromeliad Conference Judge's School 3. Bromeliad Society International. Town and Country Resort Hotel, Mission Valley, San Diego, California, USA. The all-day school will be held in San Diego. Pre-registration, including a small fee is required. For more information, contact Betty Ann Prevatt, JCC Chairman, at 239-334-0242 or email bprevattpcc@aol.com.

June 6-11, 2006. World Bromeliad Conference, large show and sale, judged competition, lectures, social events, and more. Sponsored by the Bromeliad Society International and the San Diego Bromeliad Society. Town and Country Resort Hotel, Mission Valley, San Diego, California, USA. Hotel rates are $124 per night. The rate is good for any three days during the Conference. For more information, contact BSI Membership Secretary, 1608 Cardenas Dr. NE, Albuquerque, NM 87110, USA. E-mail: membership@bsi.org; www.bsi.org.

September 8-10, 2006. Southwest Bromeliad Guild Show. Corpus Christi, Texas, USA.

September 16-17, 2006. Bromeliad Society of Houston Fall Bromeliad Sale. Houston Arboretum & Nature Center, 4501 Woodway, Houston, TX USA. Sep 16, 9-5, Sep 17, 11-4. For more information, contact bromeliadsocietyhouston.com or 713-858-3047.

September 30, 2006. Florida Council of Bromeliad Societies' Extravaganza, Sale, banquet, and rare plant auction. Miccousukee Resort and Gaming Convention Center, Miami, FL USA. For more information, contact www.fcbs.org.

Michael's Bromeliads: Bromeliads Thrive on First Dirt Road

By Karen Andreas[1]
Photographs by Michael and Karen Andreas

Mention "First Dirt Road in Venice, Florida" to a bromeliad enthusiast and chances are the person will recognize the address. Don Beadle's former nursery, Los Milagros, has metamorphosed into Michael's Bromeliads, a collectors nursery that respects the past and embraces the technology that links the bromeliad world together. Don Beadle's legacy thrives today under the watchful eyes and talented hands of Michael and Donna

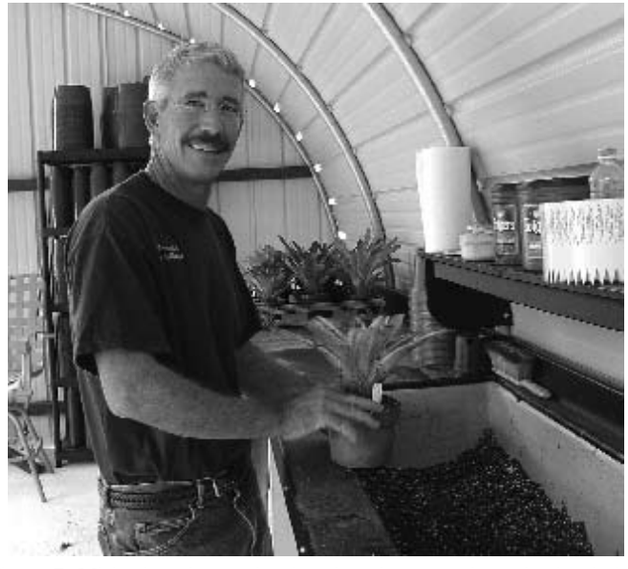

Figure 7. Michael at the potting bench, using a potting mix that is heavy with perlite.

Kiehl. Sitting on five acres of wooded property, the nursery has nine greenhouses with 33,000 square feet under shade cloth. More than 2500 varieties of bromeliads are available by mail order (both domestically and internationally), with a catalog available both on-line and through conventional mail. This upcoming year looks to be a busy one for the Kiehls. They recently completed a new 11,000 square foot greenhouse to keep up with demand, and they will be selling bromeliads for the first time at the World Conference in San Diego.

"We will be releasing several new bromeliads at the conference," Michael said. "Several will be Don Beadle's billbergias. From Chester Skotak, a variegated *Neoregelia* 'Hannibal Lector', and two species new to the trade, variegated *Quesnelia marmorata*, and a variegated *Neoregelia marmorata*." Michael will be releasing some of his own hybrids

1 email karen@digital.net

as well. "It's an exciting opportunity to sell at the World Conference," he continues. "It's an opportunity to meet our customers and for them to meet us!"

How a back-yard hobby turned into a thriving commercial nursery is a story bromeliad growers can appreciate. Michael started collecting bromeliads in the early 1980s after seeing *Billbergia pyramidalis* in his mother's yard. He joined Florida West Coast Bromeliad Society and built his first greenhouse – a makeshift structure of shade cloth over poles - in his St. Petersburg back yard. His main source for bromeliads was Coolbaugh nursery, owned by Charles Coolbaugh, in Lakeland. When Coolbaugh closed the business, Michael bought part of the collection and, in 1986, started a mail order business. It was a small back yard operation, with a customer base built through the years by advertising in the BSI Journal and by word of mouth.

By 1989, it was time to find another location. "It didn't matter what the house looked like," says Donna, "it was all about the size of the yard." They bought a house and later they bought the house next door and expanded their greenhouses into that yard. "At that point we had gone as far as we thought we could go." Michael says. They were working fulltime jobs and thought that the bromeliad business would stay a small operation.

That all changed five years ago when, at the Caloosahatchee Bromeliad Society Show in Ft. Myers, Michael learned that Don Beadle was selling his nursery. Michael was excited at the possible acquisition of the famed Billbergia stock. He did not realize until he arrived at Los Milagros that the entire property was for sale. From that point on there was no question where Michael and Donna were going. "The direction of our back yard business changed within three days" Michael remembers. "The potential was there to turn this into a full time, full blown business." Michael now works part time at his job as the plant manager at Endeavor Catamaran, a yacht manufacturing facility. Donna works in the nursery full time. While they have a friend who helps out on the weekends, it has been mainly a two-person operation.

They faced another change when the website for their nursery went on line. Sales increased dramatically, necessitating the new greenhouse a year before it was originally scheduled. With pictures available on line Michael has now mastered another art, one pioneered by Don Beadle: bromeliad photography. Michael uses a digital camera – but still employs the Beadle principles for good pictures.

Michael has always shipped internationally, with customers in Australia, Japan and Europe. "We can ship anywhere," Michael says, "as long as the country is one with open commerce. Overseas shipments tend to be larger orders because of the permitting and shipping costs." It is not unusual for them to handle an overseas order of hundreds of plants.

Key to keeping the collection interesting to other collectors is to acquire bromeliads from sources outside the continental United States. Michael offers hybrids from Grace Goode and Shane Zaghini in Australia; David Shiigi, Sharon Petersen and Lisa Nt in Hawaii; and Chester Skotak in Costa Rica. Michael makes trips several times a year

to acquire the new and unusual, which will be offered to his customers. In addition to these acquisition trips, Michael also hybridizes bromeliads, making about 200 crosses a year. He will be offering his own new miniature neoregelia and neophytum

Figure 8. Michael and Donna at work in their new greenhouse. They are standing in the area dedicated to internet sales. The other half of the greenhouse will be used for Michael's hybrids.

releases at the World Conference this summer. Indeed half of the new greenhouse is dedicated to growing space for Michael's creations.

Days start early at Michael's Bromeliads. Before dawn Michael and Donna are in the office preparing orders for the day. Sunrise finds them in the nursery, pulling the plants for the orders, cleaning and preparing them for shipping bare-root. The cleaned bromeliads are placed under a fan that not only cools the plants but dries them as well. "It's a trick I learned from Grant Groves," Michael says. "Bromeliads taken from the greenhouse and shipped right away often arrive with leaf tissue damage. Grant discovered this cool-down process that delivers healthy bromeliads."

Figure 9 (above). Variegated *Neoregelia* 'Hannibel Lector,' by Chester Skotak, will be released at this year's World Conference. Figure 10 (below). *Neo.* 'Walking Tall,' by Grace Goode of Australia.

Figure 11 (above). Variegated *Quesnelia marmorata* will also be released for the first time at the World Conference. Figure 12 (below. The Beadle billbergia collection takes up one and a half greenhouses.

With the recent renovations, a new potting shed was added with plenty of work space. The potting mix is custom-made. "It's heavy on perlite," Michael explains, "because we grow under shade cloth and have a lengthy rainy season." The mix provides enough stability for the bromeliads and still drains well, avoiding soggy medium. Water on site is provided from a well, using a reverse osmosis (RO) system

that removes impurities, eliminating the hard water deposits sometimes found at the base of bromeliads using well water.

So the legacy of Don Beadle survives and is thriving on First Dirt Road in Venice, Florida, where Michael and Donna Kiehl's collection grows, new bromeliads are created, and bromeliad enthusiasts around the world reap the benefits of an established and reputable nursery.

Visitors are welcome at Michael's Bromeliads if they call in advance. Michael's Bromeliads is just south of Sarasota on Florida's west coast. Telephone: 941-488-4011. Catalog is available online at http://michaelsbromeliads.com (click on Our Collection) or by writing to Michael's Bromeliads, 973 First Dirt Road, Venice, FL 34292. Email: info@michaelsbromeliads.com..

In the Doghouse Again

Andrew Flower, BSI Editor

Ten years ago we moved to a new house. The wife, the dog, the cats, bromeliads and me. Lissa was enticed by the large garden , the house and its location. The rest of us saw the potential in the large commercial dog kennels that were quickly converted into a potting shed with surrounding greenhouses and shade-houses built to house the collection (mainly tillandsia). There is still a dog house in the potting shed, of course. I rather like it in there, and visit frequently. But the big news for the bromeliads was their new water – nice, fresh rain water collected from the greenhouse roofs. Or so I thought.

Why did I take the opportunity to collect rainwater, when previously they had been grown successfully for many years, albeit slowly, using municipal domestic water supplemented with liquid fertilizer once a month during the growing season? Because I could improve on that: my primary interest is in raising bromeliads from seed, and seedlings make up 97% of my collection. Growth had always been slow, with a typical 10-15 years to flower tillandsias from seed. My readings of David Benzing (1980) and Charles Wiley (1976) convinced me that attention to water quality would help improve growth. The two key factors that stood out were pH and salt content. pH is a term for the degree of acidity (sour) or alkalinity (sweet) of the water; given that a reading of 7.0 is neutral, higher numbers are alkaline and lower numbers acid. The numbers are a logarithmic scale, with the acidity or alkalinity increasing tenfold for each number the reading increases above or below 7.0. Wiley said that the main reason for acidifying the water is to make the mineral nutrients available and on his figures the pH would need to be between 6.0 and 6.5. Benzing recommended a range between 4.5 and 6.5 for fertilizer solutions, although this needs to be reconciled with Wiley's observation that potassium is not adequately available to plants below pH 5.5 And so I installed a 1,000 gallon holding tank, plus pumps and water lines to spray the plants.

Disaster soon ensued. Please turn the page and look at figure XX. Do you know what caused this damage to the guzmania? Actually I have shown this photo to a group of specialist growers in Australia, and a national conference attended by experienced growers from the USA, Australia and New Zealand. The suggested causes included wet feet, cold, arsenic from treated timber framing. Interesting, not because they all "got it wrong," but rather because such symptoms are actually near to impossible to read out of context. Charles Wiley set out some "maximum limits for most bromeliads," and although he did not say how these figures were arrived at they were the only guide I had. His figures were: total salts maximum 350 ppm, sodium 30 ppm, boron 0.5 ppm, chlorides 5.5 ppm, sulfates 5.6 ppm. When the damage began showing up on my guzmanias, I sent a sample of the collected rainwater to a testing laboratory. Results included: total salts estimate 230 ppm, sodium 41.2 ppm (Wiley's maximum 30 ppm), chlorides 83.2 ppm (Wiley's maximum 5.5 ppm). And this was our rainwater?

With the genius of hindsight I figured that because we live a couple of miles from the sea, and the prevailing wind comes straight over the sea, the salt spray was blowing over the water-collecting roofs. Rain would subsequently wash the deposited salt into the collection tank. Checking further I learned that salt spray can carry up to 500 km (300 miles) inland with decent winds. The moral is: if you are going to use a new water source, always check it before you start using it, and again after a few months of use.

Figure13. Damaged *Guzmania sanguinea* seedling in cultivation.

I now check the primary water supply at least once a year. As a general rule, water supply by municipal authorities for domestic drinking water is unlikely to be seriously harmful to bromeliads, but I would still check it for hardness (calcium) and the pH can be quite alkaline. Our town supply water has been up to pH 8.7 which, while not causing obvious damage to the bromeliads, was way above the recommended levels of pH 6.0 to 6.5. I used to use citric acid to bring the pH down – it is quite cheap and available from supermarkets or drugstores. The downside with citric acid is its short lifespan in solution, and for commercial use we prefer phosphoric acid. Your local supplier should be able to provide you with a free analysis of the water they are supplying you, and there are private testing laboratories who usually charge no more than the cost of one or two choice bromeliad plants.

Twenty years ago David Benzing (1980 p.60) wrote "Little is known about the symptoms of mineral deficiency in Bromeliaceae…." and we have not accumulated much information on defiency or toxicity since then. There is scope here for more informed reports of symptoms and their causes, and that should be of assistance to those of us who do not have the time or the resources to have plant and water analyses done on their plants when they experience difficulties in cultivation. Ideally, of course, we should be pro-active and get regular check-ups for our plants like we do with our motor vehicles (and ourselves as time moves on). But that is probably asking too much of non-commercial growers. Those of you who do collect information on symptoms of mineral deficiencies, overdoses or diseases please share them if the information is not commercially sensitive to you.

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A bromeliad story – "Excess Claret at Christmas"

Kerry Booth Tate[1]

In January, 2002, I bought a young plant of *Guzmania* 'Claret' from my mate Mike Symmonds – a great brom grower from Queensland. He had one flowering in his shade house at the time, and I just had to have one.

Figure 14. Guzmania 'Claret' flowering in Kerry Tate's garden, June 2005.

Initially, and in hindsight ignorantly, I tied it to the lower branch of a mandarin tree. It was a nice shady spot, and I promised to keep the moisture up to it. Unfortunately, two problems impeded its healthy growth - the first problem was I broke my promise, and the second one being a nasty calf named Houdini, who also fancied my once beautiful guzmania for lunch, after breaking through the house-yard fence. I remember when that happened – sitting on the front veranda one day, I heard an unfamiliar munching noise near by. When living on a property, one becomes familiar with certain sounds. I recognize the sound native birds make as they forage amongst dried leaves, versus the longer shuffling noise of a snake amongst the leaves. The sound of crisp munching near the house is a sickening one, and sure enough, half of my guzmania was eaten

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Figure 15. Guzmania 'Claret' blooming again in December 2005, despite the attack of the awful beast.

by that awful beast

In February, 2003, I tried to save it by potting it, and placing it in an area of my garden affectionately known as Geriatric Corner. There it recovered and very slowly became a nice plant again. The crimson edges of the glossy green leaves, with the strong crimson lines on the underside of the leaves, were lovely.

In March 2005 I created a new shady bromeliad area of my garden. I decided *Guzmania* 'Claret' (still not flowered) should be included, so I planted it in a mound on the ground amongst other guzmanias and vrieseas. I used a special slow-release, granular fertilizer – designed for bromeliads – with a nutrient ratio of N-12%, P-3.4%, K-21%, and gave it plenty of water.

After three and a half difficult years, in June 2005 my *Guzmania* 'Claret' finally flowered – even though the flower spike was not as tall as I remember Mike's being. (Figure 14). I left it there while in its glory, which lasted several months.

In late December, around Christmas, it was looking a bit "past the use-by date". I could see two pups coming up from near the centre of the rosette, and on closer inspection, discovered ANOTHER flower spike rising beside where the old one had been cut off! (Figure 15).

I will remove the pups when they are larger, grow one in a pot, and one in a mound on the ground – and look forward to Christmas 2008.

NB. Houdini is no longer a problem. The family and I enjoyed him for many lunches – ha!

Cultivar Corner

Derek Butcher, BSI Cultivar Registrar

The following story needs to be in the Journal, because the plant concerned is being grown in New Zealand, Australia and the USA. Maybe elsewhere. The article by Peter Waters, reprinted below, was first published in the Bromeliad Journal of the Bromeliad Society of New Zealand Bulletin, 46(1) January 2006:

Nidularium 'Litmus' by Peter Waters[1]

For many years we have grown an interesting nidularium in New Zealand that has the unusual trait of the primary bracts changing from red to blue after anthesis (flowring). It has been known as *Nidularium antoineanum*, which is a species from southeastern Brazil. About seven or eight years ago, I was comparing some of my nidulariums with their descriptions in Smith and Downs(1979), and I noticed that there was no mention of the unusual primary bract colour. I wondered if maybe the name was not correct so I dissected the inflorescence and compared measurements and details with the monograph. One of the obvious differences was the sepal length, 23mm instead of 11 to 13mm. I sent all the findings to Elton Leme in Brazil for his opinion and he said that it was not *Nid. antoineanum*, but possibly related to *Nidularium procerum*.

I mentioned this in our Journal sometime later and consequently stirred up some action in Australia. Derek Butcher said that he could find nothing to convince him it was not *Nid. antoineanum*. In the interim Elton had published his new book `Nidularium' (2000) and I assumed that perhaps a broadened description had encompassed our plant and that Derek had found that it was now included in this species.

Recently renewed interest by some members raised the question again of the true identity and I decided to have another look at it, relative to the updated description. However once again I came to the same result: it did not seem to me that it could be *Nidularium antoineanum*. I emailed Elton with photos and details and he said that he now knew the plant, and had in fact a specimen of it he was given in the United States. He reiterated that it was one of the many variations of *Nid. procerum*. The size and shapes of the sepals and floral bracts, and the distinctive colour of the calyx was typical of *Nid. procerum*. The fruits tend to turn bluish, while in *Nid. antoineanum*, they remain white.

Derek suggested that we should give the plant a cultivar name to save further confusion and he came up with 'Litmus Paper', which as most people know, is a test for pH and changes from red to blue, or *vice-versa*. I think it is very apt, but I propose that we call it *Nidularium* `Litmus' which is a little more succinct. I have seen this bromeliad in Australia and in Florida, so it is a widespread cultivar and I guess it will take some time for a complete name change to be effected, but we hope that eventually

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The two color phases of *Nidularium* 'Litmus':

Figure 16 (left) flowering plant, red for "acidic"

Figure 17 (below) inflorescence after flowering, blue for "alkaline"

Photographs by Derek Butcher.

Nid. antoineanum will only be used for the correct species.

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Leme, E. M. C. (2000). Nidularium: Bromeliads of The Atlantic Forest. Rio de Janeiro, Marcos da Veiga Pereira & Andrea Jakobsson.

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A New Zealand perspective on Bromeliads XIII, Brisbane, Oct 14-17, 2005

Alan Cliffe[1] All photographs by Birgit Rhode.

Figure 18 The display for the Sunshine Coast Bromeliad Society, all plants owned by Cheryl Basic. The featured plant is an unnamed *Neoregelia* 'Marble Throat' hybrid by Hatsumi Maertz of Hawaii.

Figure 19. Display by Olive Trevor of The Olive Branch nursery.

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Most of the 40 strong New Zealand contingent flew across the Tasman Sea on Thursday morning, to be met at Brisbane airport by an enthusiastic Wayne Lyons (President of the Bromeliad Society of Queensland). In the 30+ degrees C we were pleased to climb aboard the air-conditioned bus to be taken to the Bardon Centre conference venue in the foothills of Mt Coot-Tha. First impressions were of the stunning purple display of jacaranda trees throughout the Brisbane suburbs.

We arrived at the Bardon Centre in its 3 hectares of bushland. The place was buzzing with delegates checking in, delivering plants and setting up displays. There was plenty of cheeky resident wildlife – crows, parakeets, bush turkeys, and water dragons (large lizards). We were to discover that kookaburras[2] wake up at 3.30am. Where had the famous Australian flies gone? (True – no flies). Thursday was hot and sunny, but that night the 6-month long drought broke, to be followed by 3 days of rain and amazing thunderstorms. Note: New Zealanders don't take wet weather gear when they go on holiday to the Sunshine Coast.

The plant displays were spectacular – many new brilliantly coloured Neoregelia hybrids from Shane Zaghini, Cheryl Basic, Sharon Peterson, a tree of Vrieseas, fabulous Neophytum "Gallactic Warriors", pottery lizards, and witches on broomsticks which cackled when you made a noise next to them. The conference theatre was excellent, but the electronics created an initial problem for the organisers, with incompatibility between presentations and equipment forcing changes to the programme. The presenters took it all in their stride.

Bruno Da Silva came all the way from Brazil to discuss diversity of local populations, and some of the taxonomy he has been working on. David and Sherlette Shiigi from Hawaii were a delight. David made an entrance as a giant pineapple, and demonstrated his expertise as a guitarist. His presentations featured his magnificent neoregelia and vriesea hybrids and those created by his friend John Arden. It was their first visit to Australia and David indicated that he and his wife would love the opportunity to visit NZ. We hope we can make it happen. Arno King spoke about alcantareas and made us feel at home with some photographs from his New Zealand days. Andrew Steens talked about landscaping with bromeliads and showed slides of some of his favourite New Zealand gardens. John Catlan gave us his views on how colour develops

2 noisy Australian birds - Ed

in bromeliads, Olive and Len Trevor talked about some of their latest introductions, and Peter Tristram took us with him on a Peruvian collecting trip.

We toured the Roma Street Parkland in the centre of Brisbane; advertised as the world's largest subtropical garden in a city centre; developed at a cost of $A 70 million; immaculately clean and secure. Hundred's of bromeliads were replanted prior to our visit after suffering severe hail damage. Then the buses moved on to the Botanic Gardens at Mt Coot-Tha: 52 hectares of arid, tropical and temperate plants, both native and exotic. The cycads and palms were fabulous. We ran out of time.

The first session of the plant sale was amazing. Of the 230 attendees, I'm sure at least 200 stampeded into the relatively small room – New Zealanders included (with a touch of envy and frustration at not being able to bring these wonderful plants back to New Zealand because of our biosecurity controls.) We had tours to the dazzling Neoregelia houses of Olive and Len Trevor and Mike Symmons. Conference delegates were like children in a candy shop. Olive led the tour around her garden. In light drizzle, the Trevor's covered conservatory and pool area was large enough to shelter and feed three busloads of delegates. Len enlightened us with his guzmania fertilizing regime – N3, 8P, 27K - as often as you feed yourself. The message on billbergias was "Grow them hard". I am far too kind to mine. They have now been replanted in a bark-based mix without any nitrogen fertilizer.

In New Zealand possums[3] are pests. In Australia they are highly protected. At the conference dinner Lester Ching, representing the Kiwis[4], was presented with a soft cuddly toy possum. We think we'll make it into an award – but still trying to think of what category? If you would like an albomarginated *Vriesea fosteriana* 'Megan', it went for $A800 at the conference dinner plant auction (it did have pups). For a fantastic meal try fresh Australian king prawns, followed by ripe mango and icecream!

Extreme thanks must go to Peter Waters from those few lucky delegates who did manage to get a few plants brought back into New Zealand. The paper work and procedures make it a complicated, risky and expensive process. We root pruned, cleaned and dipped the plants in a triple-mix insecticide brew, in the rain, in Danny and Lindsay's prize winning Buderim garden. The plants are now safely tucked up in Peter's quarantine house. MAF Biosecurity found *Trichoderma viride* on their last visit and we had to treat for it, even though it's a non-pathogenic beneficial fungus, found naturally in New Zealand. It makes you wonder. But there's only one more MAF Biosecurity inspection to pass and our plants can be released.

The New Zealanders at Bromeliad XIII would like to thank everybody at the conference, and especially the organisers, for the great time that was had by all. For anyone who didn't go, if you get the chance, go to the next conferenc–you'll meet great people and see plants grown the way you dream about[5].

3 Nasty small marsupials, the size of a large domestic cat - Ed

4 Citizens of New Zealand - Ed

5 Australian National Conferences are held biennially, alternating with BSI World Conferences. Contact: Bromeliad Society of Australia, P.O. Box 340, Ryde NSW 2112, Australia.

Figure 20. Display by Wildfire Garden nursery, plants owned by Cheryl Basic. Centre plant with lime-green leaves is a hybrid by Sharon Petersen, *Neoregelia* 'Victoria's Secret'.

Figure 21. Display by Wildfire Nursery. Centre plant is a hybrid by Sharon Petersen, proposed name *Neoregelia* 'Grande Finale,' as yet unregistered.

Art in Caloosahatchee

Details provided by Carolyn Schoenau

The Caloosahatchee Bromeliad Society Show held a show last October 14-16 in North Fort Myers, Florida. Aproximately 30 exhibitors entered 145 horticultural entries and 30 artistic.

Figure 23. Larry Giroux' award-winning entry "Birds, Butterflys and Bromeliads"

Mulford B Foster Best of Show was won by Terrie Bert with *Alcanterea braziliana*.

Larrie Giroux was the Sweepstakes winner, and he also won the Morris Henry Hobbs Best of Show - Artistic. His winning art was titled "Birds, Butterflys and Bromeliads" It featured *Cryptanthus* 'SE-22', *Cryptanthus* 'Cafe' au lait' and a wooden branch.

Caloosahatchee holds a judged show every other year and this year will have a plant sale in November.

Figure 22. Display at Bromeliads XIII by currrent BSI Australia Director, Lynn Hudson of Cairns. Featured plant is *Neoregelia* 'Passion' a cultivar of 'Blushing Bride' X *johannis* by Grant Groves.

A Conservation Corner: bromeliads under fire

Pierre L. Ibisch[1]

Abstract: Starting from a concrete case of forest destruction in a Brazilian national park and from current deforestation rates in the Neotropics, I discuss what we know about the conservation problems of the bromeliad species. There is no comprehensive and reliable list of threatened bromeliads worldwide (a "Red List") but we have evidence that certain bromeliads are indeed threatened by land-use changes, while others - even locally endemic ones - might be advantaged by human activities. Considering the risks related to the overstatement of conservation problems, I plead for an active BSI engagement in providing valid conservation-relevant data on bromeliads. Further possible elements of an institutional conservation strategy are mentioned that should be analyzed carefully. Our members are encouraged to participate in an open discussion on how BSI can get involved more actively in the conservation of bromeliad species and their habitats.

Burning forests

Some weeks ago, Oscar Ribeiro from Bromeliario Imperialis in Brazil, alerted the President of BSI and the Conservation Chair informing them about a fierce fire in the Chapada Diamantina National Park which is located in the State of Bahia within the Caatinga ecoregion. The National Park was created in 1985 and is home to many special and locally endemic species, such as birds (BirdLife International 2003), or plants (Giulietti et al. 1997), including bromeliads. According to employees of the National Park, all fires were of criminal nature and had been provoked by prospectors and farmers who burn the forest in order to obtain land for pasture (Francisco 2005). By November 2005 about 10% of the park had been devastated, and the government declared a state of emergency (Folha Online 2005).

Brazil is one of the most forest-rich countries of our planet. In 1990 67% of the country of Brazil was covered by forest, in the year 2000, 64% were left – this means an annual loss of 'only' 0.4%, which amounts to an enormous deforestation of 2,309,000 ha every year (FAO 2005). And it is not only Brazil. Taking into account bromeliad-rich countries alone we have to watch deforestation, for example, in El Salvador (1990-2000 annual forest loss rate: -4.6%), Nicaragua (-3%), Guatemala (-1.7%), Panama (-1.6%), Ecuador (-1.2%), Mexico (-1.1%), Bolivia (-0.8%) Peru or Venezuela (both -0.4%) (FAO 2005). Forests are burning everywhere, within protected areas and outside. The loss of forests means the loss of dependent biodiversity and ecosystems' functions and services. Of course, in the context of BSI's activities we must raise the question: How are bromeliads affected by the ongoing forest loss?

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Burning forests = burning bromeliads?

Figure 24. The terrestrial bromeliad *Puya atra* (shown here together with *Baccharis genistelloides*, Asteraceae) is one of the few winners of cloud forest deforestation. The species, as other puyas, survives clear-cutting and burning: thus human activities promote this species rather than endanger it. (Tablas Monte region, Cochabamba, Bolivia).

As a first solution we might think to look at the global Red List of threatened plants. Actually the World Conservation Union – IUCN – has published a global assessment of threatened species which is accessible online as a searchable database under www.iucnredlist.org. When we search for threatened bromeliads the result is a list of 141 species (accessed: Nov. 23, 2005). Having a closer look we notice that these are exclusively bromeliads from Ecuador, the only country for which a recent Red List of plants has been prepared (taking into account endemic species only; Valencia et al. 2000).

Figure 25. Land use changes can benefit bromeliads by providing new habitat. Puya nana, an endemic species of central Bolivia, as well as several other terrestrial bromeliads of the same area, naturally, would be confined to rock-outcrops and steep rocky slopes, but nowadays it can commonly be found at deforested sites with shallow soils.

In the Ecuadorian list there are a lot of species classified as "vulnerable" that are not necessarily harmed by land-use changes, such as several Puya species. Many species possibly have been listed for having very small geographical ranges; possibly the underlying assumption was that species with small ranges are the most threatened ones (compare Pitman & Jørgensen 2002). However this may be based on false assumptions regarding the sensitivity of endemic species to land-use changes. A small range-size of a continental species does not automatically imply an elevated risk of anthropogenic (human-caused) extinction. Many endemic plants do not require intact mature forest habitats to survive. For example in endemism-rich dry forests most plants need to be stress-tolerant in order to survive the dry season when drought affects even the species of the forest floor. These species have a higher potential to survive ecosystem degradation accompanied by forest fragmentation. In the Neotropics many dry-forest endemics are recorded even in deforested areas. In humid forests the effects of degradation are more severe: shade-requiring species disappear when deforestation leads to microclimatic changes. Fortunately many of the endemism-rich humid forests are found in less accessible mountain areas and tend to be better conserved than lowland-areas. Indeed in the short term loss of biodiversity and ecological functionality in tropical lowlands may be a more serious conservation problem than the extinction of endemic species. Plant groups that strongly tend to endemism belong to the most stress-tolerant taxa e.g., Cactaceae, Bromeliaceae or Velloziaceae. The stress-tolerance often includes survival of forest fires – when critical levels of fire intensity and frequency are not surpassed. Many herbaceous and shrubby endemics, especially terrestrial bromeliads of dry habitats, are not affected by deforestation and may even increase their range size and abundance when forest-free sites are created by human land use (Fig. 25) (Ibisch 1998, Ibisch et al. 2001). Most endemics seem to be less competitive and need the creation of disturbed sites in order to prosper. Thus, they are often related to azonal sites like rock outcrops that are seldom affected by land-use and have good chances of persisting in natural habitat islands within a converted forest (Fig. 26). In Cuba about 30% of the endemic plants are found within serpentine mountains (Borhidi 1996), where agriculture is impossible. In moderately disturbed tropical Andean forests the percentage of endemic plant species is higher than in intact ones (Kessler 2001). Land use in endemism-rich regions with a high habitat diversity does not normally convert areas into homogeneous agro-deserts. Rather, a mosaic of cultivated fields, secondary forests, forest remnants and natural non-forest habitats, is created where endemics may be better off than other species. Species' threat assessments must consider their specific sensitivity and the conservation status of the habitats.

Figure 26. A considerable number of locally endemic bromeliad species is not impacted by land use changes. The picture illustrates the example of Tillandsia samaipatensis which lives on steep rocks and will never be affected by the elimination or disturbance of forests.

Of course, the intention of the preceding section is not to question the whole assessment of the Ecuadorian bromeliads! Definitely, there are many species that indeed are suffering from deforestation; a good example (possibly) is *Guzmania poortmanii* listed as "critically endangered". The species assessors responsible for its 'red listing' have concluded: "No collections have been made since [type collection] and the area has been deforested and mostly converted to croplands raising the possibility that the species is extinct. Not known to occur inside Ecuador's protected areas network" (J.M. Manzanares & N. Pitman 2003; extract from IUCN Re List Data Base[2]).

'Worst' is not necessarily better!

The determinant conclusion is that the assessment of the sensitivity and conservation status of the bromeliad species is virtually in its infancy, with some progress in a very few countries where methods and assumptions have been applied that still can be improved. Definitely, some bromeliad species are promoted by fire and forest destruction, and others are harmed and brought to extinction.

We could argue that in cases of doubt, we simply might overstate conservation problems in order to get more attention and stir up people. However this approach may entail other risks: 15 years ago, Mann (1991) published his provocative article, "Extinction: are ecologists crying wolf?" in which he warned that misstating the problem of the extinction crisis endangers both the credibility of science and the efforts to preserve biodiversity. Indeed, some of the conservationists' predictions have not (yet) become true, and this has nourished eco-skepticism. One example is that of the Amazon forest, which according to many statements, was to vanish by the year 2000; currently, despite ongoing deforestation, a large forest mass still persists. Bad news is good news: fund raising for nature conservation is mostly promoted using dire warnings and worst-case scenarios. But on the other hand, many people are simply tired of bad forecasts, and do not listen to the ecologists anymore. Authors such as Maxeiner & Miersch (1999[3]) or Lomborg (2001) who try to show that all the warnings about the recent and rapid global environmental change on our planet caused by human action shall be considered as "eco-myths" receive a lot of attention by decision-makers and the general public. Unfortunately conservationists increasingly are forced to fight a defensive battle regarding the state of the environment (e.g., Wilson et al. 2001). The most important lesson learned is that we shall not overstate conservation problems, and that we need good scientific data as hard as possible in order to show that we are not telling eco-myths.

Probably the most sensitive bromeliad species are those that live in very humid forests and that need a rather closed canopy (Figs. 27, 31). We may assume that especially cloud forest bromeliads are critically endangered by land-use changes (Ibisch et al. 2001), but we do not have sufficient quantitative information. Definitely, this would be an adequate task for BSI – to provide better data on bromeliads' conservation problems.

2 http://www.redlist.org/search/details.php?species=43260 - accessed Dec. 22, 2005.

3 Compare authors' webpage: http://www.maxeiner-miersch.de/lexikon_oeko-irrtuemer_e.htm (accessed Dec. 23, 2005).

What else can we expect from BSI to promote biodiversity bromeliad conservation?

The role of Bromeliad Society International

The purpose of the Bromeliad Society International, includes the conservation of bromeliads in nature and their habitats. Consequently the bylaws of the society determine how a standing committee responsible for conservation shall achieve an active and effective involvement in biodiversity conservation. It has to (1) advocate the conservation of bromeliads in nature and their habitats, (2) establish and monitor the effectiveness of a code of ethics defining the behavior of growers and collectors that may affect the well-being of wild populations of bromeliads, and (3) represent the society in conservation matters.

The arising tasks are internal and external. On the one hand, it is clear that BSI shall have a conservation voice and hand acknowledging the fact that today it is impossible to handle and investigate living organisms without caring for their survival. Among the many good reasons why bromeliad researchers and collectors should get involved in conservation action we could mention that bromeliads are charismatic and very typical representatives of (almost exclusively Neotropical) ecosystems, many of which are increasingly threatened by land-use changes.

The fate of the rare, special and threatened bromeliad species might move many people and make them consider to contribute to conservation action. Collectors and researchers know many species and their habitats, including the problems occurring, and could propose or even implement conservation action. The existing collections represent a unique chance for ex-situ research and maybe conservation of certain taxa. Publications about the conservation status of species and relevant threats might create an information basis for conservation actors.

On the other hand, internally, BSI should have an impact on the behaviour of its members avoiding any activities that harm populations or species or violate environmental legislation in force. There was a time when it was sufficient to know something about the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and that some bromeliad species should not be trafficked without special permits. However, conservation legislation has become much more complete and complex involving topics such as the access to genetic resources and others. In the Neotropics, countries with a traditionally weaker environmental governance have made progress towards establishing a legal framework for the conservation of their biodiversity. This more complete conservation approach increasingly affects the activities of national and international researchers and collectors.

When we consider to move towards an institutional strategy for the promotion of biodiversity/bromeliad conservation it will be rather easy to provide:

A. Fundament for accomplishing the internal conservation tasks

1. Elaborate and disseminate a code of conduct.
2. Create awareness and inform about current conservation legislation and provisions (on an international and a national level).
3. Collect experiences with best practices of dealing with the avoidance of harm for populations and species, as well as the effective consideration and application of environmental laws.

The next level could be the following:

B. Monitoring, implementation and documentation of good practice

This task needs some development, as it is important to avoid too much internal bureaucracy; however, among others, it might be good to look at the origin of plant material presented at plant shows, especially of specimens that are candidates for awards. Furthermore, we might want to watch the performance of companies advertising in the BSI journal.

C. External conservation needs and opportunities

These require much more critical thought and analysis. This point is related to how BSI should get involved in conservation action. Theoretically, this might include the following:

1. Foster ex-situ conservation of bromeliads in public and private collections (which, among others, means a more careful and complete documentation of plant material.)
2. Support the collection, analysis and publication of conservation-relevant data on species and habitats.
3. Raise awareness among the members and others regarding conservation problems and stimulate individual conservation action.
4. Get involved in conservation campaigns and advocacy and carry out conservation projects at specific sites.

Possibly, the first three actions can be approached more or less easily. The fourth needs careful discussion. We might go back to the case of the Chapada Diamantina National Park presented in the beginning. Our Brazilian friends expect that we interfere and write a letter to the corresponding authorities protesting against the insufficient protection of the site's biodiversity. Of course, several questions arise: Will this be effective, or shall we confide that professional conservation actors will do the job? If we cry out in the Chapada Diamantina case, would it be correct to keep silent in the face of thousands of other fires burning in biodiverse and bromeliad-rich forests all over the Neotropics? Is it ethically correct to accuse 'criminal' Brazilian prospectors and farmers who burn forest in Chapada Diamantina, Ecuador, Bolivia or elsewhere simply struggling for a better life, for striving for miserable livelihoods if compared with living conditions of an average bromeliad aficionado …?

The latter issue is very important. Too often, rich people from developed countries do not reflect enough about their individual ecological footprint and all the resources they need to sustain their life style that harms environment and biodiversity in a direct or indirect way. But at the same time they make themselves feel better by participating in environmental campaigns claiming that poor people in biodiversity-rich countries shall abjure their needs and wants. Many thousands of people, since the year 2000, have signed chain mails that say, for instance: "Hi everybody, The Brazilian congress is now voting on a project that will reduce the Amazon forest to 50% of its size. It will take 1 MINUTE to read this, but PLEASE put your names on the list and forward this on as instructed below …" Apart from the fact that the Brazilian congress right now is not voting on this issue, before signing something like this we must reflect if we live in a country where a large portion of the natural forests have been eliminated by our nation and why. And we must check out if we personally do not trigger Amazon deforestation by consuming products that require land-use changes in Brazil (such as soy produced for meat production).

Confusing, stimulating, provocative?

This article does not intend to give answers to many puzzling questions that have been raised. But definitely it wants to stimulate a debate on how BSI can get involved in conservation more actively. A first step is the creation of a Conservation Corner in our journal and maybe on the website as well, which hopefully can be regularly filled with news and contributions by many authors. Finally, it would be great to move conservation out of the corner and mainstream it as an integral part of BSI's mission and action. We shall have a real conservation strategy, and now it is up to you to start the discussion. Please write to us how BSI, the members and you yourself realistically can promote conservation. Your contributions will be documented on the BSI website where a 'conservation corner' shall be established as well. Then, systematically and organically we shall develop an institutional approach according to the wants, the opportunities and the limits. Please submit your ideas to the Editorial or the Conservation Chair.

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Figure. 27. Large-scale elimination of the Neotropical forests is a significant and ever-increasing threat to forest-dependent species. Among the most impacted and endangered bromeliads we can mention the rain forest epiphytes which are not adapted to survive forest fires and are not able to sidestep to rock and bare-soil habitats

ex-situ conservation - YOU can help!

One way of helping preserve bromeliad species is to grow them from seed, reducing the number of plants being pulled from their native habitat.

The BSI seed fund is available to all members and is an excellent way to help conserve whilst enjoying the challenge of raising from seed. Donations of seed are earnestly requested, wherever possible including the location the seed parent was growing in, please.

Details of the seed fund are on www.bsi.org, or you can send a stamped, self-addressed envelope to:

Harvey C. Beltz

637 South Inwood Road

Shreveport, LA 71119-7260,

United States of America

A New Lymania species from Bahia, Brazil

Elton M. C. Leme[1] **Drawings and photographs by the author.**

The genus Lymania is small-sized bromelioid genus, comprising 8 recognized species (Souza, 2004), not including the species described below. It is endemic to Northeastern Brazil and lives in the Atlantic Rain Forest that stretches from the State of Bahia to the State of Alagoas and Pernambuco (pers. obs.) – the Northernmost limit. The diversity center of the genus is concentrated in Bahia where all known species can currently be found.

Lymania species are exclusively epiphytic, living mostly on the shady lower tree trunks, very often close to the forest floor, propagating by means of long slender sinuous stolons. The taxonomy and phylogeny of the genus was recently revised by Sousa (2004), who provided a more complete identification key when compared to Leme's key (1989). On the basis of this new key, an undescribed species closely related to L. corallina (Brong. ex Beer) Read was recognized and presented below:

Lymania languida Leme, sp. nov **Type:** Brazil, State of Bahia, Uruçuca (old Água Preta), road Uruçuca to Serra Grande, secondary road to Faz. São José, 14° 31'S, 39° 09'W, ca. 130 m elev., 22 Sept. 2005, E. Leme 6724 & J. L. Paixão. Holotype HB. Isotype CEPEC.

Species nova a L. corallina (Brong. ex Beer) Read, cui affinis, inflorescentia longiora, bracteis floriferis inconspicuis, floribus distincte odoratis, sepalis breviter connatis, viridulis sed apicem versus albescentibus, petalis apicem versus azureis et ovario viridulo differt.

Plant epiphytic, flowering 25-30 cm tall (with inflorescence extended), propagating by stolons 8-20 cm long, 0.6-0.7 cm in diameter. ***Leaves*** 8-9 in number, rosulate, suberect-arcuate, chartaceous, forming at base a narrowly subtubular, lageniform rosette; ***sheaths*** narrowly elliptic, 9-13 x 4-5.5 mm, subdensely and minutely brown-lepidote, abaxially pale colored, bearing a central U-shaped narrow channel near the apex; ***blades*** sublinear, 23-38 x 2-2.5 cm, sparsely and inconspicuously white-lepidote to glabrescent, lustrous, green, apex acuminate and shortly caudate, margins laxly and inconspicuously spinulose, spines less than 0.5 mm long, 5-7 mm apart, greenish, appearing subentire with age. ***Scape*** erect to suberect near the apex, 15-17 cm long, 0.3-0.4 cm in diameter, exceeding the leaf-sheaths and distinctly visible above them, inconspicuously and sparsely brown-lepidote with fimbriate trichomes, to glabrous; ***scape bracts*** narrowly lanceolate, acuminate, 4.5-6 x 0.8 cm, sparsely lepidote, whitish before anthesis, stramineous at anthesis, membranaceous and soon disintegrating, exceeding the internodes but not covering them. ***Inflorescence*** shortly paniculate, laxly to subdensely bipinnate to subsimple, about spreading in an angle of ca. 90º with the rosette, slightly ascending toward apex, shorter than the leaves, 8-12 cm long, ca. 4.5 cm in diameter near the base, rachis straight, inconspicuously and sparsely pale brown lepidote, trichomes fimbriate, to glabrous, inconspicuously verrucose, slightly angulose toward apex, green; ***primary bracts*** narrowly lanceolate to sublinear-lanceolate, acuminate, 18-40 x 3-4 mm, greenish-white at anthesis, stramineous afterwards, membranaceous and soon disintegrating, slightly to distinctly exceeding the ebracteate basal peduncle; ***branches*** the lateral ones 1 to 6 in number, suberect, laxly to subdensely disposed, 24-40 mm long, 2 to 5-flowered, basal peduncle slender, 8-13 x 2 mm, ebracteate, straight, slightly complanate, green, rachis flexuous, ca. 2 mm in diameter, green, sparsely pale brown lepidote to glabrous, internodes 5-8 mm long, the terminal branch 60-70 mm long, 12 to 20-flowered; ***floral bracts*** inconspicuous, subtriangular, acuminate, membranaceous, stramineous, nerved, glabrous, ca. 1 mm long. ***Flowers*** sessile, 19-20 mm long with petals extended, anthesis diurnal, distinctly fragrant, those of the lateral branches laxly and subdistichously arranged, those of terminal branch subdensely to densely and polystichously arranged; ***sepals*** strongly asymmetrical, muticous, obtuse, ca. 6.5 x 4 mm long, connate at base for ca. 1.5 mm, pale green except for the whitish apex, inconspicuously if at all verrucose, inconspicuously and sparsely pale brown lepidote near the base, trichomes fimbriate, to glabrous, obtusely when bicarinate at base mainly after anthesis, ecarinate toward apex, with a lateral membranaceous, rounded, translucent wing distinctly surpassing the midnerve; ***petals*** subspatulate, subacute, 13-14 x 5 mm, free, white toward base, pale blue near the apex, suberect at anthesis, naked, bearing 2 conspicuous longitudinal callosities; ***filaments*** ca. 7.5 mm long, the antesepalous ones free, the antepetalous adnate at base to the petals for ca. 4.5 mm; ***anthers*** ca. 3 mm long, dorsifixed near the middle, base obtusely sagittate, apex acuminate; ***pollen*** subglobose, in tetrads, porate, exine psillate (H. Halbritter, pers. Comm.); ***stigma*** conduplicate-spiral, narrowly ellipsoidal to subcylindrical, white, blades shortly crenulate; ***ovary*** subquadrate, base truncate, ca. 5 x 6 mm, obtusely but distinctly 6-alate-carinate, inconspicuously and sparsely pale brown lepidote, trichomes fimbriate, to glabrescent, pale green; epigynous tube ca. 1 mm long; placentation apical; ovules caudate. ***Fruits*** unknown.

Paratype: Brazil, State of Bahia, Uruçuca (old Água Preta), road Uruçuca to Serra Grande, secondary road to Faz. São José, 14° 31'S, 39° 09'W, ca. 130 m elev., 22 Sept. 2005, E. Leme 6735 & J. L. Paixão (HB).

Lymania languida is morphogically closely related to *L. corallina*. However, this new species can be distinguished from it mainly by its longer scape (15-17 cm vs. ca. 12 cm) and inflorescence (8-12 cm vs. 4.5-8 cm), which is laxer and more visible well above the rosette, floral bracts inconspicuous but visible (vs. lacking), flowers distinctly fragrant (vs. odorless as far as known), sepals connate at base for ca. 1.5 mm only (vs. half connate or nearly so), pale green at anthesis except for the whitish apex (vs. coralline-red), petals pale blue near the apex (vs. white), and by the pale green ovary at anthesis (vs. coralline-red).

This new species was found growing epiphytically in a very humid and dense Atlantic Forest of low elevation, forming a small population spread in an area of about 50 m2, sharing its habitat with *Aechmea fulgens* Brongn., *Araeococcus parviflorus*

1 Herbarium Bradeanum, Rio de Janeiro, Brazil. email leme@tj.rj.gov.br

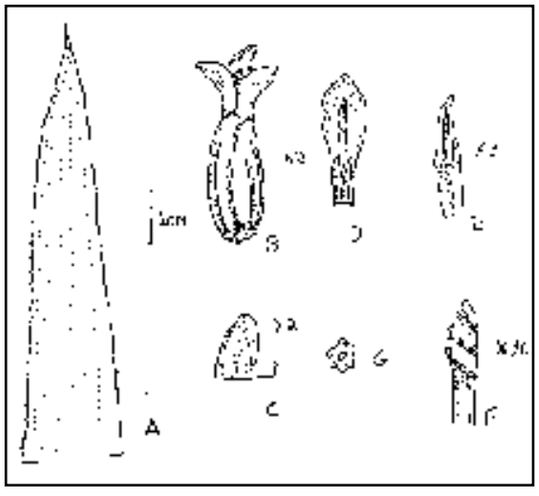

Figure28
A. apex of leaf blade.
B. flower
C. sepal
D. petal
E. anther
F. stigma
G. cross-section of ovary.

(Mart. ex Shult. f.) Lind., *Guzmania lingulata* (L.) Mez, and the rare *Vriesea recurvata* Gaudich., to name few. Not far from the collection site *L. globosa* Leme and *L. corallina* were encounted too. Despite growing in the same area of its closer relatives, the paler colored inflorescence of *L. languida* as well as its distinctly fragrant flowers, in contrast with the bright coralline-red inflorescence of L. corallina, bearing odorless flowers (as far as known), suggest a different pollination syndrome.

Figure 29. Detail of the inflorescence of *Lymania languida*

The name chosen for *Lymania languida* was inspired in its laxly disposed leaves and in the lassitude of its pale colored spreading inflorescence.

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I would like to thank J. L. Paixão, from CEPEC, Bahia, for his support and expertise during field activities; Dr. Heidemarie Halbritter, from the University of Wien, who kindly provided the results of her SEM analysis of the pollen of the new species; and Dr Walter Till for his assistance.

Figure30 *Lymania languida* in its Atlantic Rain Forest habitat

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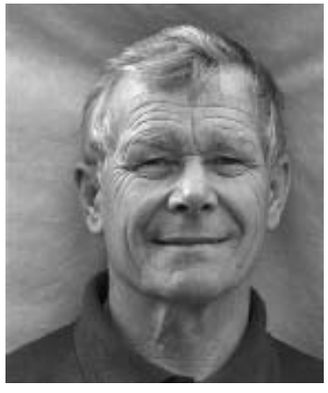
Welcome new BSI Directors



David Anderson, 2006-2009 Director, New Zealand, has been a member of the Bromeliad Society of NZ since 1983 and a member of the BSI from 1993. He was elected on to the committee of the NZ Society in 1986 and have served as president for 8 years and secretary for 6 years over the following 20 years. As well as working on the committee he took over the role of judging the BSNZ annual show competitions on the retirement of Bea Hanson in the early 1990's. He grows a wide variety of bromeliads and particularly the species of the various genera.

Penrith Goth, 2006-2009 Director Central USA, grew up in western Pennsylvania and have been interested in plants all his life. In the course of establishing career and family he has lived in various parts of the country, ending up in Michigan, 1968, as Professor of German Studies at Wayne State University, Detroit. After growing many kinds of plants he gradually focused on bromeliads because they provide year long interest, are a fascinating family, and because they are so easy to grow. In 1988 he joined the Southeast Michigan Bromeliad Society. He is currently president of the society and editor of its newsletter.

Lynn Hudson, 2006-2009 Director, Australia, successfully organized the 10th Australian Bromeliad Conference in Cairns. She is the Vice President and Editor for the Cairns Society and has been very active in the society bringing it from a 14 member group to over 100 members for each of the past four years. She is dedicated to teaching people about bromeliads and for each of the past three years has travelled to Darwin and Townsville to run full day Learning Workshops. In 2005 she added the new Fraser Coast and Glasshouse Mountains Societies to her schedule.

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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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Figure 31. The advancement of the agricultural frontier in montane rain forests threatens many sensitive forest-dependent species such as epiphytic bromeliads and orchids that cannot sidestep deforestation by colonizing secondary habitats (La Hoyada, vicinity of Amboró National Park, Santa Cruz, Bolivia). Photograph P.L. Ibisch.