



A Journal of the Zingiberales, including Cannaceae, Costaceae, Heliconiaceae, Lowiaceae, Marantaceae, Musaceae, Strelitziaceae, and Zingiberaceae

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## The Story of a New Species: *Heliconia berguidoi* Flores, Black & Ibáñez

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On February 7, 2017 a new species, *Heliconia berguidoi*, was published in the online journal PhytoKeys. The abstract of a full article provides the core information about the new species:

***Heliconia berguidoi* (Heliconiaceae), a new species from premontane forest of eastern Panama, is described, illustrated and its conservation status evaluated. *H. berguidoi* bears pink flowers, an uncommon color in this group. It differs from the Colombian species *Heliconia rhodantha* and *Heliconia sancta-theresae*, the most similar taxa, by the combination of a petiole glabrous except for the woolly base, a very long peduncle, the perianth pubescent at the apex and staminode with cuspidate apex. *H. berguidoi* is also similar to *Heliconia pogonantha* in all four of its varieties and to *Heliconia ramonensis* in two of its four varieties, but differs by a combination of the long peduncle, pink flowers and staminode with cuspidate apex. Fifty-six *Heliconia* species have been found in Panama, eighteen of them endemic.**

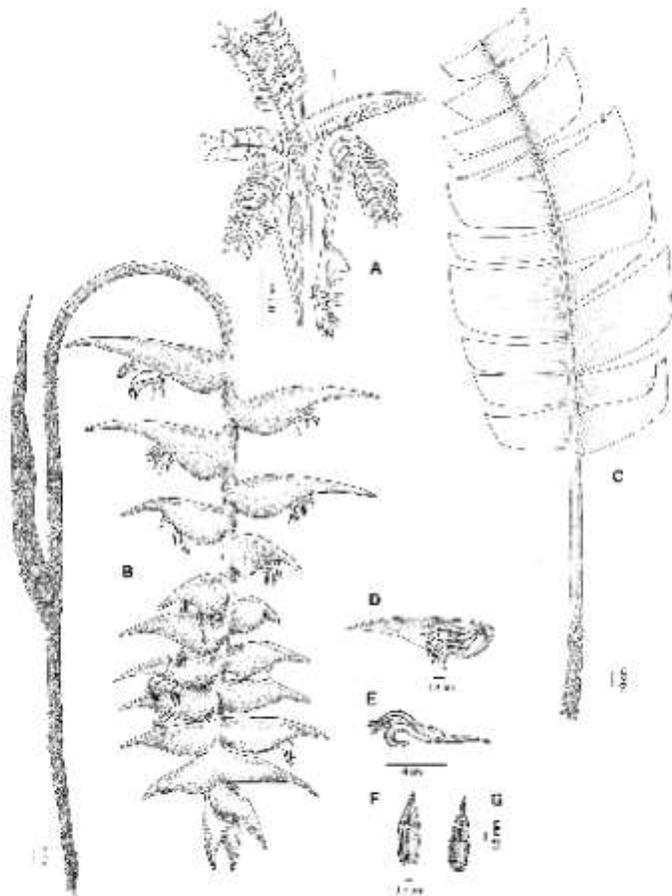
The article came out 11 months after we began work on it, and 10 years after I first saw this heliconia in a Darien rainforest. This is the story of how *H. berguidoi* got its name.

I had been involved in a few species descriptions; two plants were named for me in recognition of my assistance with live plant material in my garden: *Calathea carlae* Kennedy and *Anthurium carlablackiae* Croat. But for this new heliconia species, the lead author, Rodolfo Flores, kindly invited me to participate as a co-author. I would actually help write the description of a new species! It was an honor, and I was thrilled to accept.



*Heliconia berguidoi* R.Flores, C.Black & A.Ibáñez, exsitu

One reason Rodolfo asked me join him is that I had quite a few specimens of the plant growing in my garden: ex-situ cultivation provides a reliable source of material for study, as opposed to the element of chance of finding three to five specimens in flower when researchers happen to be in the forest. Also, I was familiar with the new plant and the genus as a whole, and knew which were the closest relatives that would have to be compared to substantiate our claim that we had a new species. As an additional bonus, my native English would come in handy in the final proofing, as the other two authors speak English as a second language.



*Heliconia berguidoi*

**A** Habit **B** Inflorescence **C** Leaf **D** Cincinnal bract open and flowers **E** Flower **F** Flower bract **G** Staminode.

The story started in 2006 when I joined the Audubon Society of Panama's outing to a private nature reserve in a small, isolated mountain range, the Serranía de Majé. After driving four hours east of Panama City we met our host, the biologist Guido Berguido, who was ready with

horses and supplies. We mounted up and headed up on a deeply rutted two-track route across rough pasture that was obviously cleared only recently. Four hours and a drenching downpour later, we reached the rustic bunkhouse in the cloudforest. It felt like heaven!

A few years earlier Guido had visited Cerro Chucantí, the high point at the crest of the range, and immediately realized it was a very special place. He rushed out to gather cash to buy the mountaintop. When he returned with the money a few months later, the owner had already sold the logging rights to the area, and Guido had to buy back the rights, tree by tree. Guess how how much the virgin forest was worth to a logger?... Only \$12 per mature tree! Guido was shocked that a forest would be cut for so little economic gain. But on the other hand, it was good news because he was able to raise the extra money.



Best mode of transport to Cerro Chucantí

Now Guido has developed the Chucantí Private Cloudforest Reserve in to a strong nonprofit institution, counting on visitors and donors from around the world. He is work-

### The Purpose of HSI

The purpose of HSI is to increase the enjoyment and understanding of *Heliconia* (Heliconiaceae) and related plants (in the families Cannaceae, Costaceae, Lowiaceae, Marantaceae, Musaceae, Strelitziaceae, and Zingiberaceae) of the order Zingiberales through education, research and communication. Interest in Zingiberales and information on the cultivation and botany of these plants is rapidly increasing. HSI will centralize this information and distribute it to members.

The **HELICONIA SOCIETY INTERNATIONAL**, a nonprofit corporation, was formed in 1985 because of rapidly developing interest around the world in these plants and their close relatives. We are composed of dues-paying members. Our officers and all participants are volunteers. Everyone is welcome to join and participate. HSI conducts a Biennial Meeting and International Conference.

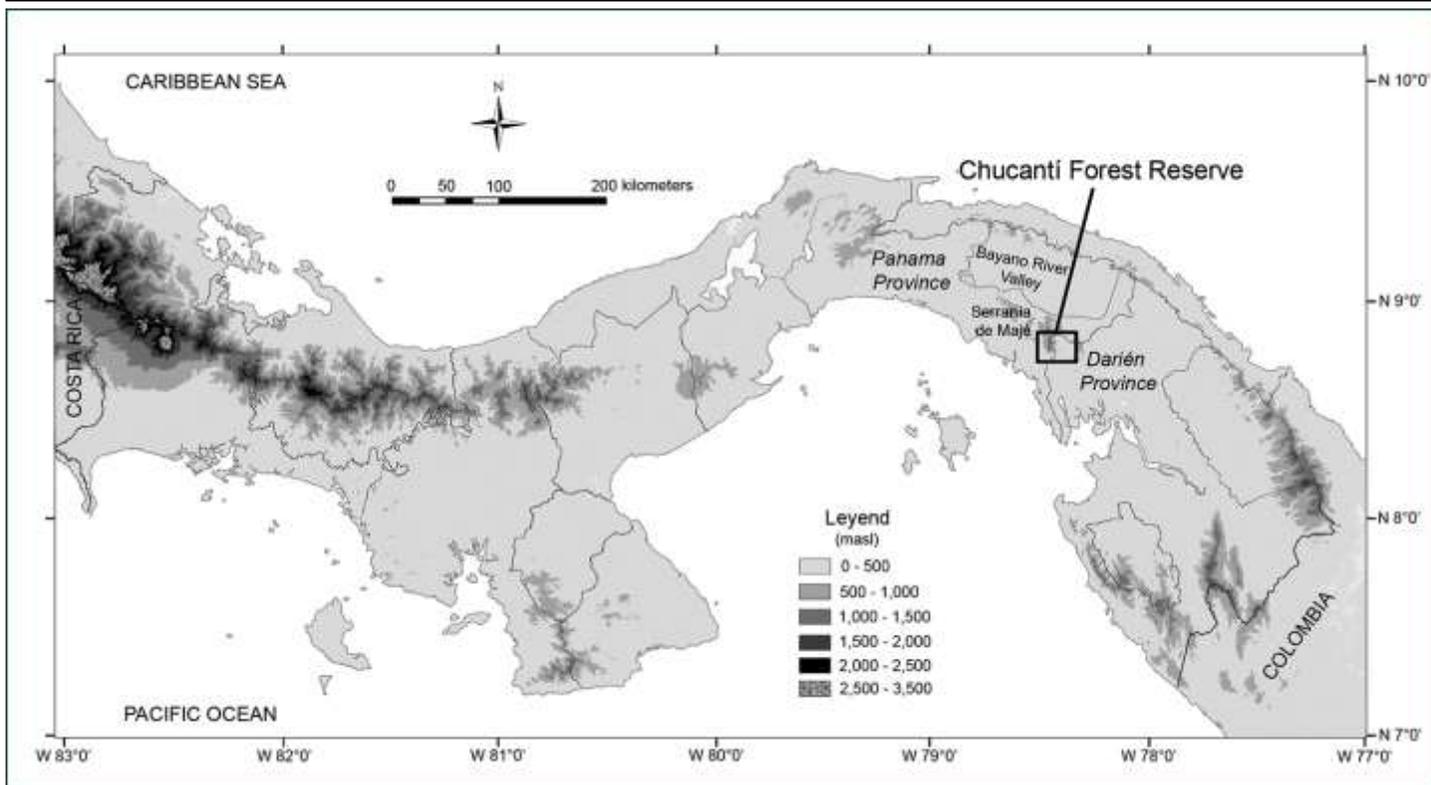
Membership dues are (in \$US): Individual \$40, Family \$45, PDF \$25, Student \$10, Contributing \$50, Corporate \$100, Sus-

taining \$500, Lifetime Member \$1000. Membership fees constitute annual dues from 1 July through 30 June. All members receive the BULLETIN (usually published quarterly) and special announcements. Join or renew your membership at [www.heliconia.org](http://www.heliconia.org).

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**Figure 1.** Elevation map of Panama with location of Chucantí Private Forest Reserve.

ing to acquire and develop a natural corridor from the top of the range right down to the shore of the Pacific Ocean. Learn more at <http://advantagepanama.com/chucanti-panama.html>

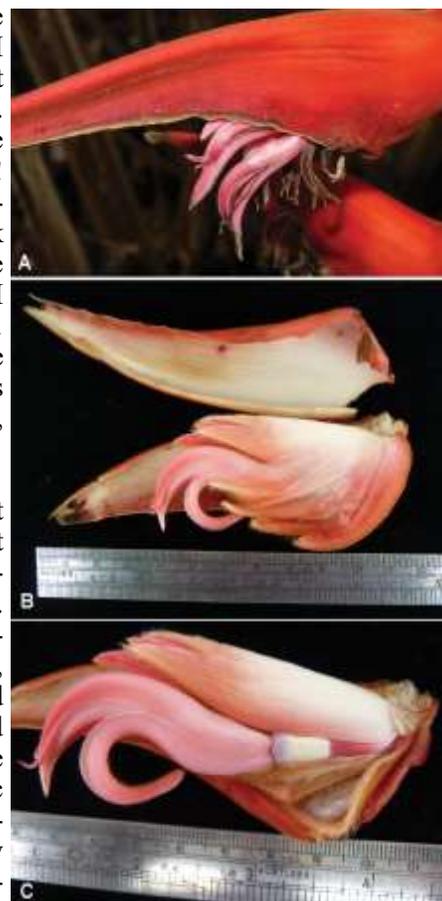
Our Audubon group spent all day enjoying the carefully-planned loop trail from the lodge up and across the ridge, then down through a surprisingly different habitat. In addition to a few known species of heliconia, I noticed a large, split-leaf plant that reminded me of *H. ramonensis*, with only one worn-out inflorescence. Guido generously let me take a few rhizomes back to my garden, to grow it up and see firsthand what it was.



Rapidly growing neotropical *Cecropia peltata* on the grounds of the heavenly Chucantí resort and lodge

In 2010, when the heliconia bloomed, I knew immediately it was a new species. The flower was the most beautiful pink! Only a very few heliconias have pink flowers, and this one matched none I knew of. *H. rhodantha* was the most similar, but this was very different, indeed.

I told Guido right away that he had yet another endemic species to add to his list. I gave it the nickname 'Chucantí', shared seeds, and told everyone I could about our find. One visitor, the prolific investigator and author of many new aroids, Dr. Tom Croat, suggested I do the description myself. Anyone, not only trained botanists, can



**A.** inflorescence segment of *H. berguidoi*, **B.** Cinninal bracts opened, showing floral bract, **C.** Flower. Photos: **A** - R. Flores; **B, C** - C. Black.

submit an article describing a new species, and many amateurs help make advances in botany. But I delayed, daunted by the learning curve of the unfamiliar task. Within a few months of Tom's suggestion, a young botanist friend came to visit, saying he wanted to know more about that Chucantí heliconia. Ten years had passed since I collected the rhizomes, and six years had gone by since it was clear this heliconia was unknown to science. Finally its time had come! Little did I think the process would take yet another year to complete.



**A** Habit of *Heliconia berguidoii*, **B** Inflorescences touching the ground, **C** Plant with two of the authors (R. Flores and C. Black). Photos: **A, C** – R. Flores; **B** – C. Black.

Rodolfo Flores had been working with Dr. Alicia Ibáñez on floristic surveys of medicinal plant possibilities in various parts of Panama. When they surveyed Chucantí, Guido told them I thought the big pendent was an undescribed heliconia, and that I had it growing in my garden. Rodolfo had time before his master's program started, and a little financial cushion to let him work on the description. Acquiring funding is a challenge that delays botanical description.

Rodolfo would be the lead author of the article, coordinating our efforts and writing the basic texts in each required section. I would provide the physical description and measurements, plus suggestions on the most similar spe-

cies. Alicia Ibáñez completed the team, providing ecological and habitat information, as well as evaluating the endangered status according to the guidelines of the International Union for Conservation of Nature (IUCN). We agreed that Guido, who provided a secure home for this and so many other plants and animals, should choose the name; he settled on *Heliconia berguidoii* to honor his entire family for their support of his dedication to Chucantí.



Herbarium specimen

Between other projects and responsibilities, we worked separately on our portions of the description for a few months. Once Rodolfo and I met at the herbarium of the Universidad de Panamá to compare specimens of all the related heliconias and to refine the physical description of *H. berguidoii*. He continued to research the type specimens, the exact individual plants used to describe species, of all the related heliconias. Rodolfo researched the type specimens and descriptions of all the Panamanian species in Section Barbatae, and two Colombian species.



A visit with Rodolfo

After some deliberation, Rodolfo chose to publish with PhytoKeys, a relatively new peer-reviewed online botanical journal. Digital publishing of new species is now accepted by the *International Code of Nomenclature for algae, fungi, and plants*. (ICN). Another new rule change allows English, or the traditional Latin, to be used for the validating diagnosis - the succinct description of how the

new species differs from all others. These two changes made in 2011 have greatly eased the publication of new species of plants, and the dissemination of information about rapidly-disappearing ecosystems.

Finally, after much collaboration via Google Docs, we three authors were satisfied with the article. We celebrated when PhytoKeys accepted our work! But we weren't done yet. The article was now sent to two botanists for peer review, and their job was to poke as many holes in our work as possible! Rodolfo had done a complete job, and rather than finding fault, the reviewers gave us useful suggestions. We rushed to complete the improvements in the one week allowed. Then they gave us just two days to proof the final layout – and good thing, too – we made plenty more corrections! Rodolfo kept us on track through this series of deadlines, communicating with PhytoKeys in the specialized digital format they required. The final two weeks felt like a marathon.



Recently cleared pasture with Cerro Chucantí in the distance

Last but not least, with the final article ready, one more collaborator came into play: HSI member Roy Maduro donated the publication fee during the conference in Brazil. Because of online publishing, the cost is less than printing a paper edition, but even so, it was an important contribution. Thank you, Roy!



*Heliconia berguidoii* flower with scale bar



*Heliconia berguidoii* mature plant

Because of the recent modernization to digital publishing, the whole world, not only an academic few, can see the entire article as easily as visiting the following website (or searching for “phytokeys heliconia”): <http://phytokeys.pensoft.net/articles.php?id=11190>



Authors Carla Black and Rodolfo Flores

Flores R, Black C, Ibáñez A (2017) A new species of *Heliconia* (Heliconiaceae) with pendent inflorescence, from Chucantí Private Nature Reserve, eastern Panama. *PhytoKeys* 77: 21-32

## *Alpinia* breeding at the University of Hawaii

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### Introduction

*Alpinia* is the largest genus in the family Zingiberaceae with over 225 species distributed from India and China eastward into the Polynesian Islands. *A. purpurata* is a perennial, unbranched, erect shrub up to 13 feet tall, arising from an underground rhizome. The leaves are often up to three feet long and six inches wide, glossy and dark green, with slight ridges along the veins, and have a strong and distinctly lighter-colored midrib. The flower spike consists of numerous large, open, bright red bracts, many accompanied by an inconspicuous, narrow, inch-long, white flower with a narrow lip. The inflorescence is erect if short, but droops if long. New plants are initiated and develop to considerable size among the flower bracts. Vegetative propagation is by division of the rhizome or rooting the aerial offshoots produced in the axils of the inflorescence bracts.

The chief commercial cutflower among all ginger species is the red ginger (*A. purpurata*), which occurs in the Moluccas to New Caledonia and Yap and is now widely distributed across tropical and subtropical areas. It is the most widely grown ginger in Hawaii for the cut flower trade.

Ornamental gingers have been grown in Hawaii for many decades as garden plants and for cut flowers. Only since 1980 has the growing demand for exotic cut flowers brought ornamental gingers to prominence (Criley, 1995). In 2015, the state of Hawaii's total wholesale value of sales by more than 40 commercial growers was \$615,000 on sales of 279,000 pink and 644,000 red stems. This is less than half the sales value of \$1.4 million in 2002. Most of this production is on the high rainfall windward sides of Oahu, Maui, and the island of Hawaii.

A ginger breeding program at the Northern Territory Department of Primary Industry and Fisheries in Darwin, Australia, introduced seven improved cultivars to Australian growers after 40 seedlings were evaluated for yield, vase life, stem length, and overall appeal for cut flower use (Hoult and Marcsik, 2000). These plants, collectively known as "The Darwin Collection," are progeny of the cross 'Jungle King' x 'Jungle Queen'. Doris Marcsik generously provided two rhizomes each of six of these new cultivars for our evaluation and potential introduction in Hawaii, for which we are very grateful.

### Materials and methods

Rhizomes of the six Darwin Collection hybrids ('Darwin Dolly', 'Darwin Sunset', 'Darwin Lady', 'Darwin Dawn'

'Dawn', 'Darwin Desire', and 'Darwin Princess') arrived from Australia in February, 2000. They were grown and increased in one-gallon pots, in a peat-perlite medium (50:50) at the Magoon Research Facility of the University of Hawaii at Manoa.

Concurrently, similar size plants of the most widely grown local selections of *Alpinia purpurata* were obtained for comparison with the Darwin hybrids. These included 'Jungle Prince' and 'Jungle Princess', bred from the same parents as the Darwin hybrids and introduced by the Lyon Arboretum of the University of Hawaii. Other hybrids, produced by Mrs. Ginoza in Hawaii from the cross of 'Eileen McDonald' x 'Jungle Queen', were 'Kimi', 'Kazu', and 'Raspberry'. The common red ginger, 'Eileen McDonald' (a pink sport of the common red ginger), and 'Jungle King' were included in the 14-cultivar evaluation.

Field planting was done in ground beds of a clay soil which had two inches of organic matter tilled into the top eight inches. This substrate tested high for the nutrients P, K, Ca, and Mg. The pH was 6.9, and the electrical conductivity was

0.5 mmho/cm.

Four plants each of the Darwin hybrids and two or three plants each of the other cultivars were randomly planted in these beds at the Magoon facility in November, 2001. At planting time each plant had three or four immature stems. The planting density was 10 sq ft per plant.



*Alpinia* 'Sophia', common red X ('Jungle King' X 'Jungle Queen')

Ammonium nitrate was broadcast at one pound per 100 sq ft after planting, and this fertilization was repeated four months later. Irrigation and pest management followed general commercial practices.

Yield and postharvest data on market quality blooms (1 m stem length) were collected as soon as the plants came into

flower (April, 2003) and continued for five months and a week. Flowering stems were harvested once a week, and data were recorded on the number of stems harvested from each of the 14 cultivars. Harvested flowering stems were held in clean, fresh water in buckets at 71° Fahrenheit and evaluated three times per week using the criteria described by Chantrachit and Paull (1998). End of vase life was recorded when a score of three or greater was reached according to their scale for vase life criteria (Table 1).

**Table 1. Scale for assessing vase life. \*Flowers were regarded as unmarketable when the score was 1 for center browning, or 2 for drooping bracts, and the end of vase life when the score was >3 for center browning, or 4 for drooping bracts.**

Score*	Symptoms
0	No senescence symptoms
1	Center discolored, < 5% of total browning, or tips starting to bend away from axis
2	5-10% of total bracts browning, or tips bending away from the axis <30°
3	20 to 30% of total bracts browning, or tips bending away from the axis <90°
4	30 to 50% of total bracts browning, or tips bending away from the axis >90°

### Results and discussion

**Yield.** Yield is reported on a per plant basis for the five-month period (Figure 1). ‘Eileen McDonald’ was the highest yielding cultivar in the trial, followed by the common red ginger. ‘Darwin Sunset’, ‘Kazu’, ‘Darwin Princess’, and ‘Jungle Princess’ had yields equal to or greater than the mean yield of the 14 cultivars. Yield data from such young plants are understated compared to commercial expectations from mature plants, but we think the comparisons between cultivars may be valid. Criley (1995), in his work on red ginger nutrition, reported third-year yields to be higher than both previous years’ yields.



*Alpinia* ‘Miri’ (‘Raspberry’ X ‘Darwin Sunset’)

**Postharvest life.** ‘Raspberry’ had the best postharvest life at 20.8 days, followed by common red (20.6 d), ‘Darwin Princess’ (19.4 d), ‘Eileen McDonald’ (18.9 d), and ‘Darwin Dawn’ (18.5 d). ‘Jungle King’ and ‘Darwin Desire’ also had vase life equal to or slightly better than the mean postharvest life for the 14 cultivars (Figure 2).

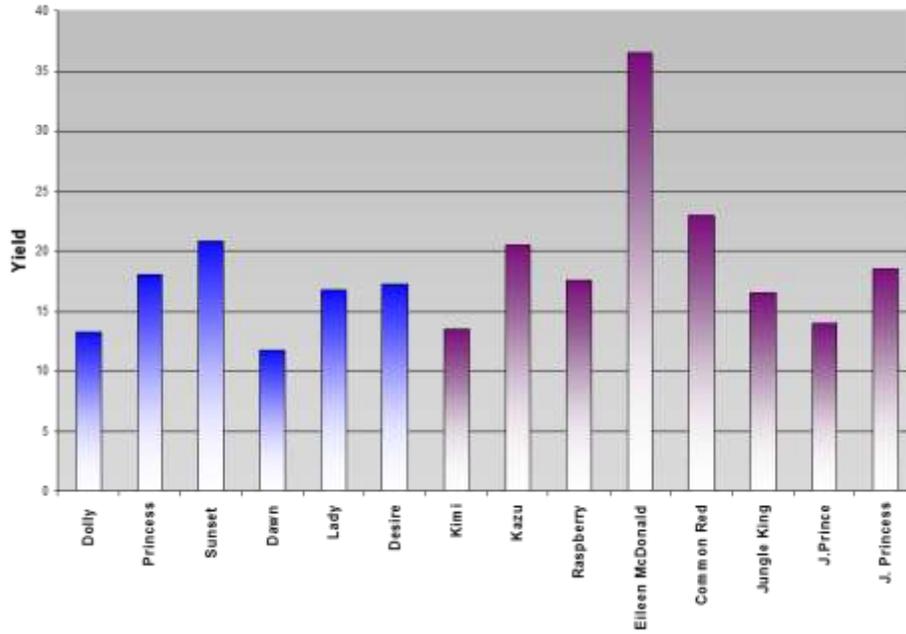
No artificial vase life extenders were used because we wanted to assess each cultivar’s inherent postharvest characteristics; however, growers should be aware that substantial vase life extensions of up to 160% for pink and up to 190% for red ginger have been demonstrated with benzyladenine sprays of 200 mg per L (Paull and Chantrachit, 2001).



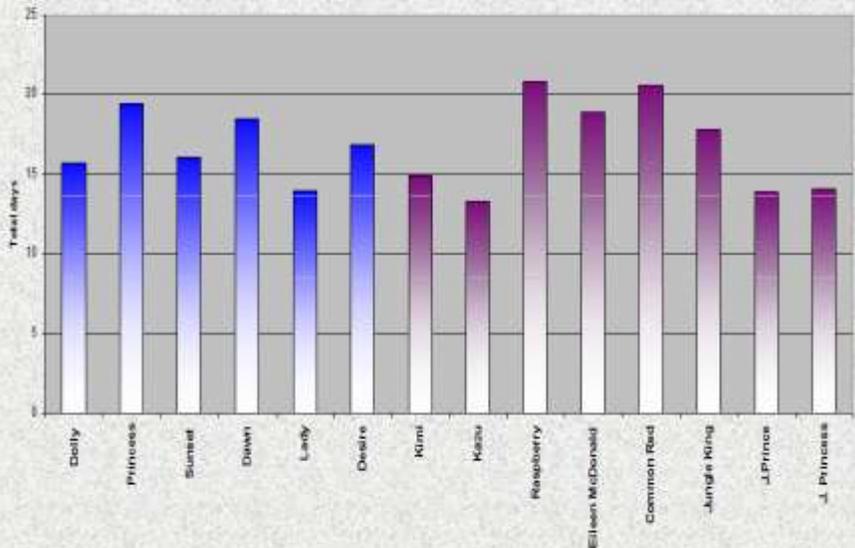
*Alpinia* ‘Adrien’ common red X (‘Jungle King’ X ‘Jungle Queen’)

The small sample sizes and the short duration of the trial with first-time flowering plants did not allow for meaningful statistical analyses of the data. However, we think all of the Darwin hybrids performed well in this trial and were worthy of introduction to Hawaii growers for their observation. Although the color range of the Darwin hybrids, light to dark pink, is similar to the color range among local cultivars we think there are advantages to growing multiple cultivars. Over time it may be determined that certain cultivars have unique qualities or specific peak flowering periods, or extended flowering periods that may benefit local producers. We are also proponents of integrated pest management strategies, and we recommend genomic diversity as one means to counter pest and disease epiphytotics. Accordingly, we distributed about 500 plants to local growers through the Maui Flower Growers Association and through Cooperative Extension Service agents on each island (Caines and Leonhardt 2005).

**Figure 1. Average Yield Per Plant** (4-11-03 thru 9-18-03)



**Figure 2. Average Post Harvest Life** (4-11-03 thru 9-18-03)



**Breeding the next generation of *Alpina***

With our interest in variety development and having this collection of diverse germplasm, the temptation to make crosses was irresistible. In 2004 ten controlled crosses produced 284 seedlings that were grown in 1-gallon pots until they were field planted in 2006 at the University of Hawaii Research Station at Waimanalo, Oahu. Over the next 7 years these seedlings were evaluated and culled to about half, then the remaining selections were evaluated again and culled again, and so on until in 2014 there were 12 selections planted to a new field for increase. The intention was to distribute them to interested growers in 2016. However, in 2016 Zhang et al. confirmed that Banana bract mosaic virus (BBrMV) had spread to several farms on windward Oahu, including Waimanalo. It was decided to withhold distribution until more is known about this virus. See Leonhardt and Ogata (2016) for additional information about virus diseases on ornamental ginger on Oahu.

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Ten *Alpina* hybrid populations, 284 hybrid seedling plants at the University of Hawaii Waimanalo Experiment Station



Dried *Alpinia* inflorescence with mature fruit



Mature *Alpinia* fruits and seeds

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*Alpinia* 'Pierce' ('Raspberry' X 'Darwin Sunset')



*Alpinia* 'Georgette' with branching inflorescence, shown by Georgette Leonhardt Leach  
Common red x ('Jungle King' x 'Jungle Queen')

# More images and memories from HSI BRAZILIAN CONFERENCE 2016



## Brazilian Post-Conference Tour

continued from HSI 22(4)

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Photos by Steve Sarner and Carla Black

11 Nov 2016

After the Conference, the following attendees did not go on the Post-Tour: Christine from Australia, Ravi and Minal from India and Richard from the US. Also, since Lyn and Bronwen from Australia had their commercial tour package fall through, they joined us for only the Rio portion of the Post-Tour.

Today was a travel day to Rio de Janeiro with a stop at Paraty for lunch. The bus ride was uneventful, but Paraty was hot. We made it down to the harbor where the local high school band was playing "My Way." A stirring performance with trombone and coronet solos, but slightly out of tune. The band followed that up with "Beethoven's Ninth." Another original rendition. For decorations, the local recyclers had some interesting sculptures. The little harbor was full of boats for charter. We wished there



Recycling bottles in Paraty

was time to hire one and explore Ilha Grande, a large undeveloped island in the bay, for a day or two. Wikipedia describes it as:

Ilha Grande is one of the most pristine remnants of Brazil's Atlantic rain forest making it one of the richest ecosystems in the world. As a hot spot for biodiversity and conservation, it holds some of the largest remaining populations of many endangered species. The seas around the island, which are also protected, feature a unique convergence of tropical, subtropical, and temperate-zone marine life, and may be the only waters in the world where it is possible to see corals and tropical fish along with Magellanic penguins and southern right whales.

Cheryl decided to skip lunch and had us worried for a while until she called (still haven't figured out how she did that) and we arranged a reunion. The rest of the day we drove by large untouched sections of the Atlantic forest (the urge to explore was strong indeed) until we entered the urban sprawl of Rio de Janeiro. We were in the hotel in Copacabana shortly after 1700.

12 Nov 2016

We started out the morning with a visit to the Rio Botanical Garden and a new addition to our motley crew:

Ana Cecilia Castro from Brazil, the missing member of the gang of four organizers. Your humble correspondent liked the garden a great deal. There were many very large trees as the garden is over 200 years old. The cycad and bromeliad collections were highlights. The afternoon was spent at Roberto Burle Marx's Garden. This was a real treat. Again, many of the trees were quite old and very large. There were mass plantings of bromeliads and anthuriums as well as a few heliconias. We did find a ginger no one could identify. Unlike the previous night's pasta and rice dinner, tonight was a meat lover's dream with mixed grill, perfect for your neolithic journalist's paleo diet.



Margie doing pullups on a *Sterculia* buttress root in the Rio Botanical Garden

13 Nov 2016

Today started out rainy, but Margie and Carla still wanted to walk along Copacabana beach. Your ignoble correspondent was going to guard them from would be muggers, but a few drops deterred him. Besides, what kind of mugger would be out in the rain? None, as it turned out, only a few brave bathers (and beer drinkers?) on the beach.



View from main house at Burle Marx garden

When we got on the bus, we discovered Ana Cecilia from Brazil had left us after only two days? We decided to postpone the trip to Corcovado until the afternoon due to the rainy weather and go to Sugar Loaf first. It was raining there too, but we still hoped that being lower in altitude we could still see something. No such luck. The cloud bases were below the top of the lower peak and did not lift. After peering into the gloom for an hour we had lunch then



Ironwood Lane at Burle Marx

called it quits for the day and we each went our own way. It was a needed rest.

Just before dinner, your humble diarist discovered he had caught conjunctivitis from one of the numerous young children on Sugar Loaf. This is on top of the normal "bus tour flu" so common on these trips. After ten days on the bus, the cacophony of coughing had reached a peak. Now, what to do about the pink eye.



Unknown Zingiberaceae sp. at Burle Marx garden

14 Nov 2016

Gilbert and Laurretta from South Africa and Lyn and Bronwen from Australia all left the Post-Conference tour today. Also, today we acquired a second bus driver, a sign of long days to come.



Another rainy day at Gil's fazenda

Start to finish today we were on the bus for over 12 hours. Except for two delightful hours at Fazenda Boa Esperança, the farm of Gilmenia Menzel. Gil has over 1000 hectares near the coast north-east of Rio. At 27 meters above sea level, it is normally quite hot. Today, in the continuing rain, it was very comfortable. She specializes in palms with around 700 species. Her Zingiberales collection is very basic, but I think our visit will inspire her to change that. After an excellent lunch

and a drive-by mugging by Carlos, stealing fruit from our hostess, it was back on the bus to go to the hotel in Nova Guarapari.

The hotel was not used to groups of our size, diminished as we were. Water, internet, dinner and electricity were all intermittent. But, the rooms were big and clean, the beds were softer than others we've had and we were only

staying one night, so no problem - until strange shapes appeared out of the darkness. First, Vivian was running up and down the halls naked. Yes, you read that correctly (Fig XXX - censored). Then, Marianne shows up in the dining room wearing her nightgown. Kind of like the "Rocky Horror Picture Show."

At dinner, perhaps stimulated by her exercise, Vivian asked your humble astronaut to regale the assembled multitudes with tales of his flying prowess. Thirty seconds later the conversation moved on to something else. This group is so fickle.

15 Nov 2016

Time again for a long day on the bus. This time to Linhares. After arriving at the hotel, we went to the Vale Nature Reserve. This is part of a huge land tract owned by a mining company. The company selectively cleared the land to use the iron wood for rail ties. A few small sections were left almost intact. We visited a palm preservation area where they had two palms of each species in their collection. When they announced we could collect fallen seeds, the race was on. Afterwards, we hiked 1.735 kilometers back to the reserve's hotel and our waiting bus. The trail twisted a lot through dense forest and some of us perhaps felt lost. The relief upon seeing the hotel was evident on many faces. While on the trail we saw a flock of 5 red-billed curassows on the ground and tapir tracks. Where there are tapirs, there are usually jaguars, a fact I kept to myself.

16 Nov 2016

Today was a long bus ride to Porto Seguro. Along the way there were granite outcroppings similar to the ones in Rio. Each outcropping had its own forest around and over it. Other than the odd stream valley, these were the only forests we saw all day. After a while, the granite disappeared and the land was all devoted to agriculture. Pastures for cattle and horses, eucalyptus for pulp, coffee robusta, sugar, manioc, coconuts, passion fruit, papaya and bananas are all grown on a large scale. Our hotel for the next three nights was on the beach and full of young people, often with younglings. The pool was busy till way after sundown and there were bare feet and flip-flops running up and down the halls till late in the evening. At least they kept the screaming to a minimum. At dinner, Vivian voted your exhausted contributor the most likely to sleep



Carlos stealing food from our host, notice concealing facial hair

on the bus. There were other most-likelys, but I was too busy pouting to notice.

Your confused interpreter had a moment of heightened confusion today. You see, we drove into a different time zone. Driving from west to east, I expected the time to go forward from 1700 to 1800. Not so. It went backward from 1700 to 1600. Oh no. Does Spock have a beard in this reality? 30 seconds on Wikipedia ended the confusion. The daylight savings time zone of Brazil is shaped like an inverted U with the main population centers in the middle. So if you go from west to east at latitude 15S in the summer, the time will change from 1600 to 1700 and back to 1600. Time zone boundaries should go from north to south, not west to east in the form of a sine wave, if for no other reason than to save space in the HSI bulletin.

17 Nov 2016

Today was a day to release the built up-pressure to shop. The pressure has been rising for two weeks and Carlos was getting into dangerous territory. I hate to think what might have happened had Carlos not relented. Oh, and we had a very enjoyable fish lunch at the beach. Carlos appeared clean-shaven today for the first time. The motivation for this is not clear.



Oh ya. We did botanize on the beach for about 30 minutes.

18 Nov 2016

Who knows what we did today. Your disoriented interpreter is so confused. Is this a botanical tour or a "shop till you drop" tour? No, it's a day at the beach. Dinner was excellent with a choice of filette mignon or fish. Afterwards, we thanked our bus drivers.

19 Nov 2016

Today was a flight back to GRU, Sao Paulo where we all parted company.

So there you have it. The 2016 HSI Conference in Brazil, warts and all. If your totally accurate recorder got any significant facts in error, that's why it's called "Two Beer Minimum."

## HSI Member Profile: Sherry Ballester

### When did you join HSI?

I joined HSI in August 2004, but had been a member of the Heliconia Society of Puerto Rico since 1987.

### What is your professional position?

I worked as an English teacher for several years, but later quit the classroom for the farm, dedicating many more to the study and practice of Horticulture. As a mother of

three, it was hard to go back to college for another degree, so I acquired - and carefully studied - lots of wonderful books on tropical fruits (my original interest), and many other books about different ornamentals that could be successfully grown in the tropics. In 1987 I was invited to join HSPR by the late Bob Lankford and his amazing wife, Martita, and the world of Zingiberales was opened to me; I was in awe!

### What is your work with Zingiberales?

I've always had a habit of not throwing seeds away, especially fruit seeds. I started planting heliconia seeds as soon as I became aware of their existence! After some challenges, I was able to see wonderful results, many of which were new forms, which I registered as cultivars. I was elated when *H. caribaea* 'Bonnie Kline' first flowered, and then, successively, *H. chartacea* 'Columbine', and the very beautiful seedlings of 'Mexican Gold' that were named: 'Bleeding Heart', 'Coral Surprise', 'Doña Aida', and 'German's Luck'. A few other beauties (and oddities) later surfaced and will be registered, eventually.



Sherry Ballester with *H. longissima*

### What have been your greatest challenges?

Hurricanes have always been a challenge for growers in Puerto Rico. There's uncertainty every single year, from July through November, about what can happen. The last big one was Hurricane Georges, back in 1998. It leveled many areas and was particularly damaging to agriculture. We lost hundreds of trees.

### What are your hopes for the future?

I'd love to see our agriculture flourish in every aspect, and see more young people interested in farming organically. I hope to see many more tropical fruits in the local markets and beautiful tropical flowers at florist shops. More people recycling and really caring about the environment would also be good!

## Brazilian Heliconias: *H. rivularis* L. Em. & Em. Santos

Carlos Eduardo Ferreira de Castro<sup>1</sup>, Charleston Gonçalves<sup>1</sup>, Vivian Loges<sup>2</sup>, Ana Cecília Ribeiro de Castro<sup>3</sup>

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Among the several heliconias naturally occurring in Brazil, one of the lesser known is *H. rivularis*, a hybrid between *H. farinosa* Raddi and *H. spathocircinata* Aristeg. The fact that it is not more widely known is possibly due to its circumscription in small populations (3 to 10 clumps) and local endemism. Small populations can be seen on the north coast of the State of São Paulo and on the southern coast of the State of Rio de Janeiro, specifically between Ubatuba/SP and Paraty/RJ, in a radius not exceeding 50 km. However, *H. rivularis* was also found both in the municipality of Rio Bonito and in the Tijuca Forest in Rio de Janeiro. One locality can be considered as an exception, with a population of more than 200 individuals, found in Ubatuba-SP, on the border of the road between Red Beach and Cedro Beach. This population was recently visited by participants of the 19th HSI Conference held in Brazil.



*Heliconia rivularis* in Ubatuba

ters in height, about 6 leaves per stem, petioles 60 to 80 cm long, glabrous to slightly hairy, more concentrated at the base. The green leaves are 85-95 cm long and 26-30 cm wide, slightly hairy on the upper surface.

This hybrid occurs at altitudes from sea level up to 300 meters, mainly in secondary vegetation on the edges of humid forests, always in association with populations of *H. farinosa* and *H. spathocircinata*.

*H. rivularis*  
Sect. Farinosae  
was described  
as a musoid  
plant, 2 to 3 me-



*Heliconia rivularis*

range internally, slightly hairy. The flowers, 10 to 16 per bract, are intense yellow, slightly curved. The staminode is lanceolate with a caudate apex. The remarkable characteristics of the species are the broad, slightly hairy bracts and the contrast of the bright red bracts with the intensely yellow flowers.

*H. rivularis* develops well and blooms in places of moderate shade and is recommended for gardens. The inflorescence has little post-harvest durability, as the bracts darken rapidly.

Due to its vulnerable status in the red list of endangered species, the Agronomic Institute (IAC-SP, Brazil) has promoted its propagation through the division of rhizomes and distribution of propagating material to traditional communities in Ubatuba, such as indigenous villages, “quilombolas” and “caiçaras” groups for the recolonization in its areas of natural occurrence.

### HSI Photography competition

HSI is pleased to announce the next category for photographs of flower arrangements: Zingiberaceae in floral arrangements. Submit entries by May 1<sup>st</sup> to [cocolins@plantgroupshawaii.com](mailto:cocolins@plantgroupshawaii.com)

Voting on entries for the first category, Heliconia Arrangements, has closed, but entries are viewable on our Facebook pages, where voting for the next series will begin in May:

To vote on an entry the link is [https://www.facebook.com/pg/HeliconiaSocietyInternational/photos/?tab=album&album\\_id=1394777907264079](https://www.facebook.com/pg/HeliconiaSocietyInternational/photos/?tab=album&album_id=1394777907264079). Or go to <https://www.facebook.com/HeliconiaSocietyInternational/> and click on the album, 'Photo Contest'.

The inflorescence is erect and short-pedunculate, 30 to 40 cm long with a red sinuous rachis, slightly hairy, internodes 0.5 to 1.5 cm in length. Persistent bracts, 6 to 15 per inflorescence, are spirally arranged. The bracts are inserted in an angle of 25 to 75° to the axis of the inflorescence, are dark red externally,

## HSI Member Profile: Vivian Loges

Bachelor Degree in Agronomy in 1992, Master Degree - M.Sc in Agronomy – Entomology (1996) and Doctor Degree - Ph.D. in Genetic and Plant Breeding (2001), all from the Federal Rural University of Pernambuco (UFRPE), Brazil

### When did you join HSI?

I first used the HSI bulletin in 1999 to write a project with heliconia, and I joined the society in 2012 to participate in the Panama conference.

### What is your professional position?



Since 1999 I'm professor of Floriculture, Ornamental Plants and Landscape Designed as well as Postharvest Technology to graduate students of Agronomy at UFRPE. I act as Advisor and Major Professor of Master and Doctoral students in the Postgraduate Program of Genetics and Plant Breeding (since 2003) and I'm responsible for the course of Tropical Flowers and Plant Breeding.

I have been a member of the International Society of Horticultural Science since 2005 and organized the X International Symposium on Postharvest Quality of Ornamental Plants (2012), and the Ornamental Horticulture in the Global Greenhouse and Tropical Ornamentals Symposia (2014). Recently I was an organizer of the XIX Heliconia International Conference in Brazil, November 2016.

### What is your work with Zingiberales?

My main research subject is tropical floriculture in the northeast part of Brazil. Over the last 16 years the group I work with is conducting a program of characterization and development of new tropical flower crops, mainly with genera *Heliconia*, *Alpinia* and *Etilingera*, focusing on cut flowers and ornamental plants.

### What was your initial attraction to Zingiberales?

A few years after I got married in 1996, I decided to make a tropical garden at my house. The most beautiful plant I knew of, with big leaves and tropical appearance, was a banana. So I planted one in my small garden, near the house, almost under the roof! It began to grow, and then grew a lot, reaching the roof. Because of the shade the plant looked for sun and started to fall toward the street. Finally, it emitted a bunch of bananas! Wow! The very day we decided to cut it and enjoy the fruit, someone removed it before we could. That day I gave up having a banana plant and decided to look for other plants with the same appearance - but smaller and without bunches of bananas. A few years later, in 1999, I started to give classes on floriculture and landscape design. That was when I discovered the Heliconiaceae family and other plants of the order Zingiberales. At that time I was a Doctoral student and I submitted my first project on heliconia characterization as cut flowers. Simultaneously, the state of Pernambuco was starting to develop the cultivation of tropical flowers, mainly because of the course given by Dr. Carlos Castro demonstrating the potential of those species as cut flowers and the viability of producing them in Pernambuco. At this time we didn't even know each other! In 2003, with the support of tropical flower producers, mainly Maria do Carmo F. Texeira from Mumbecas Tropical Flowers Farm and Mario F. A. de Castro and Ana Cecília R. de Castro from Bem-Te-Vi farm, I was able to plant the first research area to characterize heliconia species for use as cut flowers! Nowadays Carlos Castro, Ana Cecília R. de Castro, Charleston Gonçalves and I work together developing research projects with Zingiberales in different parts of Brazil.

### What is your favorite in the Order?

Is difficult to say - I would like to study all of them! Especially Marantaceae for landscaping in shady places and costus as cut flowers, foliage and ornamental plants. But the most challenging project to me is to start crossing heliconias to develop cultivars more appropriate for export. I'm upset that many farmers in Brazil have given up producing heliconias as cut flowers, and that I observed only a few in arrangements on my recent travels in Europe.

### What do you hope to accomplish?

In order to make Brazil, mainly Pernambuco, an exponent of heliconia cut flower production, it is necessary to select *Heliconia* cultivars more appropriate for export. We are studying floral biology to make crosses, the first steps in breeding studies. We intend to look for cultivars with year-round production, market acceptance, long lasting post-harvest durability, low maintenance requirements, better market price, adequate inflorescence packaging considering size and weight and the novelty aspect of the inflorescence. Of course, all of what I have done, and intend to do, is possible only with the help of my university (UFRPE), my students (I would like to say everyone's name!), the Zingiberales research group - Carlos, Cecília and Charleston, and our partnership with the farmers. Thanks to everyone!

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