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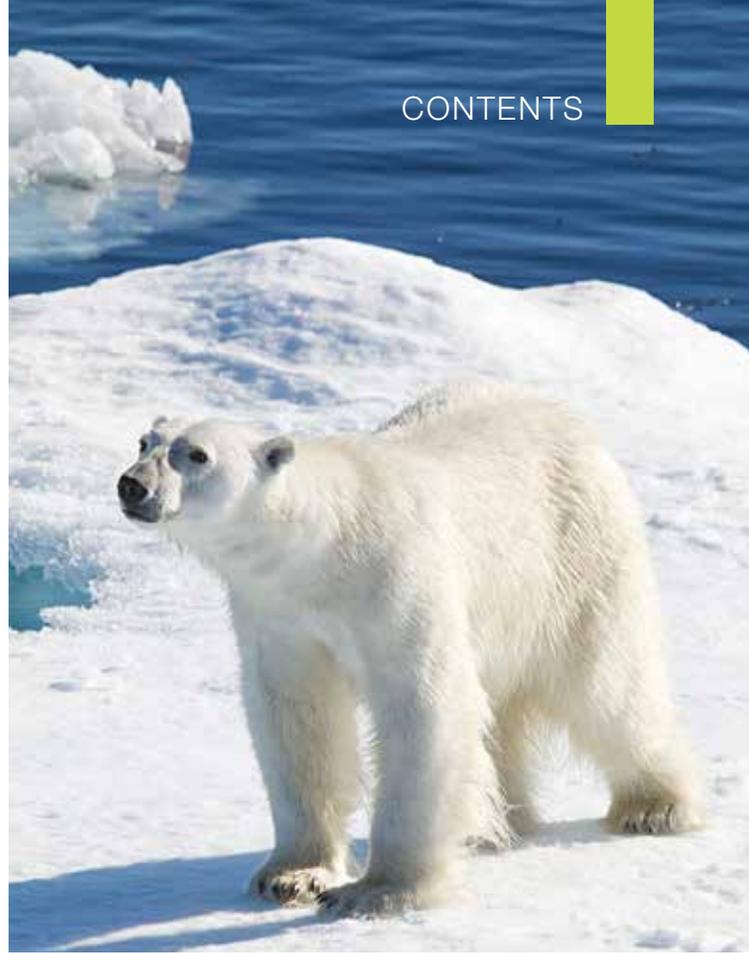
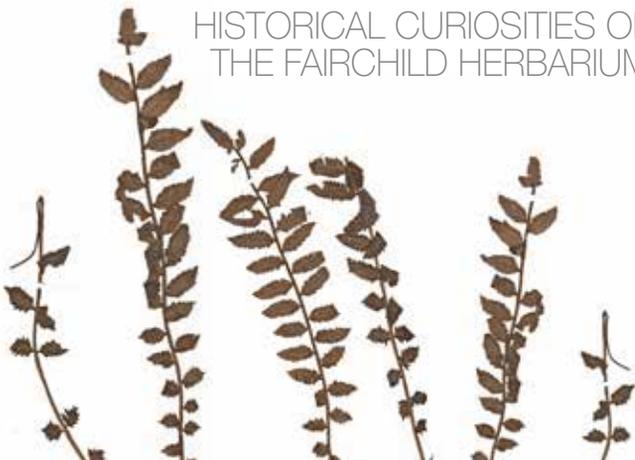


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45 SUMMER IN THE ARCTIC

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As we enter our busiest season of the year, I am thankful that our Garden is open, fully operational, and looking great. The impacts of Hurricane Irma, while still visible, are already beginning to fade. Throughout the Garden, there is a flush of new growth and an invigorating sense of renewal.

Three months ago, Hurricane Irma brought 30 hours of strong winds through Fairchild. A succession of powerful gusts toppled 78 large trees and ripped branches from hundreds of others. After the storm, a thick layer of plant debris made the Garden impassable and unrecognizable in many places. The lowlands were flooded with salt water.

In our first assessment, climbing through the debris the morning after the storm, we were pleased to see that our valuable palms and cycads were mostly undamaged. The iconic specimen trees, including our large cannonball tree, rainbow *Eucalyptus*, giant *Albizia*, and baobabs, were all still standing.

We immediately took every possible measure to save damaged plants, propping trees, removing debris from understory plants and hand-watering specimens that were exposed to salt and post-storm drought. At the same time, we worked rapidly to make the Garden safe and accessible. As a campus for the BioTECH @ Richmond Heights high school and a venue for many classes and community events, we could not remain closed for long.

As soon as Old Cutler Road became passable, community members began assembling outside the gate, eager to help. We were overwhelmed with outpouring of enthusiasm and generosity, with more than 225 volunteers stepping forward to remove debris and help save plants. Donations to our Hurricane Irma Relief Fund helped us hire teams of professional arborists. With the incredible help of our community, Fairchild reopened less than two weeks after the storm.

We have now started adding plants to the newly created gaps in the landscape. Dr. Chad Husby, Fairchild's botanical horticulturist, and Brett Jestrow, our herbarium curator, are now returning from a month-long trip through Thailand that yielded hundreds of exciting new plant accessions. Within a year, we will see those new plants growing, flowering, and becoming an increasingly visible part of our landscape.

Our founders were well aware of the destructive power of hurricanes. When Fairchild opened in 1938, the deadly hurricanes of 1926, 1928 and 1932 were fresh memories. Nevertheless, they strategically placed the Garden in the most consistently frost-free part of the continental United States, adjacent to a growing city. Here, we can grow an astonishingly diverse selection of tropical plants, engage a vibrant community of more than 6 million people, and serve visitors from all over the world.

We will continue to experience hurricanes from time to time, but our ability to recover will be an important measure of our success.

Thank you for supporting us through our challenges as well as our triumphs. I look forward to seeing you in the Garden as we regrow.

Best regards,

A handwritten signature in black ink that reads "Carl E. Lewis". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Carl E. Lewis, Ph.D.
Director



Brett Jestrow, Ph.D., is Fairchild's herbarium curator, a position he has held since 2010. Originally from Northern California, he completed his doctorate through the joint program of Fairchild and Florida International University. Jestrow regularly holds workshops and teaches university courses utilizing both the Herbarium and the DiMare Science Village. Using anatomical and molecular methods, Jestrow seeks to understand plant diversity while actively collecting plants for both science and horticulture.



Kenneth Setzer joined Fairchild as a writer and editor with the marketing team in 2013. He contributes to print and digital media. Setzer enjoys writing about natural and human history and is an enthusiastic outdoor photographer. His educational background is in linguistics.



Georgia Tasker was the garden writer for *The Miami Herald* for more than 30 years, and now writes and blogs for Fairchild. She has received the Garden's highest honor, the Barbour Medal, and a lifetime achievement award from the Tropical Audubon Society. She is also an avid photographer, gardener and traveler. She graduated cum laude from Hanover College in Hanover, Indiana.



Chad Husby, Ph.D., has been Fairchild's botanical horticulturist since 2015. He focuses on international plant exploration to enhance the Garden's collections and diversify South Florida horticulture. Prior to joining Fairchild, Husby worked at the Montgomery Botanical Center. He received his undergraduate degree from Alma College, a Master of Applied Statistics from Ohio State University, a Master of Science in horticulture from Virginia Tech and a Ph.D. in biology from Florida International University.

the TROPICAL GARDEN

The official publication of Fairchild Tropical Botanic Garden

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Bailery Palm Glade
Photo by Gaby Orihuela

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January

MOONLIGHT TOUR

Thursday, January 4
6:00 – 9:00 p.m.

SPLendor IN THE GARDEN

Tuesday, January 16
10:00 a.m. – 2:30 p.m.

12TH ANNUAL INTERNATIONAL CHOCOLATE FESTIVAL

Friday, Saturday and Sunday
January 19, 20 and 21
9:30 a.m. – 4:30 p.m.
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February

MOONLIGHT TOUR

Thursday, February 1
6:00 – 9:00 p.m.

GALA IN THE GARDEN

Saturday, February 3
6:30 p.m.

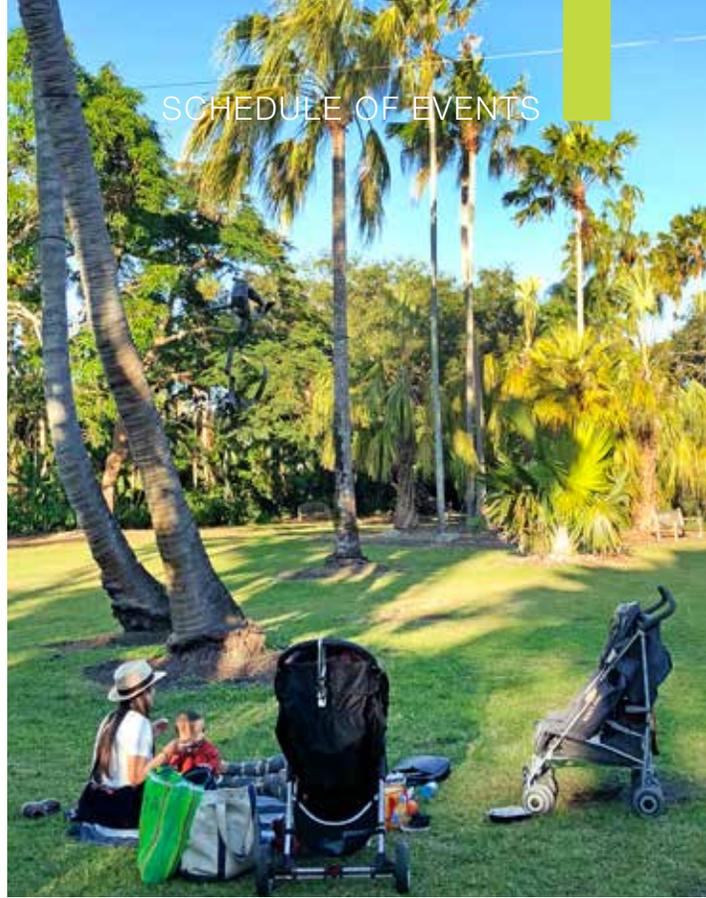
SUNDAY SOUNDS

Sunday, February 4
1:00 p.m.

VALENTINE'S DAY CONCERT AT FAIRCHILD

Wednesday, February 14
5:30 – 9:00 p.m.

SCHEDULE OF EVENTS



March

MOONLIGHT TOUR

Thursday, March 1
6:00 – 9:00 p.m.

SUNDAY SOUNDS

Sunday, March 4
1:00 p.m.

16TH ANNUAL INTERNATIONAL ORCHID FESTIVAL

Friday, Saturday and Sunday
March 9, 10 and 11
9:30 a.m. – 4:30 p.m.

April

SUNDAY SOUNDS

Sunday, April 1
1:00 p.m.

EASTER BRUNCH

By Le Basque
Sunday, April 1
12:00 p.m.

BOTANIC EGG HUNT

Sunday, April 1
10:00 a.m. – 12:00 p.m.

FAIRCHILD ARTISTS IN BLOOM EXHIBITION SHOW AND SALE

Friday, Saturday and Sunday
April 13, 14 and 15
9:30 a.m. – 4:30 p.m.

SPRING GARDEN FESTIVAL AND 39TH ANNUAL SPRING PLANT SALE

Saturday and Sunday
April 14 and 15
9:30 a.m. – 4:30 p.m.

Tours of the Garden

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GET IN ON THE CONSERVATION



Laura Castellano (left) and Manny Santalla (right) working in the plant anatomy lab.

High School Students Perform Plant Anatomical Research

Four high school students from Miami-Dade studied the leaf anatomy of tropical plants during six-week paid research internships this past June 19 – July 28. Laura Castellano of BioTECH @ Richmond Heights, Tianyu Tang of Miami Killian High School, Manny Santalla of the School of Advanced Studies and Jed Warshaw of Ransom Everglades conducted research focused on species of *Plumeria* and related members of the Apocynaceae and Caribbean endemics of the Myrtaceae. The students were mentored by Fairchild graduate students Nichole Tiernan and Jonathan Flickinger, who are working towards their Ph.D. degrees at Florida International University. This initiative is supported by two programs: the Botany in Action Fellowship from Phipps Conservatory and Botanical Garden (Pittsburgh) and the Fairchild Challenge Summer Internship. Both Tiernan and Flickinger received Botany in Action Fellowship program awards early this year.



Research team at Yachang National Orchid Preserve.

Fairchild Orchid Biologist Conducts Conservation Research in China

In June 2017, our orchid biologist, Dr. Jason Downing, returned to China to continue ongoing research related to orchid conservation at Yachang National Orchid Reserve in Guangxi Province. He aimed to train Guangxi University graduate students in orchid micropropagation techniques and orchid mycorrhiza biology (the symbiotic relationship between orchid roots and fungi). His work included experiments testing the effects of temperature on the germination and development of orchids that were translocated out of their natural range. Species included the rare lady slipper orchids, *Paphiodelium hirsutissimum* and *Paphiodelium dianthum*, as well as *Cymbidium aloifolium*, *Cymbidium bicolor* and *Cymbidium tracyanum*.

This initiative was sponsored by and implemented through a grant awarded by the National Natural Science Foundation of China, in partnership with Dr. Uromi Goodlale of Guangxi University, to Dr. Hong Liu, A faculty member at Florida International University and a researcher at Fairchild.



(L-R) William Cinea (director of the Botanic Garden of Cayes, Haiti); Brett Jestrow; and Alan Franck during a plant systematics workshop in Cayes.

Fairchild Herbarium receives grant from the National Science Foundation

In August, the National Science Foundation awarded a grant supporting the Fairchild Herbarium (Dr. Brett Jestrow) in collaboration with the University of South Florida Herbarium (Dr. Alan Franck). Totaling over \$150,000, the grant is part of the National Resource for Advancing Digitization of Biodiversity Collections (ADBC) program, which makes biological specimens freely available online for the research community, government agencies, students, educators and the general public. Fairchild and USF together house the largest collection of South Florida plant specimens, and are recognized as an integral component of the nation's botanical records. Over the next three years, Fairchild and USF will work together to organize the largest online resource about South Florida's flora.



Symposium participants (L-R) Laurence J. Dorr (chair of the Department of Botany and symposium organizer, Smithsonian Institution), Janet Browne (Harvard University), Eliane Norman (Stetson University), Jacques Cayouette (Agriculture and Agri-Food Canada), Pamela Henson (Smithsonian Institution), Megan Raby (University of Texas at Austin), Daniel Stone (National Geographic) and Javier Francisco-Ortega (FIU-Fairchild).

Annual Smithsonian Botanical Symposium Included Talk on Dr. David Fairchild's Plant Exploration

Dr. Javier Francisco-Ortega, a professor in the Department of Biological Sciences at Florida International University and a Fairchild faculty member, delivered a talk entitled "David Fairchild and his Expeditions to the Caribbean Islands" at the 2017 Smithsonian Botanical Symposium. The theme of this year's symposium was "Exploring the Natural World: Plants, People, and Places." The event took place on May 19 at the National Museum of Natural History and the U.S. Botanic Garden in Washington, D.C. During his stay in Washington, Francisco-Ortega also visited the U.S. National Archives at Maryland, where he studied documents pertinent to Dr. Fairchild's trips to the Caribbean Islands.



Baked Taro Chips with Salt

Ingredients

2 medium taro roots—firm,
no blemishes or mushy spots
Olive oil
2 to 3 teaspoons sea salt or
Himalayan pink salt

Directions

Preheat oven to 400 degrees F.

Wash and peel taro.

Cut taro with a sharp knife into
1/8-inch slices; or carefully use a
mandoline to slice the taro evenly.

Brush olive oil on both sides
of the sliced taro.

Place sliced taro on a baking
sheet in a single layer, then lightly
sprinkle with salt.

Bake for 8 to 10 minutes on each
side, or until the chips are golden
brown—this depends on your
oven, so watch carefully.

Let chips cool on the pan for 3 to
5 minutes before enjoying them.

It's in your “taro” recipe cards

By Mary Neustein

Long known mostly to Hispanics, the wonderful tropical tuber the taro (*Colocasia esculenta*) is finally becoming more mainstream. It is part of the starchy vegetable group called “viades” in the Hispanic Caribbean. Taro and its starchy cousins come from some of the oldest root crops throughout the world, which researchers believe were first cultivated throughout Central America and the Caribbean.

High in fiber content, taro also is a bountiful source of nutrients such as magnesium, iron, manganese, zinc, copper, potassium and phosphorus, as well as vitamins A, B6, C and E. The starch in the taro root is easily digested—this is why it is used in baby foods in many countries.

Taro, which is often confused with malanga (*Xanthosoma sagittifolium*), resembles a turnip or rutabaga.

Barrel shaped with numerous rings around its rough, hairy exterior, it has an earthy, nutty flavor and the texture of a chestnut. My favorite healthy way of using taro is to bake it into delicious, crunchy chips. This method brings out the sweetness of the taro, and the crispy texture makes you just want to have one more chip. Taro root can also be boiled and used as a thickening agent for soups, stews and curries.

So why not add this magically delicious taro chip recipe into your deck of recipe cards? 



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The Calm after the Storm

How 225 Volunteers Donated 1,000 Hours of Service to Fairchild and Helped the Garden Reopen in 10 Days

By Niki Saylor

Just 10 days after Hurricane Irma brought its wrath to South Florida, the Garden's gates reopened to the public—thanks to volunteers who generously gave their time, energy and sweat to a massive cleanup effort.

Current volunteers, newcomers and University of Miami students answered the call for help. All told, 225 volunteers gave more than 1,000 hours of service that were crucial to our recovery. They joined staff to pull fallen limbs, pick up palm fronds and rake acres of debris in anticipation of the Garden's September 23 reopening.

A view from the Bailey Palm Glade Overlook on day five of post Irma clean-up. 225 volunteers, from throughout the South Florida community, gave a total of more than 1,000 volunteer hours within a span of 10 days, to reopen the Garden on September 23.



“Of course, one of my first thoughts after Irma passed, was ‘I must help Fairchild restore its beauty,’”

Volunteer Steve Lyn

For some volunteers, the need to help with cleanup was simple—the beauty of the Garden. “Of course, one of my first thoughts after Irma passed, was ‘I must help Fairchild restore its beauty,’” says volunteer Steve Lyn. “It must look the way it should look ... it’s a paradise.” Kathy Jones, who has been a volunteer for 11 years, wanted to help with cleanup in part to give back to Fairchild for what the Garden has given her. “As a Fairchild volunteer, I have always felt appreciated, helpful and useful to the Garden,” she says. “When I receive that type of reception, I want give to the Garden.”

For Glenn Huberman, a volunteer of six years, the motivation to aid in cleanup was more personal. “Fairchild is a home away from home, and it’s a place of peace,” he says. “Coming to help clean up is something tangible I can do to restore tranquility after Irma’s destruction.” A sense of accomplishment was the primary motivation for 16-year volunteer Bill Quesenberry, who came nearly each day of the cleanup and led new volunteers. “After working with a team for a few hours of cleaning debris, it’s a gratifying experience to see what a few hands can do. It gives you a boost!” he says.

Schools were closed the week following Hurricane Irma, so many students came to help the Garden and give service to their community. For instance, student Isabella Lopez and her mother explained that because they had the time, it was important to them to contribute; they also volunteered at a cleanup effort on Virginia Key. Sara Soto, a junior at the University of Miami, came to help as part of UM’s Butler Center for Service & Leadership.

ABOVE

“The Sparklettes,” a self-named volunteer and staff group, bonded while cleaning and polishing glass from Dale Chihuly’s “End of Day Tower” and “Blue Herons” from the Art at Fairchild collection. Both art pieces shine once again and are on view at the Tropical Plant Conservatory and Founders’ Court Pool. (L-R) Mary Neustein, Pat Liberman, Barbara Tria, Felicia Bell, Ulla Kasprzyk, Jean Ross, Maria Pia Guilliolli, Patty Kelly, Cari Eno, and Marnie Valent.

RIGHT

Mimi Schwar, a 10-year volunteer, participated in each day of the post-Irma cleanup. She said she figured she could be hot at home, but if she was going to be hot, she might as well be “...hot in a beautiful place like Fairchild, my home away from home.”





Volunteers and Garden staff worked alongside one another and got to know one another, clearing Garden plots of debris and making new friends, including this box turtle.
(L-R) Staff members Jisell Perez and Amy Padolf with volunteers Karen Steinberg-Lewis and Julieta Jacob.

William Navas, the Garden's visitor experience coordinator, worked on several teams with students. "It was gratifying to see young people with energy and a positive can-do attitude helping the Garden recover," he says.

Incredibly, many volunteers helped at the Garden while still in the midst of dealing with their own post-Irma concerns. "I was amazed by volunteers who were willing to come and put the Garden ahead of their own interests and who want to give to the Garden," says Rosemary Aquino, Fairchild's receptionist and raker extraordinaire, who was in the leaves and branches with many volunteers.

All of the Fairchild staff members were impressed and moved by the volunteer outpouring. "As a returned Peace Corps volunteer, I was so impressed," says Kiki Mutis, Fairchild's education outreach and discovery coordinator. "Volunteers can move mountains if asked and if inspired ... if there is a sense of meaning and greater good. Fairchild is a place of inspiration for me and, clearly, for volunteers as well."

It is not an understatement to say that, without our volunteers' hard work and generosity, the Garden would not have been so quickly restored. Thank you, volunteers! 



Fairchild's New Volunteer Director

Isabel Sanchez brings to the Garden a wealth of experience running volunteer and educational programs

Although she is a native of Cali, Colombia, new Fairchild Volunteer Director Isabel Sanchez has lived most of her life in Miami. Before joining Fairchild, she was Zoo Miami's volunteer manager; before that, she was the zoo's education specialist. Sanchez started Zoo Miami's Conservation Teen Scientist high school student volunteer program, which focuses on increasing conservation and environmental stewardship behaviors among student participants and visitors. As part of this program, Sanchez took a group of students to Costa Rica to participate in a sea turtle conservation project, and took another group to Yellowstone National Park to study bison ecology. She is currently developing a similar program at Fairchild, called Conservation Student Scholars.

Sanchez's early career focused on primates, including work for the DuMond Conservancy for Primates & Tropical Forests in Miami-Dade (the conservancy is Monkey Jungle's science and education affiliate) and at Georgia State University's Language Research Center. At the Language Research Center, she worked with chimpanzees that used a keyboard system with abstract symbols—called a "lexigram"—to communicate with staff and researchers. Her love of wildlife and the environment took her to Equatorial Guinea and Cambodia, where she participated in primate field studies.

Sanchez earned her bachelor's degree in anthropology at the University of Miami and a master's degree in linguistics at Florida International University.

Sanchez is excited to bring her love for volunteerism and passion for the environment to Fairchild.



Dr. Brad Bennett, FIU faculty member, teaches his undergraduate students how tropical plants endure hurricanes.



Master Gardener Glenn Huberman shares his expertise with Garden visitors.

The Show Must Go On

The Garden's Education Mission Keeps up After Irma

By Amy Padolf

During graduate school, I was taught that a good teacher knows how to “monitor and adjust” and is able to find a teachable moment in every situation. September 2017 tested this theory, and we learned that Fairchild is resilient and continues to be fully committed to educating the community.

For the Fairchild Education Team, there is never a slow time, but August and September are especially hectic as we prepare thousands of students and teachers for the program year ahead. This year was no exception. Within the first few weeks of September, our schedule included hosting the 16th Annual Fairchild Challenge Launch Brunch, welcoming our newest class of future botanists from conservation biology magnet school BioTECH @ Richmond Heights, providing

“Together, Fairchild staff, more than 225 volunteers and four crews of arborists from the community tirelessly worked to clean up the damage from Hurricane Irma.”



BioTech students assist in the Hurricane Irma cleanup.

a living classroom for the Florida International University (FIU) Tropical Botany course and inspiring a sea of artists through the fall season of Classes at Fairchild.

And then there was Hurricane Irma.

Irma brought uncertainty—about its long-term impact on our collection, about when we could open to the public and about how we would gather and rally our community to get the academic year underway. Fairchild leadership focused on reopening, deciding quickly that we needed to open the Garden for our community.

Together, Fairchild staff, more than 225 volunteers and four crews of arborists from the community tirelessly worked to clean up the

damage from Hurricane Irma and prepare the Garden for what was to be a busy month. After only seven short days, we were able to open our gates to more than 300 10th, 11th and 12th grade students from BioTECH @ Richmond Heights. Students were eager to help in the restoration efforts, check on their research and ensure that their Garden was intact.

On Saturday, September 23, less than two weeks after Irma, Fairchild was finally able to open to the public—just in time to welcome nearly 400 elementary teachers who packed the Garden House to celebrate the beginning of the program year. FIU Professor Dr. Brad Bennett used the storm as an opportunity for his undergraduate tropical botany students to explore

how tropical plant physiology determines the way a plant is impacted by hurricane-force winds. Glenn Huberman, master gardener and Fairchild volunteer, set up shop outside the Glasshouse Cafe to provide information and assistance for our visitors regarding their own storm recoveries.

Education is mission-critical at Fairchild, central to who we are. And, though Hurricane Irma is now mostly a memory, the teachable moments we found in its wake have propelled our mission forward at hurricane speed. 

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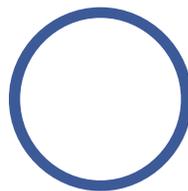
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Hurricane Irma

INITIALLY, IT LOOKED LIKE IT WOULD BE MONTHS BEFORE THE GARDEN COULD REOPEN AFTER THE HURRICANE. BUT DEDICATED STAFF AND VOLUNTEERS GOT IT DONE IN JUST 10 DAYS OF WORK.

By Nannette M. Zapata



On Sunday, September 10, Hurricane Irma made landfall on the west side of the state, sparing the Miami area from most of its power. The Garden weathered sustained tropical storm force winds of between 50 mph and 70 mph, with gusts as strong as hurricane Category 1 and 2—up to 100 mph. Although we were incredibly fortunate and avoided a major hit, the Garden definitely sustained damage. The day after Irma hit, a handful of staff members were able to make it to the Garden. Their initial reactions were grave.

We feared it would be months before the Garden could recover sufficiently for a reopening.

The next day, a Tuesday, the entire Fairchild Hurricane Operations Team made its way to the Garden and commenced the recovery process. They found that recovery and cleanup could move along more quickly than initially assessed. Similarly, our scientists immediately began triaging plant specimens. We directed staff to report to the Garden on Wednesday for cleanup work. Hope flickered.



PREVIOUS PAGE
Volunteers and staff work to clear a path outside the Rainforest Exhibit.

ABOVE L-R
Staff and volunteers prepare to bring butterflies into the Wings of the Tropics exhibition.

A worker clears debris from the storm-damaged Bailey Palm Glade Overlook area.



By Wednesday, the staff, many of them still displaced following evacuation orders or without power, reported to the Garden. We began our cleanup and restoration work. By that evening, 80% of the Garden’s pathways were cleared, and the debris piles along the side of the tram path were growing larger—a clear indication of the amount of rubbish our staff and crews had already moved. Inspiration flared!

All of Fairchild’s buildings were constructed to code for a major wind event, and, therefore, were relatively unharmed. The Clinton Family Conservatory, constructed to withstand 145-mph winds, was entirely unharmed, save one small 3-foot-by-2-foot

panel (which was repaired a few days after the storm). So, Wednesday also saw the release of all of the sheltered butterflies, to the joy and amazement of our staff and volunteers.

On Thursday, the cavalry—Fairchild’s volunteers—arrived and began working. In the morning, there was no way of knowing or delineating the pathway to the Richard H. Simons Rainforest; the Bailey Palm Glade was equally debris-ridden. By Thursday evening, both areas were fully accessible. A revelation unveiled.

On Friday, a full tree survey was conducted, and by the weekend, it was possible to make a full loop of the Garden along the tram path. Determination grew.

“Passion for this Miami oasis abounds, and everyone’s connection to this garden is deeper than ever.”



Cleanup proceeded unabated thanks to such dedication from Fairchild’s staff and volunteers who cleared the way for larger machinery to move in.

The Uplands were 95% cleared by week’s end and—except for previously shady areas that are now sunnier—it would be difficult to know that a hurricane had been through them. The Lowlands, understandably, were hardest hit, since the winds whip heaviest through there. The collection remains wind-torn, but by the end of the week, the majority of the damage was removed.

Our main concern, after the triage process, was irrigation. Thankfully, we were able to secure mobile water trucks and irrigate the more delicate specimens. Our irrigation was back online on Saturday, September 16, just six days after Irma blew through!

We reopened a week later—on Saturday, September 23, at 9:30 a.m. What once seemed months away took only 10 days of work. This was only possible because of our incredible volunteers, staff and tree crews.

We lack not for dedication. Passion for this Miami oasis abounds, and everyone’s connection to this Garden is deeper than ever. It has been an absolutely inspiring and (in many ways) transcendent experience—made possible not just for the love of the plants, but by those who love the Garden. Thank you for your dedication, and for your support of Fairchild! 

Getting to Know Namibia

Once you adjust to its color palette of neutrals, the desert becomes a dynamic series of subtle, wonder-filled, habitats.

Text and Photos by Georgia Tasker







PREVIOUS PAGE

One of Namibia's famous sand dunes.

RIGHT

Aliodendron dichotomum, quiver tree, is really an arborescent aloe.

Greenery-centric people, like me, take some time to sort out a desert. Years of searching through drip-tips and lianas, through green, emerald, sage, chartreuse and olive tend to give your brain certain expectations about scenery. Suddenly processing buff, beige, ochre, wheat, white, brown and yellow means re-tooling the program. Or recalculating, as your car navigator would say.

But once that adjustment has been made, the desert becomes a dynamic series of habitats, subtle beyond belief, their wonders perfectly concealed from untrained eyes.

Namibia, which runs along Africa's southwestern coast, is the home of the world's oldest desert. This arid territory sits atop a granitic foundation

that broke away from the supercontinent Gondwana some 180 million years ago. The life that exists here, and how existence even is possible, are staggeringly confounding for us rainforesters, but oh the wonder that comes to light.

I traveled to Namibia at the close of its winter season, when dryness is most apparent and the rains that can bring flash floods to the central plateau are non-existent. (There is no rain at all in some parts of the country.) So let me be clear: For the most part, making sense of the plant life was like walking through an upright herbarium. Brown, brown and brown.

However, there are some things that can be distinguished, if not easily. For example, there are 25 species of acacias here. Most were not in bloom, so telling them apart in winter season

is akin to finding a needle in a haystack, except that they all have needles. The camel thorn, *Acacia erioloba*, is the most common and widely distributed, and it retains its leaves.

Dollar bush, with its distinctive round leaves, is easy to identify. Its seedpods roll across the backs of dunes like little pinwheels, but when wet, they fold up and release their seeds. Thorn-bearing aloes are altogether more challenging. But the quiver tree, *Aliodendron dichotomum*, is obvious in its great height and topknot of curling succulent leaves.

Pachypodium namaquanum, a succulent called a half-mens (who knows why), is dangerously over-collected. Hybrid salt cedars, or tamarisk trees, are becoming the equivalent of our invasive Brazilian pepper trees.

BELOW (L-R)

A female *Welwitschia mirabilis*.
Fog-collecting beetle.

Mopane trees (pronounced mow-pahn-ee) are easily distinguished because of their butterfly-

shaped, protein-rich leaves that resemble bauhinias (such as the Hong Kong orchid trees). This tree provides the wood used in traditional houses, its resin is used to treat wounds and the mopane worms are eaten.

Perhaps most famous of Namibia's plants is the *Welwitschia mirabilis*, a fossil gymnosperm that is a symbol of the country. Mature plants, some as old as 1,500 years, are found from Namibia up to Angola, and a spectacular *Welwitschia*.

Drive near the coastal town of Swakopmund allows you to view these bizarre plants up close—as long as you stay outside rings of rocks meant to protect them. The female plants were shedding seedpods when we saw them, and the male cones were parched and spent. A peculiar bug, called the cotton stainer, is associated with welwitschias, but bees and wasps probably fertilize the plants. In the Petrified Forest national heritage site, you can walk among





ABOVE (L-R)
A collared hyena mother allows a cub to nurse.
His majesty.



trees uprooted and swept from other parts of the old Gondwana continent by floods some 280 million years ago. Located on a plateau close to the center of the county, the fossil trees often are surrounded with baby welwitschias that may be 50 or 100 years old.

The Desert's Rich Variety of Animals

The sand dunes come in a rainbow of colors: buff, deep red because of their iron content, purple from garnet specks, and sprinkled with black from iron. Winds from the Benguela Current upwelling in the Atlantic Ocean (which brings cold water to the ocean surface) blow constantly, moving some dunes in a northeasterly direction. The wind also blows in fog, which allows many coastal desert flora and fauna to survive in this hyper-arid region.

Famous among these are the beetles that lift their rear ends to collect fog on their hardened outer shells, where it forms droplets that roll to their mouths. Other beetles in the same group have little bumps and valleys on their shells to channel the fog to their mouths.

You must learn to read the sand to learn what lives here and what's going on, rather like reading a newspaper, our guide, Tommy, told us on his "living desert tour" near coastal dunes east of Swakopmud. Watch for signs of movement beneath the sand as well as tracks on top of it, he added.

Blind, limbless skinks live underground, but they are few and far apart. So how do they find each other? By listening to the vibrations of gypsum under the sand, Tommy says. If a desert mole is out hunting, a skink can hear its vibrations and reduce its heartbeat to play dead.



ABOVE
Early evening in Etosha National Park brings elephants to a watering hole.

A spade-snout lizard has enormous back feet for swimming beneath the sand, hunting everything from seeds to beetles. Namaqua chameleons look exactly like the stones among which they hunt. In the desert, it's all about camouflage.

A delicate print is made by the dancing white lady spider, which rolls up into a ball and creates a sand chamber, complete with trap door, during the day. If prodded out by a knowing guide, she unrolls, but not happily. She is said to navigate at night over the desert by using the stars as guides.

Desert-dwelling elephants survive in foliage-rich dry riverbeds during the winter, and leave enormous tracks because their feet are extra-large pads that allow them to walk on sand. They migrate from place to place to find water, and their giant ears regulate their body temperature.

In the northern Etosha National Park, we sat in silence and watched them come at night to a lighted waterhole.

Leopards, cheetahs, black rhinos, Hartmann's mountain zebras (with stripes all the way to the feet), plains zebras (with mostly white legs), giraffes, jackals, spotted and brown hyenas, and antelopes including springboks, rare black-faced impalas, oryx and kudus are all here as well. Bird watching could be another whole trip to this desert.

Our travel group included a couple who had returned to Namibia to camp seven years in a row. By the end of our abbreviated expedition, we knew why. 

Summer in the Arctic (plant) life finds a way

Text and photos by Kenneth Setzer





Among the many hardships of arctic living—cold, wind, darkness, aridity, low nutrition—plants have found many workaround strategies to flourish in unusual ways.

I was fortunate recently to travel to Greenland and Arctic Canada, places on the map I had long pored over and wondered, “What’s it like near the top of the world?”

While most of us are familiar with polar bears and walruses, the plants of the Arctic are usually overlooked—though the fact they cannot hunt or move to better locations, yet still survive, makes them even more remarkable.

Plant strategies for surviving the Arctic make sense: seek shelter from cold, drying wind and stay small. There are even Arctic succulents to deal with low precipitation. Shelter can include growing on the protected, leeward side of boulders and in rock crevices and depressions in the tundra. Perhaps counterintuitively, good snow cover can save plants by providing insulation throughout winter. Low snowfall, easily blown away, can mean death for plant communities.

PREVIOUS PAGES
The town of Sisimiut,
Greenland.

BELOW
Ursus maritimus, the polar
bear, wanders the pack
ice in search of prey.





On my trip, I found rich habitat where soil had fallen from a hillside or dune, leaving a steep but protected area for plants. Moss and lichen are ubiquitous; lichen can colonize bare rock, and where moss takes hold, it lays the foundation for moisture and organic matter to accumulate, providing a micro nursery that lets flowering plants move in.

1 A boulder on the tundra of Dundas Harbor in Devon Island, Nunavut, Canada—on nearly the same longitude as Miami—clearly supports on its sheltered side a mound of diversity including rock tripe lichen (*Umbilicaria* sp.) and sunburst lichen (*Xanthoria elegans*) on the rock itself; as well as moss, white worm lichen (*Thamnolia vermicularis*), Arctic willow (*Salix arctica*) and others on the mound of accumulated soil and detritus.

Another strategy/requirement in the arctic is to stay small, since conditions are warmer and less windy near the soil surface. It's amazing to see willow and birch that are only a few inches tall, at most, creeping along the ground in the high Arctic polar desert. In one depression in the tundra, I observed a miniature willow forest yards long but no more than 2 feet wide.



2



3

- 2 This female Arctic willow has claimed the sheltering base of a boulder in Pond Inlet in northern Baffin Island, Nunavut, Canada.

Some plants adopt a cushion form, which lets them use their own dead leaves as insulation; instead of blowing away, they accumulate and serve to trap warm air and wind-blown organic matter.

- 3 Moss campion (*Silene acaulis*), common in Arctic and subarctic fellfields, is a classic cushion plant. It employs a long, fast-growing taproot to colonize unstable, frost-heaved soil.

Greenland's west coast and Baffin Island's east coast harbor a good deal of plant biodiversity. These areas were ice age refugia—ice-free during the Last Glacial Maximum when the glaciers were at their greatest extent about 26,000 years ago. Species could survive in these refugia, and after glaciers retreated, could spread outwards from them.

Areas under bird nesting sites and near decaying animals are also oases of fertility that support dense plant life. In other locations, tundra soil lacks nutrients; dead plants do accumulate as peat, but only very slowly decay to replenish the soil.

- 4 Cottongrass (*Eriophorum scheuchzeri*), in Ilulissat, Greenland, is a common sight in damp areas and, like other cushion plants, cottongrass collects wind-blown detritus, forming large tussocks that other plants can exploit for the accumulated organic matter, moisture, shelter and stabilized soil.

A neat tactic for attracting insect pollinators is used by mountain avens (*Dryas* sp.) and Arctic poppy (*Papaver* sp.) The flowers of these plants are heliotropic, moving to face the sun. Bumblebees and flies necessary for pollination are attracted to linger a bit longer in the warmed flower's interior.

- 5 Mountain avens (*Dryas integrifolia*) is a common northern plant, but interesting as a favorite food for muskoxen and as the eponym for the Younger Dryas, a period of sudden, extreme cooling that appeared after the warming at the end of the last ice age, about 14,500 years ago. *Dryas* pollen is common in sediment from this time; it apparently endured the shift from ice age to warmth, back suddenly to ice age conditions and ultimately to today's warmer climate.

Many of these survival tactics appear similar to those used by warm desert plants: hold the little water you get, stay small, seek shelter. (See "Getting to Know Namibia," on page 22 for more about desert plants). Though it lacks the trees and the green conditions we are accustomed to, the Arctic harbors life and diversity, able to survive months of sub-zero darkness, in surprising abundance—albeit in small scale—close to the sun-warmed surface of the tundra. 





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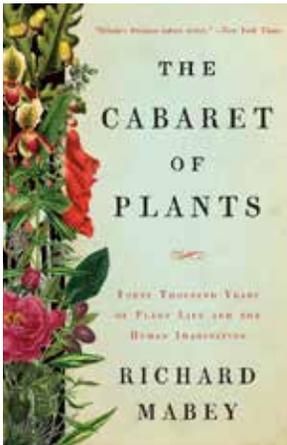
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The Cabaret of Plants

Forty Thousand Years of Plant Life and the Human Imagination. By Richard Mabey

A collection of the common, odd, unusual and overlooked plants and their relation to—and influence on—human culture.

Reviewed by Kenneth Setzer

There are plenty of books about the outstanding characteristics of plants, and plenty on the human-plant relationships we are so often unaware of, but anything written by Richard Mabey will not fail to enthrall the reader. He should be considered a national treasure in his native England, and is held in high regard there as a premier nature and science writer.

I discovered Mabey for myself when reading his “Weeds: In Defense of Nature’s Most Unloved Plants.” Many of those plants would be more familiar to British readers, but it’s nevertheless an enriching read.

One thing I admire about “Cabaret” is that Mabey dislikes viewing plants as secondary to humans, existing purely for our benefit. It takes effort, but he encourages viewing plants as valuable in their own right, not merely as of use to human beings. “Plants as authors of their own lives,” he kindly stresses. This phenomenon is called “plant blindness,” viewing plants as no more animate than rocks. Even 35,000-year-old cave art shows a paucity of plant representation, whereas animals of the hunt are far more commonly painted, many with great realism and possible totemic value.

Mabey encourages such thinking through examples not only of the curious, beautiful and outstanding (like the *Amorphophallus*, *Amazonica* water lilies

and baobab), but also with examples of current research measuring plants’ ability to react, interact and quite possibly exist with intent.

He also takes us on personal journeys around the Britain of his youth, visiting the very limited, fragmented habitat of the true oxlip (*Primula*) species. Later, he finds examples of the species where they are not supposed to be. A relic population, this small discovery reveals what was, millennia ago, a continuous tract of woodland where now only fragments exist.

It is said there are few wild places left in the British Isles, which were deforested for wood and agriculture centuries ago, but all is not strip malls and pavement. The ancient yew of English churchyards remain wild, and present botanical mysteries: Why are so many to be found in old churchyards? Do they predate the churches, with some pre-Christian significance for which they were saved, or can they be dated to a more recent time?

A plant “cabaret” necessarily includes big trees like baobabs and sequoias, old trees like the bristlecone pine, and rare plants like Wood’s cycad. Mabey explores these old friends in new ways. At Fairchild, we are lucky enough to be able to take for granted ancient cycads and big baobabs, but certainly this is not the case for most people. Mabey clears up

much of the myth surrounding these star-attraction plants, yet only increases their wonder, while reminding us that these organisms have been evolving, mutating and cross-breeding just fine for hundreds of millions of years without human interference. (I like his appreciation of the “unpretentiousness” of a rare Wood’s cycad growing from a wood tub in Amsterdam’s Hortus Botanicus.)

Are you familiar with the story of the Vegetable Lamb of Tartary? This odd tale goes back centuries and tells of a being part plant and part animal. The vegetable lamb fruited from the plant, ate what it could reach while umbilically tethered to its mother plant and died after it could reach no more food. Fakes of this supposed plant were sold to many collectors. Mabey’s fantastic exploration traces the vegetable lamb all the way to its cottony origins.

Not bound by botany or horticulture, Mabey treads into fields as varied as history, linguistics and politics. So much more than a tale of strange plants, “Cabaret” is a culture-nature study, nature as healer proponent, and always entertains with stories of obsessive plant lovers and collectors.

Throughout the book, I kept reading and thinking, “Yes! Me too!” 



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Photo by Lisa Remony

Photo by Lynda La Rocca

IN MEMORIAM

Larry Schokman

The Kampong's emeritus director, a champion of flowering trees and a dear friend to many

By Georgia Tasker

Here's when you will remember him: when the royal poincianas flame against the sky, when the apple blossom cassias create airy mounds of cotton candy flowers, when the Long John trees throw up torches of red and when the golden shower cassias drip with their luscious clusters of petals.

Lawrence Michael Schokman, 82, died October 15. Every horticultural heart skipped a beat.

Larry was the emeritus director of Coconut Grove's Kampong, which is now part of the National Tropical Botanical Garden. He was the foremost champion of flowering trees, the most gracious of hosts, the kindest of friends.

Larry met his wife Colleen in Sri Lanka, where he was a tea planter and agricultural advisor, and she worked for the American Embassy. They courted for three years and were married for 46. They left Sri Lanka in 1971, traveling for six months throughout Africa, Greece and London before going to Portland, Oregon, to meet Colleen's family. It snowed. "He had never seen snow falling before, so he ran outside in shorts and a T-shirt and stood there with his hands held out," Colleen remembers.



Photo by Lynda La Rocca

Colleen and Larry
in the Kampong.

The Kampong's Most Ardent Protector

While in Sri Lanka, Larry also met Catherine (Kay) Sweeney, who had purchased the Kampong home and surrounding 11 acres in Coconut Grove from heirs of Dr. David Fairchild. Her purchase saved the estate from development. In 1973, Larry began working for Sweeney as the Kampong's superintendent. He rehabilitated the Fairchild plantings and added to them with trees he collected from around the world. Larry and Colleen lived in two different cottages at the Kampong for three years before moving across the street. "Larry said he didn't want to commute," Colleen explains.

At the same time, Larry went to college, first to Miami Dade College, then Florida International University, where he earned two undergraduate degrees with honors. In 1998, he became the Kampong's director (a role he remained in until 2007), its most ardent protector, curator and spirited promoter of mulch. Colleen managed

the office, while Larry gave tours and oversaw the outside. "Larry and Colleen ran the tropical garden embassy at their home," remembers Mike Maunder, formerly director at Fairchild and the Kampong and now science director for life sciences at Great Britain's Eden Project, an educational charity and eco-visitor attraction with massive rainforest biomes.

A Tree Promoter

Before he became the Kampong's director, during the late 1980s, Larry joined the Miami Committee on Beautification and Environment. He and attorney Steve Pearson, the committee's chair, worked together for nearly 30 years, planting trees wherever possible—along I-95, at MetroZoo (now Zoo Miami) and in the Jean Willis flowering tree park in South Miami. They co-founded TREEmendous Miami, a nonprofit devoted to planting, promoting and preserving trees in Miami-Dade County. Larry was also a founding member of the Tropical Flowering Tree Society, bringing hands full of blossoms to each monthly meeting to extol their beauty.

Larry's passion and talent as a horticulturist was second to none," says Chipper Wichman, director of the National Tropical Botanical Garden. "He truly became a legend in his own time among the vibrant and colorful South Florida horticultural community." But it wasn't only his horticultural prowess that drew people to Larry. "Anyone who had the pleasure of knowing Larry will fondly recall his radiance and warmth, his charm and humor and his ability to render even the most pedestrian occurrence into a memorable story or witty tale," Wichman says. It's true, says Colleen, noting that, "He never let the truth get in the way of a good story."

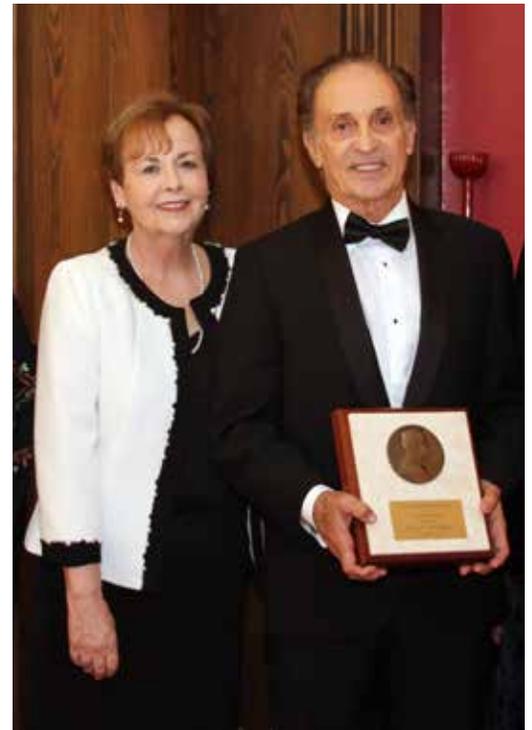
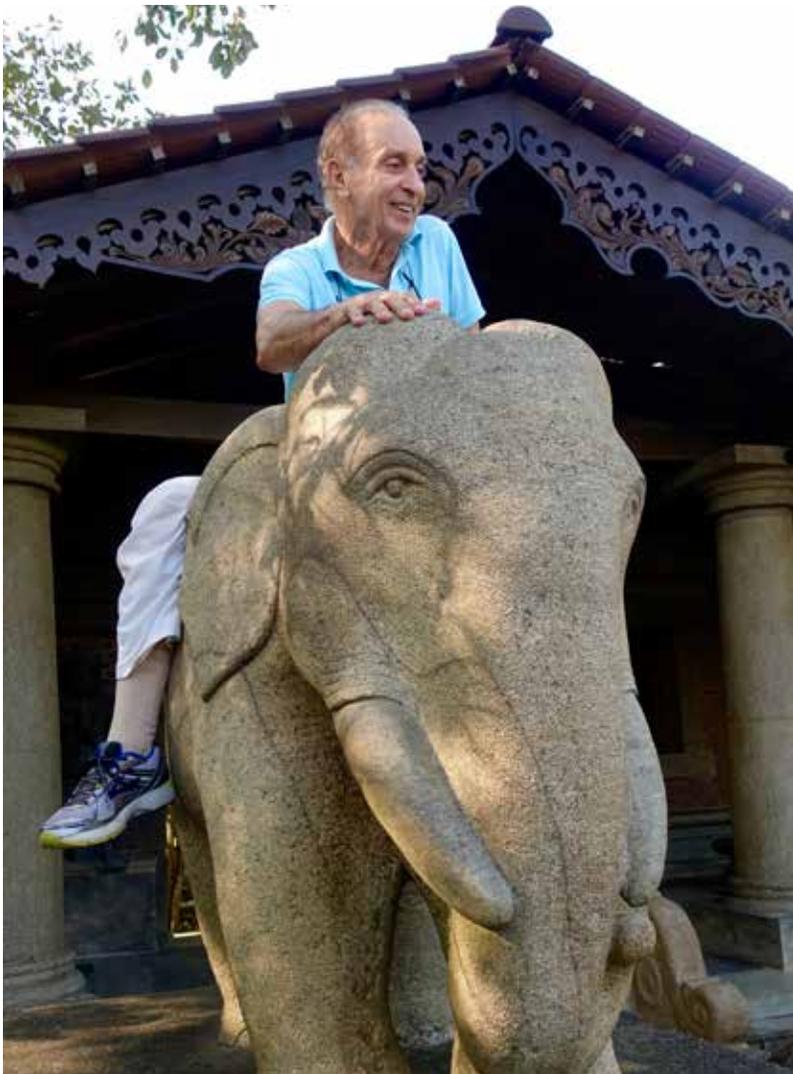
The American Horticultural Society awarded its Professional 2000 Award for director of a botanical garden to Larry. He was on every panel, committee and ad hoc group you can think of associated with trees, horticulture and tropical fruit in South Florida, from Friends of Chapman Field to the Rare Fruit Council International.

He received the Florida International University Service Medallion in 2006. In 2012, the National Tropical Botanic Garden awarded Larry the David Fairchild Medal for Plant Exploration. He was nominated by Gillian Prance, former director of the Royal Botanic Garden, Kew. He was a perennial volunteer at the Ramble, at plant sales and other Garden events.

"We had a wonderful life," says Colleen. "We traveled and had lots of friends. We weren't apart much. We really loved each other."

In his 2012 book, "Plants of The Kampong, A Guide to the Living Collection," Larry's scholarship and driving passion are evident. He chose an epigraph from H.G. Wells: "Human history more and more becomes a race between education and catastrophe."

Larry Schokman educated South Florida in the art of horticulture. 



(L-R)

Larry in Sri Lanka.

Photo by Lynda LaRocca

Colleen and Larry when he received the David Fairchild medal for plant introduction.

Photo courtesy by the Kampong

A small worm creates a huge problem

Text and photos by Kenneth Setzer



(T-B)

The Florida Tree snail, *Liguus fasciatus*.

A dead *Liguus* tree snail, Castellow Hammock, Homestead, Florida

The introduction of non-native species is nothing new—pigs, rats and other animals and plants were carried by ships to remote islands centuries ago. But as transoceanic shipping and travel have become easier, the opportunities for invasion have increased exponentially. Now a small flatworm from New Guinea is having a massive impact on our native gastropods—snails and slugs—especially the stunningly pretty Florida tree snails.

Platydemus manokwari, the New Guinea flatworm, was first collected in August 2012. By 2014, it was known to inhabit multiple locations in Miami-Dade County, and by December of that year, it was found in Puerto Rico. Yet, only in 2015 was a report filed for the first time, noting its presence in South Florida.

Described initially in Manokwari, in West Papua, the flatworm has since been found in Singapore and all the way north to Japan. It's a big problem in Hawaii, an archipelago whose species have suffered many

destructive, non-native invasions. The flatworm, among others, has been implicated in the diminution of several species of rare Hawaiian tree snails in the genus *Achatinella* (Oahu tree snails).

The New Guinea flatworm is a voracious predator and consumer of snails and slugs, and it does not discriminate between rare natives and common invasives. A denizen of dark, damp places, the flatworm found a very suitable home in South Florida. It slithers on a coat of mucus, swinging its head back and forth using chemoreceptors to alert itself to the presence of a snail trail, which often leads to *Liguus* or *Orthalicus* tree snails; it then ensnares the snail in a sticky film of mucous before using its pharynx feeding tube to digest and consume the snail's soft body.

Florida tree snails like *Liguus fasciatus* are sometimes called living gems, and for good reason. Their spiraling, conical shells are glossy, often spotted, mottled, striped in satisfying shades of ivory, orange, sunburst yellow, brown and pink on



a cream background. There are over 50 subspecies in Florida alone, with even more in Cuba. They, like the banded tree snail *Orthalicus*, are especially vulnerable when they descend to the ground to mate and lay eggs.

At Castellow Hammock Preserve & Nature Center in Homestead, the tree snail situation seems dire. Since it's one of my favorite places, I go there often to photograph tree snails. Now the ground is littered with empty shells, and New Guinea flatworms are abundant. Dr. Alcíe Warren of Miami-Dade County Parks, Recreation and Open Spaces and Dr. Tim Collins, professor in the department of biological sciences at Florida International University, have noted that, "Though native snails face multiple threats, around August 2015, we noticed tree snails, *Liguus* and *Orthalicus*, disappearing from Castellow."

At this point, I wish I could talk about definitive flatworm control, but no pesticides are registered for use

against it. Experts need to learn more about its biology and invasiveness to find a vulnerability. One possibility, discussed at a Tree Snail and Flatworm Working Group Meeting I attended at the Miami-Dade County Extension Office in Homestead last August, is hot water: water that is at least 110 degrees Fahrenheit kills the flatworm. They travel the world in soil, so soaking potted plants, or better yet, bare root plants, in the hot water would kill the flatworm without harming the plants.

Many questions remain, however, such as how long the soaking needs to be and how it should vary given volume of soil, etc. This labor-intensive control doesn't seem likely to happen on a large scale. But cleaning construction equipment—even shoes—exposed to soil would certainly help. For now, it looks like just the beginning of a long battle, with ex-situ breeding and conservation of the snails a possibility. 

ABOVE
The New Guinea flatworm
Platydemus manokwari.

RIGHT
Hammerhead planarian (*Bipalium vagum*), a non-native flatworm, but not the New Guinea flatworm. Note its different coloration and hammer-shaped head.



A harmless Brahminy blind snake (*Indotyphlops braminus*).

Quick Guide to Identification

The New Guinea flatworm, up to 4 inches long, but usually shorter, is a glossy dark brown with a tan mid-dorsal stripe (on its back) and a paler underside. It tapers at both ends, but on very close examination, its head is slightly pointier, with two small, dark eyespots no larger than pinpoints. The worm may appear darker in daylight, with the stripe more pronounced at night. It is a nocturnal animal, active and hunting particularly after rain, though you may spot it in the day hiding under decaying plant matter.

A harmless lookalike is the Brahminy blind snake. It's no thicker than a pencil lead, very dark brown to solid black, flicks its tongue like a snake and, upon close inspection, has scales. Another flatworm, the hammerhead planarian, shows reverse coloration: It's tan with a dark stripe. Its hammer-shaped head makes it easy to differentiate from the New Guinea flatworm.



For now, if you find a flatworm, don't handle it. Report it via the "ivegot1" app, on eddmaps.org or by calling 1.888.ivegot1.



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Hitting the Hot Spots: Growing Vegetables in South Florida's Warm Winters

By Georgia Tasker

It's vegetable planting time in South Florida. Many are the home gardeners who look forward to the raised beds, the emergence of the baby plants, the harvest. But many are the gardeners who struggle in vain to grow tomatoes in our increasingly warm winters, and who find green peppers, squash and Brussels sprouts disappointing as well.

There are vegetables that make sense to plant here. They hail from the tropics—especially Central America and the Caribbean, but also Southeast Asia. These vegetables (and a few vegetable-like fruits) are showing up more and more frequently in farmers markets, even traditional supermarkets: cassava, boniato, malanga, jicama and chayote. At farmers markets, you can pick up bitter melon, roselle, calabaza and turmeric rhizomes (which closely resemble ginger tubers). Many of these are hot-weather crops, but some will grow here through winter and into summer.

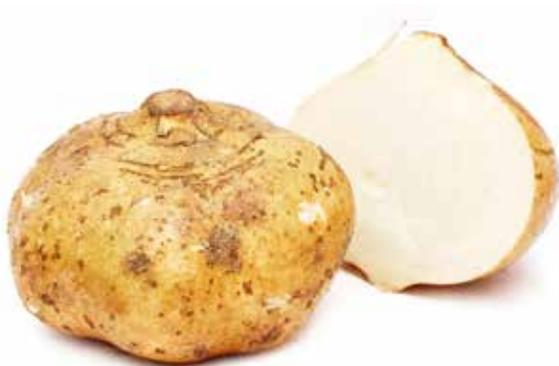
In Fairchild's nursery, Dr. Chad Husby is growing plants with edible leaves, including *Abelmoschus manihot*,

a hibiscus relative related to okra; *Gynura bicolor*, with purple undersides to the leaves, which he brought from Singapore; and *Gynura procumbens*, Okinawa spinach or longevity spinach. Longevity spinach is touted as lowering cholesterol; in Okinawa, its leaves are fried in tempura. You may have seen *G. bicolor* and a related species, *Gynura pseudochina*, at our members' plant sales. *G. pseudochina* has variegated leaves and is a great butterfly plant, Husby says.

The University of Florida's "Manual of Minor Vegetables for Florida," written and updated by James Stephens, who is now an emeritus professor of horticulture, has been converted into fact sheets that can be found in the

university's electronic data information source website (EDIS). Some of the vegetables it includes are hot-weather stalwarts, and might well be worth trying in your winter gardens, allowing them to grow on into summer.

Adrian Hunsberger, University of Florida/Miami-Dade County IFAS Extension agent, has compiled a new list of vegetables that can be grown year-round or especially for summer. Among her recommendations are yard-long beans, lima beans, cassava, chayote, eggplants, ginger, New Zealand spinach, okra, black-eyed peas and turnip greens. Jicama is on her specialty list.



Jicama, *Pachyrhizus erosus*, is a vining legume, but it is the crisp and sweet root that is edible. Stevens says removing the flowers enhances growth of the roots, which need five to nine months of warm weather. However, if you plant the whole root, you will get more in three months. Try thin matchstick slices in slaw or in Mary Neustein's Avocado/Jicama salad, which was in the last edition of *The Tropical Garden*.



Roselle, *Hibiscus sabdariffa*, is sometimes called Florida cranberry. The fat sepals (the calyx) can be made into foods, such as tea or cranberry-like sauce. Plants have been offered at Members' Plant Sales. This is a "short-lived" perennial in South Florida, and will grow well into summer.

Cassava, *Manihot esculenta*, is the familiar yuca, and needs no introduction to those of us who love our black beans and rice, fried plantains and yuca with mojo sauce. Warm Yuca Salad is a recipe offered by Carole Kotkin and Kathy Martin in their book, "Mmmmmiami" (Henry Holt and Company). Cassava tubers like deep soil, so they grow on mounds or in deep beds. Grow from stem cuttings planted in the late fall through March and wait nine months to harvest.



Tomatillo, *Physalis ixocarpa*, from Mexico was first domesticated by the Aztecs. Each fruit grows inside a paper-thin husk. More pungent than a tomato, the flavor has a citrus note. Grow them as you would tomatoes, with support.



Chayote, *Sechium edule*, is another vine producing a squash-like fruit that can be eaten raw in salads or cooked in any number of ways, from boiled to mashed, and can even be pickled. The University of Florida's Stephens says 'Florida Green' and 'Monticello White' are the main cultivars. Plant the whole fruit as the seed. Best production, he says, comes two or three years after planting. "If it's happy, chayote will be exuberant, but it can just as easily die," says Margie Pikarsky, whose 5-acre organic farm, Bee Heaven, is in the Redland. "They can tolerate cold if the root doesn't die."



Calabaza, *Cucurbita moschata*, can also be grown year-round in South Florida. This is commonly called Cuban pumpkin or Cuban squash. Buy a piece of Calabaza and save the seeds for planting. Bees are needed to transfer pollen from male flowers to female flowers. Another form of *C. moschata* is the Seminole pumpkin, which has a green rind and is said to have been planted by Native Americans at the base of trees so the fruits dangled from the air.



Luffa, *Luffa cylindrica* or *Luffa aegyptiaca*, produces gourds when trellised or grown on a fence. Originally from India, this cucurbit (denoting the gourd family) is used as a vegetable when small (less than 4 inches long); when large, luffa is dried, peeled and made into sponges. These squash will live through the year if we don't have a cold spell, Pikarsky says. The flowers are edible.



Chili peppers, *Capsicum* species, include banana peppers, jalapeno, cayenne and a long list of others. Habaneros are thought to have originated in Cuba, and the name means "from Havana." They can grow from winter through summer, and thrive in hot weather.



Lemongrass, *Cymbopogon citratus*, is easy to grow year-round anywhere you have a big space in full sun. I use it as an ornamental, while many cooks use it in Asian dishes or tea. The grass forms a beautiful, tall clump with arching leaves, about 4 feet around. "Dig it up every couple years and divide it," advises Pikarsky. This will keep the center of the clump from mounding and producing fewer new shoots. To use, dig part of a clump, remove the roots and top, then peel away the outer covering of the base.



Boniato, *Ipomoea batatas* or Cuban sweet potato, has white flesh and is less sweet than red-fleshed sweet potatoes. Boniato can be grown year-round in our end of the state, whereas sweet potatoes usually are grown in summer. Miami food writer Steven Raichlen offers a recipe for boniato bread/ boniato rolls in his book "Miami Spice" (Workman Publishing). Boniato, malanga and yam also can be made into chips, he says.



The Master Gardener is

We asked Master Gardener Maria Teresa Cerqueira, who tends two plots in the Miami Beach Community Victory Garden, about tropical vegetables. She shared her knowledge with us:

What tropical veggies do you grow?

Kale, jalapenos, serranos, banana peppers, bok choy, cilantro, Roma and cherry tomatoes, eggplant, rosemary, pineapple sage, chives, mint, zucchini and summer squash, plus Spanish, Italian and Caribbean oregano, as well as Genovese, purple and cinnamon basil.

When do you plant them?

In fall: kale, Genovese basil, Roma and cherry tomatoes, rosemary, zucchini, bok choy, mint, jalapenos and serrano peppers. In spring: eggplant, pineapple sage, oregano, purple and cinnamon basil, chives, cilantro, parsley, mint,

Roma and cherry tomatoes, summer squash, jalapeno and banana peppers, lettuce, cilantro and zucchini squash.

Do you grow in raised beds? Yes

Do you find them rewarding throughout the year?

Yes, even in August, and from August to September some beds are solarized, preparing for fall planting.

What has not been successful?

Some squashes got powdery mildew, and some gardeners had nematodes, minute worms that invade plant roots, in the tomatoes.



Discovering the desert biome

Text and photos by Georgia Tasker

ABOVE
Zebras in arid savannah.

NEXT PAGE (TOP)
Tamarisk tree in dry
ephemeral river bed.

NEXT PAGE (BOTTOM)
Acacia still alive.

For plant geeks, one of the most rewarding aspects of travel is the opportunity to learn about new flora, habitats and biomes.

A biome is a complex community with plants and animals adapted to living in a particular region and climate. The desert is a biome, as is the tundra, rainforest, temperate grassland and temperate forest.

Visiting Namibia, I came upon a desert biome with many different types of habitats, including the coastal desert of the Namib,

running along the country's Atlantic coast. In the southern Namib, fog provides moisture, as it rains only about ½ inch a year.

But there's more. Within Namibia, there is the coastal desert, the arid desert and the semi-arid desert, as well as the Succulent Karoo and the Nama Karoo. These are a few of the biomes in the Namibian desert.

Inselberg: This isolated hill or mountain is a paleoform, or ancient formation, that has survived for millions of years. Namibia's desert sits atop an ancient desert, with



petrified dunes buried beneath active sands. That's why Namibians claim their desert is the oldest on Earth. Indeed, *Welwitschia mirabilis* is a fossil plant found only in the vast area referred to as the "sand sea."

Succulent Karoo: One of Earth's biodiversity hotspots, this particular area is dominated by dwarf succulents. This is primarily found in South Africa, but a small part occurs in Namibia as well.

Nama Karoo: An arid ecosystem with dwarf shrubs and stubby perennial grasses, at a higher elevation than the Succulent Karoo.

Namibia also contains a savannah biome, where woody trees, shrubs and perennial grasses dominate. In fact, there are two types of savannah: arid savannah, where solitary trees and fine-leaf trees and shrubs are scattered over grasslands; and moist savannah, with taller trees and shrubs growing closer together.

Other terms that were new to me:

Veld or veldt: Meaning field, this is described as an open, flat landscape covered by grass or low shrubs.

Barchans: These sand dunes travel to the northeast from the Orange River, Walvis Bay (walvis means "whale fish") and Skeleton Coast.

Erg: Namibia's sand sea is a World Heritage Site that demonstrates ongoing geological, biological and ecological processes, as well as outstanding natural beauty. It gained that designation in 2013. Sands vary in color from pale buff in the west to deep red in the east, reflecting increases in iron oxide. Winds coming off the coast blow barchans north.

Brandberg Mountain: The highest point in Namibia, this was an ancient volcano that filled in with granite some 133 million to 132 million years ago. Gradually, the volcano eroded, with the granite cone remaining as a nearly circular mountain. 



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WHEN IS A PALM NOT A PALM?
WHEN IT IS A PANAMA HAT PALM!
THE SCINTILLATING CYCLANTHS

By Chad Husby, Ph.D.



PREVIOUS PAGE
Ludovia [*Carludovica*]
palmata grown in Surinam.
 Factory established by
 Sister. Panama hat palm
 strips after boiling are hung
 up to dry." (March 4, 1932)

L-R
 Inflorescence of a
Dicranopygium species
 in the nursery.

Inflorescence of an
Asplundia species in
 the nursery.

Ludovia lanceolata in
 the Conservatory.

THE FAMILY CYCLANTHACEAE

The Cyclanthaceae constitute a little-explored family of ornamental and economic plants in the American tropics with great potential. Many of them have leaves that are highly reminiscent of palms, but modern genetic analyses have allowed us to determine that their closest relatives are actually the pandans of Asia (family Pandanaceae). There are 12 genera and about 230 species described in the Cyclanthaceae family, with new species still being described.

Cyclanths are range in habit from small rosette-forming herbaceous plants along tropical rivers to epiphytes (plants that grow on other plants) and large climbers in wet tropical forests. The climbing species can reach up to 100 feet of length. The leaves of most species are split in the middle, producing two lobes. However, some species have leaves split into fan shapes, and *Ludovia* sp. have leaves that are not split at all. Leaves are arranged either in a spiral or in two rows (distichous), creating a two-dimensional fan-shaped pattern. Leaves can range from thin and pliable with fine pleating to very thick, rigid and waxy with coarse pleating.

All cyclanth species have male and female flowers on the same plant (they are monoecious). Their distinctive inflorescences are arrangements of the tiny flowers into an elongated spike (a spadix). One is immediately struck by the very long staminodes (aborted stamens) that protrude from the inflorescence like spaghetti. .

THE PANAMA HAT PALM

A few cyclanths have economic uses. The most famous cyclanth is *Carludovica palmata*, the Panama hat palm. It is one of the most palm-like cyclanths, has palmately compound leaves and is very easily mistaken for a palm when its inflorescence is not present (cyclanth inflorescences are quite different from palm inflorescences). Panama hats are woven from the fibers of the leaves, which are called "toquilla straw." Production of these hats originated in Ecuador and is still centered there, although several other countries in Central and South America produce Panama hats on a smaller scale. More than a century ago, these hats were imported into Panama for foreign workers on the Panama Canal, who started calling them "Panama hats." *C. palmata* was the cyclanth that caught the attention of Dr. David Fairchild. He was



L-R
The magnificent *Chorigyne cylindrica* is soon to be planted in the Conservatory.
Leaf of *Carludovica drudei* growing in the Rainforest.

interested in the production of Panama hats, and the Garden’s archives contain photos he took of the process in Suriname. Production of these hats, as well as mats and baskets, from toquilla straw continues today. The leaves of a few other cyclanth species are sometimes used for thatch.

CYCLANTHS AT FAIRCHILD OVER THE YEARS

Most cyclanths are challenging to grow outdoors without plenty of irrigation and shade in South Florida, because they typically come from habitats that are humid and moist all year, whereas South Florida has a pronounced dry season. However, the genus *Carludovica* has proven reliable outdoors with some irrigation. Both *C. palmata* and *Carludovica drudei* have done well outdoors in the Garden for years, and have been offered in plant sales. In addition, *Cyclanthus bipartitus* has proven adaptable to South Florida when given sufficient irrigation. Other cyclanths have been tried at various times, but none have persisted in the Garden’s collection. For a brief time in the 1970s, one of the world’s Cyclanthaceae experts, Dr. George Wilder, worked at the Garden.

Many highly ornamental cyclanth species and genera have not yet been tried in South Florida. During the last two years, we have brought many new ones into the nursery, and some have made their way to the Tropical Plant Conservatory, which provides the sort of humid, moist conditions most species prefer. Plant enthusiasts and some of our sister gardens have kindly shared offsets from their collections. Furthermore, some nurseries in South America have begun to grow a few species and bring them to plant sales in Miami. We are now growing *Asplundia*, *Ludovia* and *Sphaeradenia* in the Conservatory and have *Chorigyne*, *Dicranopygium* and *Evodianthus* species in the nursery waiting to be tried. Their habits range from terrestrial to vining to epiphytic.

We look forward to continuing to explore the horticultural potential of this underappreciated group of plants. Even if many cyclanths do not adapt to growing in the ground in South Florida, our experience already suggests that some have great potential as highly desirable container plants. Furthermore, we will soon begin testing other species in appropriate spots in the Richard H. Simons Rainforest. Like palms, they contribute to the “tropical look” while adding their own unique aesthetic. 



The earliest color photos of Dr. David Fairchild

By Javier Francisco-Ortega, Ph.D.,
 Professor of Biological Sciences at
 Florida International University - Associate
 Researcher at Fairchild Tropical Botanic
 Garden, and the late Larry Schokman,
 Director Emeritus, The Kampong

Dr. David Fairchild standing near a flowering *Tabebuia heterophylla* (DC.) Britton (Bignoniaceae) at The Kampong, with a mango orchard in the background.

Photo by Brother Marie-Victorin, March 1939. Courtesy of *Division de la gestion de documents et des archives, Université de Montréal.*

Dr. David Fairchild's career as a field botanist led him to collect plants from all over the tropics. During these plant-hunting expeditions, he met professional botanists and plant-oriented aficionados, many of whom became lifelong friends. Dr. Fairchild often conducted his Caribbean Islands botanical activities at the Atkins Institution of the Arnold Arboretum, Soledad in Cienfuegos, Cuba (also known as La Soledad Botanic Garden). After the Cuban revolution of 1959, the Cuban government appropriated this site. It is currently the Jardín Botánico de Cienfuegos.

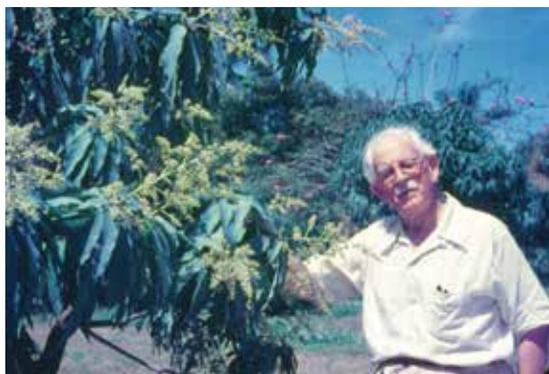
In February 1939, Dr. Fairchild met Brother Marie-Victorin (Joseph Louis Conrad Kirouac, 1885–1944) at the Atkins Institution. Brother Marie-Victorin was a member of the Catholic congregation of La Salle, or Christian Schools. Founder of the Montreal Botanical Garden, he was one of the most important figures in the botanical history of both Canada and Cuba. Brother Marie-Victorin visited Cuba seven times between 1938 and 1944. His documents, photos and manuscripts are archived at the University of Montreal. During the last three years, author Dr.

Javier Francisco-Ortega has been researching Brother Marie-Victorin's documents at these archives, with support from Fairchild Tropical Botanic Garden and three academic units of Florida International University: the College of Arts, Sciences, and Education; the Kimberly Green Latin American and Caribbean Center; and the International Center for Tropical Botany at The Kampong.

On March 7, 1939, a few days after Brother Marie-Victorin met Fairchild at the Atkins Institution, he left Cuba for Key West, continuing on to Montreal, where he arrived on March 15. As he drove to Canada via Miami, he visited Fairchild at his home at The Kampong in Coconut Grove. In March 2017, Francisco-Ortega found evidence of this visit in the University of Montreal's archives: four color glass slides (2-inch by 2-inch Kodachrome) of Fairchild at The Kampong. To the best of our knowledge, these are the earliest-known color photographs of Fairchild. The Kodachrome system had been commercially released in 1935, and made color photography a popular alternative to black-and-white photography. The four discovered photos are reproduced for the first

David Fairchild at The Kampong holding the inflorescence of a mango tree.

Photo by National Geographic photographer Millard R. Culves, 1947. Courtesy of Kampong Library and Archives.



time in this article and as an online supplementary document available at www.fairchildgarden.org/Research-Publications.

The discovery of these historical photographs in Montreal encouraged co-author Larry Schokman to examine other photographs and documents of Dr. Fairchild from the same period. These also include 2-inch by 2-inch Kodachrome glass slides of the *Cheng Ho* Expedition (which went to Indonesia's Molucca Islands and was sponsored by Ann Archbold) discovered in 1974 in a corner of the attic of the Fairchild/Sweeney House at The Kampong, as the house was being cleared for renovations. These old glass slides, dated to 1939-1940s, were converted to regular slides and later digitized for a presentation titled, "The Kampong—Historical and

Horticultural," delivered at The Kampong in 2011. The colors in these old Kodachrome slides are still excellent, despite the fact that they had been tucked away in that hot, humid attic for more than a quarter of a century. The color images provide a new glimpse into plant exploration in pre-World War II Southeast Asia. They complement the thousands of black-and-white photos and documents from the same time period that are stored in the Garden's archives. One of the color photos (dated 1947) from The Kampong collection is also shown in this article.

Fairchild documented his travels and plant collections during the *Cheng Ho* Expedition in his book, "Garden Islands of the Great East" (1943). His travels continue to fascinate us. In 1994, Schokman and Miami-Dade College Professor Dr. Monroe Birdsey spent six weeks "Following the footsteps of David Fairchild—from Bali to Borneo" (*Kampong Notes*, vol. 21, issue 4, February 15, 1996). This trip was sponsored by Wallace Coulter and The Batchelor Foundation. In 2016, Dr. Carl Lewis, the Garden's director, led a group of plant enthusiasts—including The Kampong's current director, Craig Morell—to the Molucca Islands (known at the time of the *Cheng Ho* Expedition as the Spice Islands), and followed the same route taken by the *Cheng Ho*. You can read more about their trip in *The Tropical Garden*, vol. 72, issue 1 from this year, or online at fairchildgarden.org. 

ACKNOWLEDGMENTS

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Dr. David Fairchild standing at the entrance to his house at The Kampong, with Biscayne Bay and the east section of the garden in the background.





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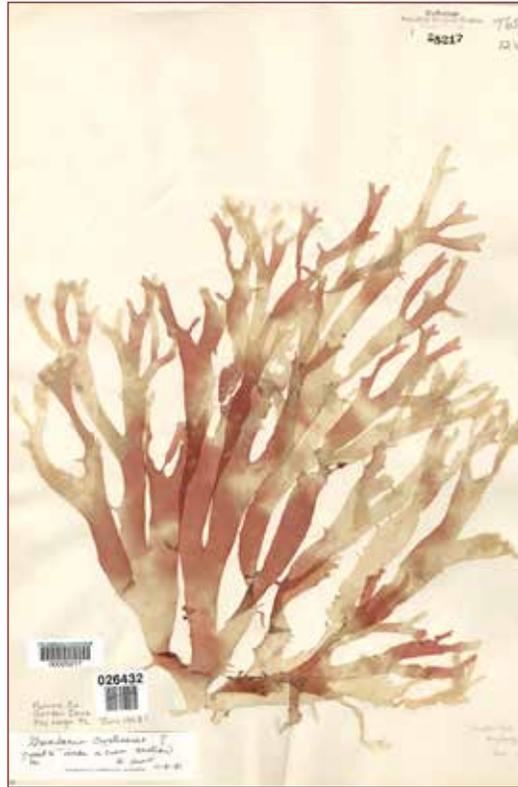
Historical Curiosities of the Fairchild Herbarium

C E L E B R A T I N G

50
Years

of Plant Diversity

By Brett Jestrow, Ph.D., and Beth Milne



The Fairchild Herbarium hosts a significant collection of marine macroalgae, many with striking forms.

The Fairchild Herbarium first opened its doors in 1967, and today is still the primary botanical repository for South Florida. With more than 200,000 dried and prepared specimens across the plant kingdom, ranging from the largest of palms to marine macroalgae, the collection focuses on the palms and cycads of the world, the flora of the Caribbean basin, and cultivated plants of South Florida. Today, the Herbarium is used by the Garden and is the reference collection for the botanical gardens and universities of South Florida, both public and private. The Herbarium serves as direct link between plants and scientific research.

While the Fairchild Herbarium is 50 years old, many of its specimens are far older. Specimens are often exchanged between institutions, and in 1975 the U.S. National Arboretum sent an interesting set to Fairchild. These orchid specimens from Florida were collected in the 1840s and are the oldest specimens in the permanent collection, yet retain some of their original color. Ferdinand Rugel, a professional plant collector and pharmacist, put together this collection. Scientists still study it today, making taxonomic notes on the sheets of these early documents of Florida's flora.

In addition to specimens garnered through exchanges, the Fairchild Herbarium has also inherited entire herbaria, including the Buswell Herbarium of the University of Miami and the Deering Herbarium.

Once the property of Charles Deering, the Deering collection includes many specimens assembled by John Kunkel Small when he was head curator of the New York Botanical Garden. Some of these are the first known collection of a species for Florida, as with the climbing holly fern, *Lomariopsis kunzeana*. Kunkel's sheets from the early 20th century show the stamps from their institutions before they were incorporated into the Fairchild Herbarium.

Herbarium Curiosities

A visitor to the Herbarium once asked a curious question: “Do you have any species of an extinct plant?” While the collection includes plant fossils of species not seen on earth in millions of years, the question was clearly referring to a modern extinction. And the answer is yes: *Tephrosia angustissima* var. *angustissima*, formerly endemic to the Miami area, is now considered extinct by the Institute for Regional Conservation. Not seen alive in over 60 years, the taxon can now only be seen as specimens in herbaria. Much better than a simple photograph, a specimen is the actual plant; given the advances of modern genetics, these few specimens could one day serve to bring the plant back to life.

With the long history of collecting, it's no surprise that many curiosities exist in the Herbarium. One worthy of mention is a set collected across



L-R
One of the last known collections of the *Tephrosia angustissima* var. *angustissima*, this South Florida endemic is now considered extinct and exists only in herbaria. Collected in the 1840's, the flowers of the orchid, *Calopogon tuberosus*, still retain some of their original color.

L-R
This specimen documents the first known sighting of the Climbing holly fern in Florida.

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the Pacific theater during World War II. The U.S. military collected these specimens to document the flora of conquered lands, as they searched for economic and useful plants. According to a monographic work on the collection by longtime Garden collaborator Dr. Richard Howard of Harvard University, a few specimens were collected from Okinawa, Japan, just a month after that nation's surrender, while others came from locations ranging from the remote Indonesian island of Biak to what is modern day North Korea.

Herbaria and Plant Nomenclature

Herbaria, of course, are far more than just interesting collections. All herbaria play an important role in nomenclature, the naming of plants, as each species is defined by a special specimen. In fact, a scientific name is not considered legitimate without one. These special specimens, which define a name, are known as types—and Fairchild houses more than 200 of these important collections. Of course, since palms are symbolic of the Garden, many palm types are represented in the collection. One example is the type of the species *Attalea fairchildensis*, which, as the name implies has a tie to the Garden. Col. Robert Montgomery received unidentified seed from Cali, Colombia, during the Garden's earliest days, and a single individual was planted. After many years (in 1960), Dr. Robert Read, a Fairchild botanist who later became a curator at the Smithsonian, collected a fertile specimen of the unidentified palm. He even included a series of photo negatives of the palm. This allowed Dr. Sidney Glassman, a specialist in this group of palms, to identify the uniqueness of the plant and

led to the description of *Attalea fairchildensis* as a new species in 1968. Unfortunately, Hurricane Andrew felled this lone palm in 1992. But, from the fallen palm a wood collection was made, adding to the Herbarium’s careful documentation. While no longer in the Garden, the species very likely still grows in the wilds of Colombia, only waiting to be rediscovered.

As this story shows, in addition to nomenclature, specimens are also useful for identification. While identifying plants of South Florida is quite a reasonable endeavor in the Fairchild Herbarium, identifying plants collected from the far reaches of the tropics can be quite challenging. One example is a species of rattan palm sent as seed to the Garden in 1964 from the Department of Forests of Lae, Papua New Guinea. They were sent via the Missouri Botanical Garden—in fact, Fairchild often receives seed from other U.S. institutions, which take advantage of our climate and ability to grow tropical species long-term. These rattan palm seeds grew, and the result was planted in the Garden’s Richard H. Simons Rainforest, where it continued to grow for many years. In 1994, Fairchild’s taxonomist, Dr. Scott Zona, made a fertile specimen, but the palm remained without a species identification. As the understanding of the rattan genus, *Calamus*, grew, Dr. John Dransfield of the Royal Botanic Gardens, Kew used the specimen to identify the palm as *Calamus longipinna* in 2001. From seed to identification took more than 40 years, and in spite of hurricanes, the palm still thrives in the Garden. The palm is still used by scientist today; recently Dr. Andrew Henderson of New York Botanical Garden collected samples for modern DNA-based study. 

L-R
An illustration of *Calopogon tuberosus* from Curtis’s Botanical Magazine of 1791 is housed in the Fairchild archives.

A collection of sesame from 1945, the label includes “Okinawa” written in the katana script.



IN MEMORIAM



Leslie A. Bowe

By Georgia Tasker

Leslie Anthony Bowe, formerly Fairchild's director of corporate and external affairs, died on October 18, at the age of 58. "It is with an incredibly heavy heart that I share the sad news that our long-time friend and colleague Leslie Bowe passed away," Nannette Zapata, Fairchild's chief operating officer, told staff. "He leaves us with memories of his kindness, good humor and eternal optimism."

Bowe was a Miami Herald Silver Knight winner in high school and a graduate of the University of Miami where he earned a Bachelor of Science in finance and a master's in business.

He was a tireless supporter of many South Florida charities, including Chapman Partnership for the Homeless, Ronald McDonald House Charities, SAVE Dade, The Arsht Center for the Performing Arts and Nordstrom Scholarship Program. He served on the boards of institutions including The Vizcayans and the Florida International University Honors College. He also served for two terms as a Council member for the Village of Pinecrest, where he lived for more than 25 years.

During his life, Bowe earned awards such as "South Florida's Most Powerful Black Professionals in Business and Industry" in 2014 and Ronald McDonald's "12 Good Men." Throughout his professional career, he was affiliated with Miami-Dade Public Schools, American Airlines, Federated Stores and Sears Roebuck and Co. He shared his life with his partners Ernesto Mata, who survives him, and Craig McMahon, who passed away in 2001.





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or contact Lori Sellers at 305.667.1651 ext. 3358
or at lsellers@fairchildgarden.org.

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Summer Camps at Fairchild

Junior Naturalist Campers aged 6 – 9 explored nature, science and art through exciting hands-on activities using the Garden as a living laboratory. Campers created their own ideal flower and perfect pollinator using recycled materials, explored the depth of rainforest diversity while learning about plant adaptations and even tinkered in the world of polymers.

For campers aged 10 – 13, the Science Detective Camp let kids step into the shoes of scientists as they uncovered the mysteries of tropical plants, chemistry, engineering and more through project-based exploration. Campers participated in The Million Orchid Project by propagating orchids in the StemLab, dissected flowers and seeds and compared the anatomy of a human hand with that of a bat by building working models of their own hands!





Plant ID Workshop

The first Friday of every month sees people with plants in hand at the Fairchild Herbarium where botanists help identify unknown plants and explain about the plant in question. Knowing what you're growing is the most important step to a successful garden. Open to the public, these free workshops require registration. More information and registration for the plant ID workshop can be found online through



79th Annual Members' Day Plant Sale

October 7 saw hundreds of Garden members lined up to peruse thousands of Fairchild-grown plants to help restore their post-Hurricane Irma gardens. Favorites like passionflowers, Gustavias and Bailey palms went quickly, as did some new offerings not often found for sale elsewhere, like Gnetum trees and black bat plants.

Grown exclusively for sale to our members, Fairchild Members' Day plants are known for their good health and hardiness. Many have been collected overseas by our own staff and grown and tested in our nurseries.



Trunk & Treat

On October 29, we celebrated Cars in the Garden with a Halloween twist: Trunk 'N Treat! Vintage and exotic cars shone in the sun while kids went trunk to trunk to get Halloween treats.

Trick-or-treaters were also treated to a Creepy Critters Spooky Station to befriend some bugs, a scavenger hunt, a place to make their own masks and a special halloweenies lunch, all followed by the classic car parade through the Garden.

WISH LIST

Fairchild has a wish list of items that will enhance our programs, but we need Wish Makers. We hope you see a wish that you can help fulfill.

FOR OUR HORTICULTURE OPERATION

- 2 Tablet Notebooks, \$1,500
- 12 Golf Cart Batteries, \$1,200
- Walk-Behind Aerator, \$1,500
- Hardware for Accession Tag Embossing Machine, \$2,000
- Plant Transport Van, \$20,000

FOR CONSERVATION, RESEARCH AND THE HERBARIUM

- Extra-Tall Tripod, \$150
- Laptop Computer, \$2,000
- GPS Unit (GeoXT 6000), \$8,000

FOR THE RESEARCH LIBRARY

- World Checklists for: Araliaceae, Conifers and Fagales, \$300

FOR THE FAIRCHILD FARM

- Golf Cart, \$7,000

FOR MEMBER AND DONOR SERVICES

- Laptop Computer/LCD Projector, \$2,000
- Digital SLR Camera, \$1,000

FOR OUR STUDENTS

- Solar Conversion Kits for Education Golf Carts, \$4,000
- iPads for Explorer Field Studies Program, \$2,500
- Dark Field Microscope, \$600

FOR OUR VISITORS

- Golf Cart, \$7,000

To fully fund a wish, donate a portion of the cost or donate the actual item, please contact Griselda Chavarria at 305.667.1651, ext. 3309, gchavarria@fairchildgarden.org, or please visit www.fairchildgarden.org/Donate.





Wings of the Tropics

Thousands of spectacular
butterflies await

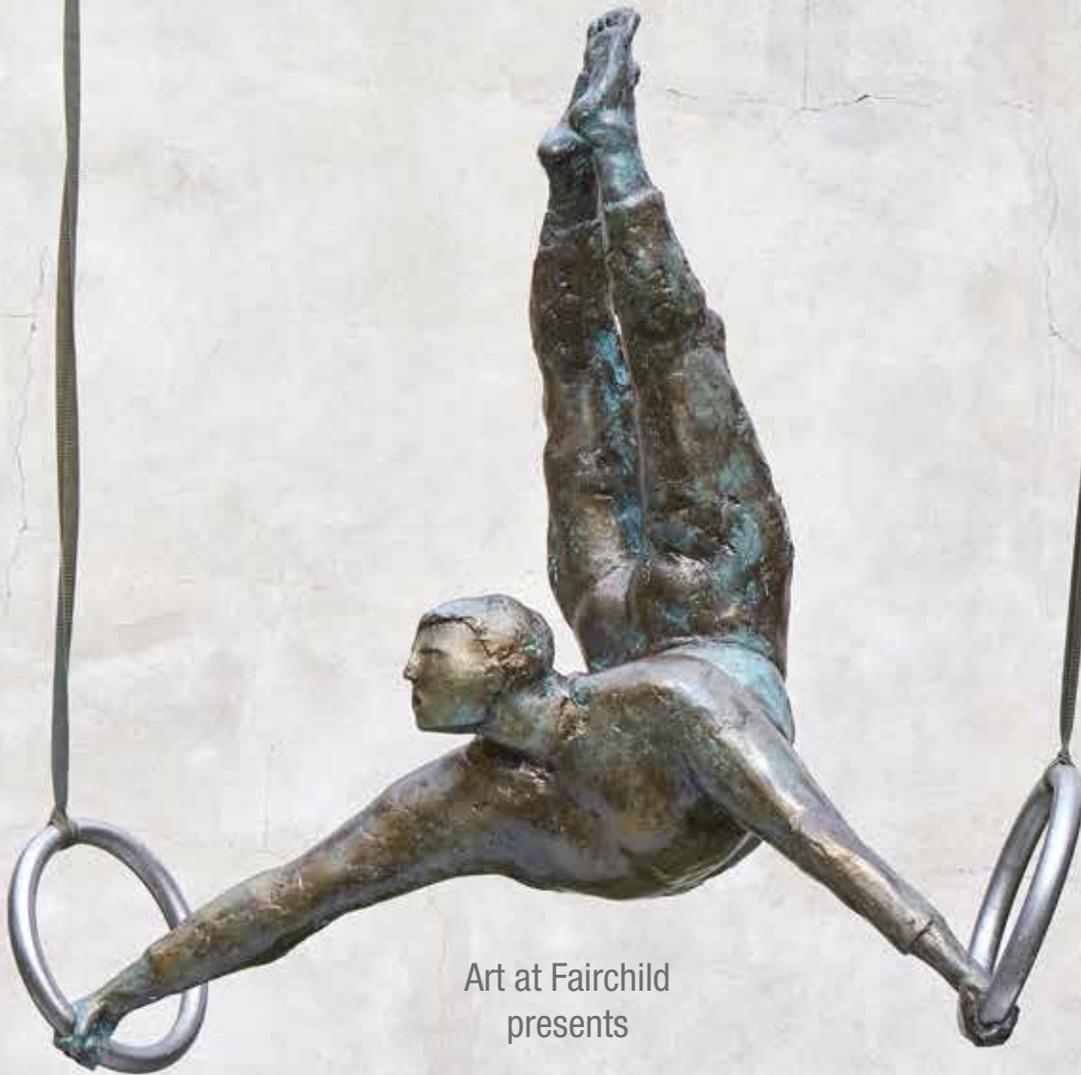
Exotic butterflies like heliconids, morphos and owl butterflies from Central America and South America will be performing their aerial displays of wonder all around you as you stroll through the meandering paths.



Open Daily
9:30 a.m. - 4:30 p.m.

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by Jerzy Kedziora and 2021 Fine Art

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On the Rings, 2001



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at Fairchild

Friday, Saturday and Sunday
January 19, 20 and 21, 2018
9:30 a.m.– 4:30 p.m.



Share the fun @FairchildGarden
Use #ILOVECHOCOLATE during chocolate festival for
your chance to win prizes!

