

the TROPICAL GARDEN

SUMMER 2015



Summer at Fairchild: A Timeless Garden Design



PUBLISHED BY FAIRCHILD TROPICAL BOTANIC GARDEN



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38 EXPLORING FOR ORCHIDS
IN SERAM ISLAND



At Fairchild

At Fairchild, we have interpretation within our tropical fruit and edible garden collections, but there are opportunities for us to provide more information about other useful plants. This is especially true within our rainforest and Caribbean plant collections. Dr. David Fairchild spent his career studying the world's economically and culturally significant plants, so we have a wealth of information within our archives that we must share.

We are increasingly giving high school students opportunities to teach. On weekends, students enrolled in our new BioTECH magnet high school are stationed outside our laboratories, where they provide information on our Million Orchid Project and other Fairchild initiatives.

I am writing this letter from Singapore, halfway around the globe, on a two-week tour of great botanic gardens. My job often takes me to far corners of the world, to meet colleagues and exchange plants and ideas. My current trip is different: this is a summer vacation, and my wife and two children, ages 6 and 10, are traveling with me.

During the past week, we visited the Royal Botanic Gardens, Kew and the Chelsea Physic Garden (London); the Eden Project and the Lost Gardens of Heligan (Cornwall, U.K.); Gardens by the Bay and the Singapore Botanic Gardens (Singapore). All are extraordinary, world-class gardens with unique plant collections and well-developed teaching strategies. All receive a steady stream of visitors of all ages.

Visiting gardens informally with my family, while also observing other visitors, has been a great way to see how learning takes place in different kinds of gardens. The gardens we visited vary widely in size, age, budget, collecting focus and style of interpretation. Nevertheless, I observed three common elements among the visitors to all gardens.

First, garden visitors are overwhelmingly drawn to the plants that have special value for humanity. This is true for people of all ages, but especially for children. Plants that provide food, medicine, clothing and shelter, as well as the plants that have religious significance, all have the most engaging stories and attract the greatest attention.

Second, it is clear that children enjoy playing an active role in teaching and learning. At Fairchild, we often see children leading their families around the garden and explaining what they have learned in our K-12 Explorer, Discovery and Challenge programs. It was interesting to see the same phenomenon in other gardens, where I have often overheard children teaching their parents and older siblings.

Third, I am reminded that plants are always the stars of the show in any botanic garden. Even with the awe-inspiring architecture and technology on display at Gardens by the Bay and the Eden Project, those gardens are built around a core of diverse, valuable and well-maintained plants. The Ginger Garden at the Singapore Botanic Gardens, the Rock Garden and Alpine Garden at the Royal Botanic Gardens, Kew, and the Jungle exhibit at the Lost Gardens of Heligan stand out as botanically and horticulturally rich collections that attract a great deal of attention from visitors.

It is clear that Fairchild needs to prioritize the diversity and value of our plant collections, while raising the level of horticulture throughout our landscapes. Our rare, unusual and spectacular plants will continue to draw the attention of visitors and encourage them to learn more.

This spring, Botanic Gardens Conservation International (BGCI) held a Congress on education in botanic gardens, where many new innovations in teaching and interpretation were presented. The past week has been a great opportunity for me to see those innovations in action around the world, and to distill some common elements that might be useful as we develop new programs at Fairchild.

Best regards,

Carl Lewis, Ph.D.
Director



I love every aspect of Fairchild, but it's the Garden's design that continues to inspire me. It's a testament to the importance of a great designer that after more than 70 years, the Garden's landscape design still resonates.

William Lyman Phillips was the landscape architect that Robert Montgomery hired in 1943 to design Fairchild. Phillips wanted an overall sense of informality in the Garden's design, one that would allow, "the utmost freedom in the choice of vegetation, compatible with any stage of growth; whereas formality would limit the choice [and] would impose demands on specific size and form," he said. At the same time, he knew he needed to create a sense of unity and definition within that principle of informality. And, so, he established unity via the Garden's open spaces—the importance of which he wrote about assuredly in his 1954 memoir:

The Key: Open Spaces

The entire plan is essentially an articulated complex of openings. The necessity of open spaces was obvious, for without well-defined openings, no scenic effects, would be possible. They were necessary in order to assure light to bordering trees and opportunity for growth. Open spaces, furthermore, could be compared to rooms and corridors in a picture gallery, where the walls carry the things displayed. The more wall developed, the more effective would be the use of land.

Phillips went on to describe the underlying principles for the open spaces: variety, consistency and contrast.

Variety. The openings between planting masses or plots are never twice alike; they differ in length, in width, in shape, in orientation, in character. From few points can any great portion of the Garden be seen, and the visitor is led on from point to point in a well-justified hope of discovering a new kind of interest. The openings were and remain the vital elements of the Phillips plan.

Consistency. The pattern is of a piece. The lines and shapes are dominantly free, casual, irregular, naturalistic, favoring if not absolutely assuring a natural randomness in planting.

Contrast. There is contrast between large and small openings and masses, between sunny and shady passages, between the close, intimate views on the upland and the broad open views on and over the lowlands. The Overlook is thrust out over the lower edge of the escarpment; the view from it is panoramic. The Palm Glade terrace is set back on the upper edge of the escarpment; the view from it is narrow and deep.

Phillips' design has been the Garden's touchstone since its implementation. We adhere to his principles carefully and with great precision. You can find a copy of Phillips' memoir on our website, if you wish to learn more about how the Garden was designed. And, if you wish to experience it in person, come visit and see for yourself how his thoughtful design continues to make Fairchild one of the most beautiful gardens in the world. Be sure to stop and appreciate the open spaces: They inform the Garden's overall beauty, especially during the summer months, when the warmth and rains allow the open spaces to fill in.

Summer regards,

Nannette M. Zapata
Chief Operating Officer and Editor in Chief



JOYCE MASCHINSKI, PH.D. is Fairchild's Conservation Ecologist. She leads the South Florida Conservation Team, which does both applied and theoretical research on rare plants of South Florida and the U.S. Caribbean. She received her B.S. and master's degrees at the University of Arizona and her doctorate from Northern Arizona University.



JENNIFER POSSLEY has been a field biologist at Fairchild since 2001. Her responsibilities include mapping and monitoring the rare flora of Miami-Dade County, and she has special interests in ferns and non-native invasive plants. Prior to joining Fairchild's staff, she earned a Bachelor of Arts in biology from Kalamazoo College and a Master of Science in agronomy from the University of Florida.



ALISON WALKER, Fairchild's youth education manager, has a love for teaching people about the power of plants through school and community gardens. With degrees in plant sciences and entomology, she uses her horticultural background and her education experience to provide training, workshops and support for students and teachers, using gardens as an outdoor classroom.



MARTIN MOTES, PH.D., a Fairchild research fellow, is a native Miamian who has grown and studied orchids for 60 years. The author of three books and articles on orchids, he has spoken at several World Orchid Conferences and at numerous other national and international forums. He is an adviser to the Fairchild MillionOrchid Project.

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Have you taken a walking tour lately?

For weekday and weekend schedules, please visit www.fairchildgarden.org/walkingtours

FTBG FAIRCHILD TROPICAL BOTANIC GARDEN



ON THE COVERS
Panoramic, aerial view looking east across the Lowlands and the historic Garden Club of America Amphitheater, the Landbridge, and Glade, Royal and Coconut Lakes. Notice Key Biscayne peeking out in the far distance.
Photo by Gaby Orihuela/FTBG

the TROPICAL GARDEN

The official publication of Fairchild Tropical Botanic Garden

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The Tropical Garden Volume 70, Number 3. Summer 2015.
The Tropical Garden is published quarterly. Subscription is included in membership dues.
© FTBG 2015, ISSN 2156-0501

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Accredited by the American Association of Museums, Fairchild Tropical Botanic Garden is supported by contributions from members and friends, and in part by the State of Florida, Department of State, Division of Cultural Affairs, the Florida Council on Arts and Culture, the John D. and Catherine T. MacArthur Foundation, the National Endowment for the Arts, the Institute of Museum and Library Services, the Miami-Dade County Tourist Development Council, the Miami-Dade County Department of Cultural Affairs and the Cultural Affairs Council, the Miami-Dade County Mayor and Board of County Commissioners and with the support of the City of Coral Gables.



Festivals

23RD ANNUAL INTERNATIONAL MANGO FESTIVAL

Featuring:
The Mangos of Jamaica
Saturday and Sunday,
July 11 and 12
9:30 a.m. - 4:30 p.m.

16TH ANNUAL MANGO BRUNCH

Sunday, July 12
11:00 a.m.
RSVP required,
tickets \$100/\$125

77TH ANNUAL MEMBERS' DAY PLANT SALE AT FAIRCHILD

Saturday and Sunday,
October 3 and 4
9:30 a.m. - 4:30 p.m.

6TH ANNUAL BIRD FESTIVAL

Saturday and Sunday
October 1 and 2
9:30 a.m. - 4:30 p.m.

FALL GARDEN FESTIVAL, FEATURING THE 75TH ANNUAL RAMBLE

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

Lectures

COMMERCIAL MANGO GROWERS' SUMMIT AT FAIRCHILD

Friday, July 10
9:30 a.m. - 4:30 p.m.
RSVP required.

Special Programs

VOLUNTEER INFORMATION DAYS

Saturday, August 22
10:00 a.m.
Tuesday, August 25
10:00 a.m.
Thursday, August 27
1:00 p.m.

Plant ID Workshops

1:00 p.m. on the following Fridays:
July 3
August 7
September 4
October 2
November 6

Plant Show and Sales

THE INTERNATIONAL AROID SOCIETY SHOW AND SALE

Saturday and Sunday,
September 19 and 20
9:30 a.m. - 4:30 p.m.

Walking Tours

WINGED WONDERS AND THE PLANTS THEY LOVE

Year-round
Every Saturday and Sunday
10:00 - 11:30 a.m.

DISCOVERING THE RAINFOREST

July and August,
Every Saturday and Sunday
11:30 a.m. - 2:30 p.m.

Family Fun

THE BUZZ ON HONEYBEES

Saturday and Sunday,
September 12 and 13
9:30 a.m. - 4:30 p.m.

L.E.A.F. (Let's Explore at Fairchild)

Drop-in family program at the Learning Garden
September through November,
Every second and fourth weekend
10:30 a.m. - 2:30 p.m.



This schedule of events is subject to change. For up-to-the-minute information, please call 305.667.1651 or visit www.fairchildgarden.org/events



Membership AT FAIRCHILD

Membership Categories

We have expanded and added membership categories to better fit your needs:

Individual Admits one adult	\$90
Dual Admits two adults	\$110
Family Admits two adults and children of members (17 and under)	\$135
Grandparents Admits two adults and grandchildren of members (17 and under)	\$125
Family and Friends Admits four adults and children of members (17 and under)	\$170
Sustaining Admits four adults and children of members (17 and under). Receives six gift admission passes (\$150 value)	\$250
Signature Admits four adults and children of members (17 and under). Receives eight gift admission passes (\$200 value)	\$500

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- **Quick Admit** at all admission points
- **Subscription** to the award-winning magazine *The Tropical Garden*
- **Discounts** on all ticketed day or evening events
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FAIRCHILD TROPICAL BOTANIC GARDEN

Photo by Gabby Orihuela/FTBG

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GET IN ON THE CONSERVATION



Fairchild's Jason Downing and student Sydney Ramsamooj plant endangered orchids at Jose Marti MAST Academy.

Fairchild Staff Helps Jose Marti MAST Academy Students Plant Endangered Orchids

Fairchild staff visited Jose Marti MAST Academy in Hialeah last May to help plant the first round of native orchids the students have been propagating as part of Fairchild's Million Orchid Project. The project aims to reintroduce 1 million endangered orchids to South Florida's public spaces through the process of micropropagation.

Jose Marti MAST is one of 30 schools participating in the annual Fairchild Challenge education competition that have elected to add the Million Orchid Project to their curriculum. The students began by propagating the orchids in flasks and charting their growth in their classroom lab. Then they built a shadehouse, where the orchids continued to mature. Finally, the students worked alongside school faculty and Fairchild staff to install the mature orchids on trees in their arboretum.

Students will continue to measure the orchids' growth rate. They are contributing to an important conservation project, and their calculations will be key to the success of the Million Orchid Project.



Emily Warschefsky

Fairchild Researcher Earns Prestigious Grant

The National Science Foundation has awarded a Doctoral Dissertation Improvement Grant to Emily Warschefsky, a participant in Fairchild Graduate Studies as a Ph.D. candidate in Dr. Eric von Wettberg's lab at Florida International University. This grant supports Warschefsky's research on the evolution and domestication genetics of the mango (*Mangifera indica*) and its wild relatives. Warschefsky will use the funding to sequence DNA from hundreds of samples of mango cultivars and wild *Mangifera* species from around the world—including more than 100 mango cultivars grown at The Fairchild Farm. In addition, Warschefsky will visit botanic gardens throughout Southeast Asia to study and collect samples from *Mangifera* species in their living collections.



Expedition members sailing to the Île de la Tortue off the north coast of Haiti.

Palm Conservation and Plant Exploration in Northern Haiti

A joint expedition representing botanical gardens of the U.S., Haiti and the Dominican Republic recently traveled to confirm the existence of *Coccothrinax jimenezii* in Haiti. A newly described species, *C. jimenezii* was first found on the shoreline of Lago Enriquillo, Dominican Republic, where fewer than 20 of the palms grow. On this expedition, 43 additional individuals of this species were found near the coast just west of Gonaïves, Haiti. The researchers also visited places and collected plants that had not been documented botanically in the last 85 years, since the great Swedish botanist Erik L. Ekman explored these areas.

Botanists on this trip included Fairchild's Dr. Brett Jestrow, Jardin Botanique des Cayes' William Cineas and Angelo Joseph (Haiti), as well as Brígido Peguero of Jardín Botánico Nacional de la República Dominicana. This expedition was primarily supported by the Mohamed Bin Zayed Species Conservation Fund, as *C. jimenezii* is one of the most threatened palms of the Caribbean. The conservation project was administered and organized by Fairchild researcher and Florida International University faculty member Dr. Javier Francisco-Ortega.

Grant Supports Fairchild's South Florida Landscaping Project

The Stanley Smith Horticultural Trust has awarded a grant to Fairchild to support "Broadening the Palette of Landscape Plants in South Florida." This June, Fairchild staff members Jason Lopez, Tiffany Lum, Dr. Brett Jestrow, and Dr. Chad Husby visited nurseries in Thailand for possible new introductions to South Florida landscapes. The newly acquired plants will be tested at Fairchild for suitability to our climate and for ornamental value. We expect to use the Stanley Smith award to produce a slate of great new plants to distribute to our members and visitors. We look forward to sharing our discoveries with you!



Microbes and Plant Health

We have recently learned that microbes in our own digestive tracts affect our digestion and metabolism. The same is true for plants. Chris Krieg, a researcher with Fairchild and Florida International University faculty member Dr. Eric von Wettberg, along with their partners at Dicle University in Turkey and the University of California at Davis, have been working to better understand the relationship between specific microbes and plant health. The researchers have been systematically pairing different wild and cultivated chickpea varieties with the bacterial communities in soil from various natural habitats in Turkey. This work has the potential to help harness beneficial bacteria that can convert atmospheric nitrogen into a form that fertilizes plants or that protects against disease in agricultural systems. Such a discovery would be beneficial in both the developing and developed worlds.

L-R
Dicle University doctoral student Fatma Basdemir and Dicle University College of Agriculture faculty and administrators Cuma Akinci, Bekir Bukun and Mehmet Yildirim inspect the growth of wild chickpea in the university's greenhouse in Diyarbakir, Turkey.




Making Mango "Candy"

By Noris Ledesma, Ph.D.

For years, mangos have been of great value in South Florida, grown with pride in the garden—a fruit to eat when ripe and at all stages of growth. Enjoying truly fresh mangos is a Floridian's privilege, but there are also many ways to preserve the fruit. Since this is a wonderful year for mangos, it is an opportunity to preserve some of the harvest. One of my favorite ways is by making mango candy.

Dried fruit has a long tradition, dating back to 4,000 years ago in Mesopotamia, and is prized because of its sweet taste, nutritive value and long shelf life. Drying is an excellent way to preserve mango fruit. In the form of dried slices or fruit leather, the mango makes a delicious, sweet, all-natural, healthy candy containing fiber, vitamins and minerals. Most people like it, and kids just love it!

Drying does not change the flavor of the natural fruit, and in many fruit the color retention is excellent. They can be stored in a small space, and be beautiful gifts. 



Dried Mango Slices or Leather

Ingredients: Mangos

Equipment needed: Electric dehydrator

The climate in South Florida is too rainy and humid during the mango season for sun-drying of fruit to be practical. Electric dehydrators are the most convenient method for drying mangos here. Several good dehydrators are available. Elsewhere, in regions where there is little rain and low atmospheric humidity, the fruit can be dried in the sun. For drying slices, select ripe, firm mangos. Avoid fruits that are too soft and mushy, as they are difficult to slice and will result in slices that are dark in color.

Peel the fruit with a sharp knife and cut out any defective parts. Cut off the two sides, or "cheeks," of the pulp, and then cut off the two remaining narrow pieces from the edges of the seed. Discard the peels and seeds for compost.

Cut the pieces of pulp into lengthwise slices ¼ inch to ½ inch thick. Arrange the slices flat on the dehydrating trays. Place the trays into the dehydrator.

Set the temperature between 125°F and 135° F, and let the dehydrator run until the slices reach the desired consistency. Slices that are too soft or moist do not store well. Drying time depends upon the thickness of the slices, the amount of fruit in the dehydrator and the humidity. In South Florida, drying times of eight to 10 hours are typical. However, check a few hours earlier to avoid burning the fruit. Properly dried slices have a beautiful golden-yellow color.

Dried mango slices or leather should be placed in closed bags soon after drying. If they are left in a humid atmosphere without protection, they will take up moisture and soften considerably. The bags of dried slices or leather should not be stored at room temperature for more than a few days in hot weather, as they will ferment or develop mold on their surface and become inedible. Dried mango products can be kept in a refrigerator successfully for at least two years or in a freezer for at least three years.



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CLASSES AT FAIRCHILD

July through December
Registration is open!

www.fairchildgarden.org/classes



WHAT'S BLOOMING



What's Blooming This Summer

By Marilyn Griffiths

Photos by Marilyn Griffiths, Susan Ford-Collins and Paolo Guilloli

A stroll through the shady Tropical Flowering Tree Arboretum provides a refreshing respite from the heat of the summer. As you wander through this lovely area, you'll see the original terraced plots lined with limestone rock. This was one of the first areas of the Garden designed by William Lyman Phillips, the Garden's landscape designer. Each plot contains representatives of a different plant family. Many of the trees are the original plantings from the 1930s and 1940s. Let's take a look at what's flowering during the summer.



Gala in the Garden
SAVE THE DATE
Saturday, February 6, 2016

 FAIRCHILD TROPICAL BOTANIC GARDEN



Catesbaea spinosa



Ravenia spectabilis



Kigelia africana



Stemmadenia litoralis

Kigelia africana (sausage tree) is a large tree in Plot 29, the Bignoniaceae family plot. Long, pendulous stems are adorned with large, cup-shaped burgundy flowers. Since they are traditionally pollinated by bats, the flowers open at night when bats are active, although trees at Fairchild are hand-pollinated. Once pollinated, the flowers produce long, sausage-shaped fruits. The woody fruits are eaten by many animals, from baboons to elephants, and are used in traditional African herbal medicine. You may see open flowers on the ground under the tree, and unopened, attractive buds may still be on the rope-like stems. Other members of the Bignoniaceae family in this plot may also be flowering now, including *Catalpa longissima*, *Markhamia lutea* and *Radermachia* sp. 'Kunming.'

Catesbaea spinosa (lily-thorn) in Plot 24 is a member of the Rubiaceae family. This small tree is native to Cuba and the Bahamas and lives up to its common name—spines are interspersed between the small, deep-green leaves. But the pendulous flowers more than make up for the spines: small, creamy-white, lily-shaped blooms cover the tree, which was planted in 1941.

Another member of the Rubiaceae family is ***Rondeletia odorata*** (Panama-rose). This wonderful shrub, which is

native to Cuba and Panama, blooms abundantly in the summer. The flowers are a brilliant orange-red with a glowing yellow center and are surrounded by deep-green, crisp leaves. Our best specimens are in Plot 21 at the base of the Overlook near the tram road.

Stemmadenia litoralis (milky way tree) has a well-proportioned shape and pale bark contrasting with deep green leaves. A member of the Apocynaceae family, you'll see the resemblance to its relative, *Plumeria*, in the swirled white flowers. The blooms provide a delicate fragrance evoking early-morning freshness. *Stemmadenia* is in Plot 47, along with other members of the Apocynaceae family.

The citrus family, Rutaceae, is a large one containing not only the familiar orange and lime, but also many ornamental plants. An unusual species, ***Ravenia spectabilis*** has been in our Rutaceae plot, Plot 39, for 50 years. A lovely ornamental shrub, it produces an abundance of pink flowers surrounded by glossy, deep-green leaves. It is native to Cuba and Hispaniola.

Visitors to Fairchild can obtain a plot map of the Garden, which includes a list of currently flowering plants, upon arrival and at any of the information stations located throughout the grounds. Volunteers at the Visitor Center desk also have a complete list of Fairchild's plants. Our website is an invaluable resource for Garden information, including the lists of plants with their locations, organized by both common and scientific names, a downloadable map of the Garden with plot numbers, helpful horticultural information and What's Blooming information for each month of the year.



Visit www.fairchildgarden.org to find the current year's list of flowering plants for each month.

THIS SUMMER THE FUN IS AT FAIRCHILD

BY NATALIE WHITE-

INTERNATIONAL MANGO FESTIVAL, JULY 11-12

Nothing says summer at Fairchild like the International Mango Festival! On July 11 and 12, join us for an exploration of the king of tropical fruit. You can learn how to cook with mangos and how to grow them, plus take part in mango tasting. Did you know there are more than 600 varieties? Trees carefully selected by our curators will also be available for purchase. There are also fun activities for the family! Come and enjoy the sticky sweet summery event!

FAIRCHILD SUMMER CAMP

Most of our events have activities for kids, but if your kids really want to dig in deep, Fairchild Summer Camp is the way to go! We offer two options: KoolScience and Junior Naturalist. Both options will introduce your child to the wonders of nature and the world of science. It's the perfect way to make learning fun.

PLAN YOUR STAYCATION AT FAIRCHILD

Summer means holidays and vacation with the family. Where better to enjoy your staycation than at Fairchild? Stroll through the Garden and discover new spots through a self-discovery walk, or explore butterflies and their host plants on our Winged Wonders and the Plants They Love tour every weekend. Volunteers will be waiting for you at the Rainforest, where every Saturday and Sunday from 11:30 a.m. to 2:30 p.m. you can hear interesting stories about the plants and animals that inhabit this diverse ecosystem. For walking tour details, please remember to check the website at www.fairchildgarden.org/Visit/Tram-Walking-Tours and inquire at the Visitor Center's information desk upon arrival.

BUTTERFLIES: A FLIGHT OF SUMMERTIME FANCY!

Stroll through the Wings of the Tropics exhibit and be amazed and captivated by its incredible landscape, flowering plants and hummingbirds, plus the stars of the show: thousands of tropical butterflies. There's lots to see and learn. After, head inside the Glasshouse Cafe to take a break while continuing to enjoy the marvelous winged beauties.



Expressing Thanks and Gratitude to Our Volunteers Fairchild's Annual Volunteer Appreciation Brunch

By Niki Saylor. Photos by Arielle Simon and Kenneth Setzer.

More than 350 Fairchild volunteers were feted and celebrated for their dedicated and invaluable service to the Garden at Fairchild's annual Volunteer Appreciation Brunch on April 1. The celebration began before the volunteers even entered the brunch, as they chatted and laughed with new and old friends, enjoyed soft guitar strumming and were surrounded by zebra longwing butterflies fluttering in the morning sun. Volunteers excitedly anticipate the annual event, which honors their contributions of talent, effort and time. With 77,000 hours given by more than 750 active volunteers during 2014, there was much to celebrate.

The horticulture staff beautifully decorated the Lakeside Marquee with Garden plants including bougainvillea and jade vine clippings, bottle brush flowers, monstera leaves and fruit of nearby pandanus. To show their appreciation to the volunteers, more than 80 staff members prepared delicious fare, ranging from Croatian Crêpes to Masala Chicken and from Lemony Lentil and Chickpea Salad to Spanish Rice Pudding—continuing an eagerly-anticipated annual tradition.

The brunch included speeches from Fairchild Director Dr. Carl Lewis, Board of Trustees President Bruce Greer and Director of Volunteer Services Arlene Ferris. In his speech, Lewis spoke with gratitude of the ways in which volunteers support the Garden's mission by educating students, guiding visitors on tram and walking tours, promoting Garden memberships, maintaining the beauty of the Garden through horticulture, contributing to South Florida conservation through the Million Orchid Project and more. Greer expressed his heartfelt thanks to the volunteers as well, saying, "Fairchild couldn't do all it does without the volunteers."



(L-R) Garden Director Dr. Carl Lewis and 2015 Volunteers of the Year Cornelia Hurst, Carl Bauer and Ted Adelman.

Ferris added that, "By supporting the Garden's vital mission, volunteers create a better community and world." She also announced three Volunteers of the Year, who exemplify this supporting role through their dedication and commitment: Ted Adelman, Carl Bauer and Cornelia Hurst.

Adelman, with five years of service, was recognized for teaching with the Discovery, L.E.A.F. and Weekend Educator programs, for driving the shuttle two days a week and for his leadership as a Wings of the Tropics Day Captain. In his thank-you speech, he acknowledged the Garden's founders and thanked the staff for working so hard so that he could "come play in the Garden."

Bauer, who has been chair of the Friends of Fairchild (FOF) for the past four years, has been a volunteer at Fairchild for more than 20 years. As a tram guide of 17 years, he enjoys sharing his knowledge and love of plants with Garden visitors. He also volunteers with the Plants and People Horticultural Therapy program and is a great ambassador for Fairchild—both within and outside the Garden gates.

Hurst was incredibly surprised to be named a Volunteer of the Year, and she was deeply grateful for the recognition of her 10 years of service. She's made tremendous contributions assisting the membership department with database management, and as a Wings of the Tropics greeter and South Gate receptionist, she ensures a pleasant experience for Garden visitors. Hurst's enthusiasm, willing attitude and passion for the Garden are qualities to be admired.

At the brunch, Fairchild also honored the 2015 Volunteer Team of the Year: The Ramble Antiques and Collectibles Committee. Comprised of 17 volunteers, headed by Dorothy Errera, this committee works together for many months behind the scenes, collecting donations and polishing, cleaning and pricing goods to get them ready to sell at the Ramble. Their collaborative efforts come to full fruition on Ramble morning, when buyers swoop in to find their treasures, with proceeds benefitting the Garden's programs.

In addition to the Volunteer and Volunteer Team of the Year awards, more than 90 volunteers were awarded pins recognizing their service anniversaries, extending from five to 40 years. Volunteer Brenda Whitney expressed her appreciation for the annual brunch, saying, "It is a privilege to work at Fairchild. All the staff, everywhere in the Garden, are so kind and friendly to all of us." For staff, the volunteers are essential, and they feel it's their privilege to work with all the amazing people who serve as Fairchild volunteers. We were grateful to have this chance to tell them so!



Volunteers enjoyed delicious fare prepared by Fairchild staff and celebrated at the annual brunch held in their honor. (Bottom left to right) Wings of the Tropics volunteers Alejandra Villamil, Lucy Petrey, Nina Delgado, Susan Hills, Liz Trifiletti, Jane Anne Pincus and Tere Sproul.



Some of the 2015 Anniversary Pin recipients gathered together after the Brunch. More than 90 volunteers received pins acknowledging their service anniversaries, extending from five to 40 years.

2015 Anniversary Pin Recipients

2015 Volunteers of the Year

Ted Adelman
Carl Bauer
Cornelia Hurst

2015 Volunteer Team of the Year

Ramble Antiques & Collectibles Committee

Polly Carico
Ann Chitty
Dorothy Errera
José Garrigó
Susanne Kayyali
Jan Luykx
Sigrid McNeil
Petsy Mezey
Bev Murphy
Hélène Pancoast
Josef Pommer
Doris Rudnick
Magella Sauve
Neice Schreiber
Melody Trott
Ricki Weyhe
Hallie Yanno

Service Pins

40 years
Bobbe Dooley
Bev Murphy
William P. Murphy

35 years
T. Hunter Pryor

25 years
Charlie Keppiet
Louis J. Risi, Jr.

20 years
Carl Bauer
Willis D. Harding
Mary Rose

15 years
Shirley Berckmans
Terry Blechman
Jack Broman
Marnie Broman
Marjorie Brown
Beth Collinsworth
Swanee DiMare
Edith Einspruch
Roselle Foster
Pat Hackett
Jane Iversen
Susan Lustbader
Shelly Mascaro
Jackie McAlonan
Jill Sidran
Jana Sigars-Malina
Vincent Tria, Jr.

10 years
Shelley Adelman
Herb Allenson
Mary Ann Baldoquin
Carolann Baldyga
Joyce Berman
Elaine Brockhouse
Polly Carico
Dianne Clancy
Sheila Frazier
Bobbi Garber
Pauline Goldsmith
Susan Hays
Everett Hoffman
Cornelia Hurst
Don Lindsay
Jane Morrison
Janet Mosely
Susan Muci
Pam Normandia
Donna Rich
Ellen Roth
Diane Rourke
Ybis Sanabria

5 years
Ted Adelman
Margie Askins
Jim Berlin
Sonia Calderon
Diane Chasin
Nancy Cliff
Rosie Flores
Bernadette Formoso
Cathy Gilewicz
Connie Herrera
Jimmy James
John Kennedy
Floyd Krause
Ruth Krieger
Muriel Lusenti
Frank Macaluso
Jacquelyn McCarthy
Bob McMillan
Bob Mercer
Andre Naranjo
Deborah Olivieri
Patty Phares
Eduardo Ramirez
Joy Reid
Juan Riera
Jean Ross
Yvette Shapiro
Peter Siegel
Richard Stuart
Trish Swinney
Karen Turner
Camilo Villamizar
Mary Weirich

Volunteering at Fairchild

Become a Fairchild volunteer and let a few hours of your time blossom into a world of new experiences!

Fairchild volunteers serve the Garden, the community and the world through their hands-on participation in Fairchild's programs and activities, while meeting others who share their interest in plants and gardens. Current volunteer opportunities range from hosting to helping with the Wings of the Tropics exhibit and guiding visitors.

To learn more about becoming a Fairchild volunteer and how you can help the Garden grow, come to one of our Volunteer Information Days.

Saturday, August 22, 10:00 a.m.

Tuesday, August 25, 10:00 a.m.

Thursday, August 27, 1:00 p.m.

For reservations and additional information please call 305.667.1651 ext. 3360.

Can't make it this time? Additional Volunteer Information Days will be held in January. We hope to see you soon!



The Transformative Nature of School Gardens

By Alison Walker. Photos by Fairchild Staff

The benefits of planting seeds in a school garden are many. As the popularity of school gardens grows, so does the wealth of research demonstrating their benefits.

School gardens have been shown to have a positive impact on student achievement and to significantly increase science test scores, improve social skills and behavior, increase nutrition knowledge, raise consumption of fruits and vegetables and improve environmental stewardship and respect for nature. This research comes at a time when U.S. students are scoring below international averages in standardized testing, food-related diseases are becoming a national epidemic, less than 2% of U.S. children eat the recommended serving of vegetables and research shows that children are not getting outside enough.

Through The Fairchild Challenge, approximately 20,000 students at more than 120 K-12 schools across Miami-Dade County plant, maintain, grow, learn and thrive in their school gardens. The Fairchild Challenge supports schools' gardening efforts by conducting teacher workshops, offering

garden consultations and providing school garden grants—as well as drawing on the wealth of expertise represented across the Garden. As the students benefit, so do South Florida ecosystems. More than 25 elementary schools have installed pine rockland gardens at their schools through Fairchild's Connect to Protect Network, while 30 high schools are growing native orchids as part of Fairchild's Million Orchid Project.

The diversity of school gardens is as wide as the diversity of the plant kingdom itself: We see native gardens, wildlife gardens, food forests, sensory gardens, medicinal gardens, cultural gardens and more. The variety of activities that the gardens support is impressive as well. In the garden, students are writing poetry and learning new vocabulary; doing observations, measurements, comparisons and graphing; growing food for homeless shelters; using



TOP
A student from Arch Creek Elementary harvests tomatoes for a fresh and delicious salad.

BOTTOM
Students from Bel-Aire Elementary proudly show off everything they have learned in their garden.



artistic skills to make brochures and maps to tell the story of their garden; meeting local farmers and learning about the importance of sustainable agriculture; learning about resource conservation through rain barrels and composting; and understanding that not all bugs are bad—and that bees, butterflies and ladybugs are all an important part of a healthy garden ecosystem. School gardens are a wonderful springboard for learning about plants and science, as well as topics across the curriculum.

The value of experiencing this in a hands-on, real-world context cannot be overestimated. Students who do poorly in the classroom often excel in a garden setting. A school garden gives students the invaluable opportunity to make real-world observations based on scientific concepts learned in the classroom. Every year, teachers tell us stories of students who finally understand a concept once they are able to witness it in the garden. School gardens are also known as an “education equalizer,” in which students of all different abilities can work together and learn from each other. Teachers tell us that the garden is the one place that their AP students can work collaboratively with students who have special needs or disabilities.

In addition to the academic lessons to be had in the garden, there are also invaluable life lessons. Students learn the important concepts of responsibility, cooperation, collaboration, patience and respect. In the garden, the lines that separate different cultures and generations dissolve. Students can become teachers, and individuals from very different backgrounds find common ground, literally. One teacher told us of a student who didn’t speak a word for the first several weeks of school. Once the class began to work on its school garden, the student slowly began to open up, and eventually grew into the garden spokesperson and


leader. When we visited the school, that student stood up in front of the whole group and presented his garden poem to us, living proof that school gardens can transform individuals and communities.

Lastly, the garden offers an important opportunity for students to develop a sense of stewardship. There is growing concern about “nature deficit disorder,” a term coined by Richard Louv in his insightful book, “Last Child in the Woods.” This generation will grow up to be voters and policymakers. How can we expect them to protect our precious natural resources if they have not had an opportunity to personally connect with nature? For many students, especially in urban Miami-Dade County, school gardens are one of the few opportunities for them to experience that connection.

There are many measures of success that can be observed in the garden, whether it is a child trying broccoli flowers for the first time and loving them, a second grader wanting nothing but a composter for her birthday or a group of older students mentoring their younger cohorts. Many of these students go home and encourage their families to begin a garden, which is a great measure of success.

But for us, some of the most gratifying moments are found in the feedback we get from teachers and students. Here is just a small sample to leave you with:

“Our garden makes me feel responsible because the plants there depend on me. They need us and we need them.” —2nd grade student

“The garden is an act of love. It is a place where we all get together and help our environment. When you work in the garden, you help nature and you also help your community. The garden makes me feel like a good person.” —4th grade student 

TOP
A rain barrel helps students from Phyllis Ruth Miller Elementary practice water conservation.

ABOVE
Students at Southside Museums Magnet Elementary work together to beautify their garden oasis, which is tucked in between downtown Miami high-rises.

To learn more about Fairchild’s school garden efforts, visit www.fairchildchallenge.org.

CALLING ALL AMATEUR PHOTOGRAPHERS!

Snap your best photo of a South Florida bird for a chance at winning this year’s competition, a featured part of Fairchild’s annual Bird Festival.

Please submit the completed application and digital photo entries by Friday, September 18, 2015.

Visit www.fairchildgarden.org/birdfestival for the application form and more information.

Photo by Ignacio Carrera



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CONSERVING

SAVING SKY ISLAND SPECIES IN PUERTO RICO

By Joyce Maschinski, Ph.D.
and Jennifer Possley



PREVIOUS PAGE
Looking north from Sierra Bermeja.
Photo by Jennifer Possley/FTBG

RIGHT
Dr. Joyce Maschinski and Puerto Rican colleagues carefully descend down a culvert toward a fern habitat.
Photo by Jennifer Possley/FTBG



RIGHT
Jennifer Possley and Yahaida Camacho pause briefly behind the federally endangered elfin tree fern *Cyathea dryopteroides*.
Photo by Joyce Maschinski/FTBG

BELOW
Eureka! This frond of federally endangered *Polystichum calderonense* is full of ripe spores and has a proliferous bud at the tip. We can propagate new ferns from both.
Photo by O. Monsegur



If you wanted to pinpoint places on Earth where you would find the greatest diversity of plants, where would you look? What qualities would you seek? Mild tropical climate? Variable soils? Diverse topography? Indeed. Another characteristic to consider is isolation, the essential ingredient for speciation (the creation of new and distinct species through evolution). Throughout the planet, oceanic islands and sky islands (or mountains) support many unique plants and animals. And sky islands on oceanic islands are exquisite biodiversity hotspots (regions with significant numbers of species under threat).

Although most people travel to Puerto Rico to play along its beautiful beaches or in its lovely cities, last fall we headed uphill to the highest peaks in the north and southwest of the “La Isla del Encanto,” where few people go. There, sky islands host many rare plants that need conserving due to threats of development, invasive species and climate change. As part of an important recovery effort for seven endangered Puerto Rican endemic species, we made collections for conservation and research at Fairchild.

We began our first field day in mogote country, in Puerto Rico’s northern karst region, peering over the edge of a highway

into a huge sinkhole. Mogotes are isolated, steep-sided hills with a rounded, tower like form that are surrounded by plains. Karst regions are characterized by limestone and dolomite, where drainage mainly occurs via an underground river system, Puerto Rico’s northern karst region is quite wet and green. As we peered into the sinkhole, it looked like an algae-covered concrete culvert gave us the easiest way down. If the algae had been thick enough, we could have slid down without shredding our clothing or injuring our bodies, but, alas, it was not, so we made do by scooting on our thick-soled hiking boots in a crouched position, gingerly standing and grabbing onto any available non-poisonous branches for dear life as we made our descent. In hindsight, we should have brought ropes.

Once we got into the sinkhole, a fairyland of ferns opened before us, nodding and dripping from the morning rain. All around us, ferns grew on rocky outcrops, crevices, living tree trunks, and dead branches. Many that had relatives in South Florida we greeted enthusiastically as old friends. But in this sea of ferns, we sought the critically endangered *Tectaria estremerana*. Described in 1984 and last seen in 1992, we weren’t even sure that this federally endangered fern would still be present at this location.



Carefully stepping across jagged limestone boulders, our party of six professional botanists hunted for the elusive fern. And we found three!

We also pursued this fern in two other locations. Each supported dense thickets of vegetation, so that our searches reminded us of hunting for a needle in a haystack. At one site, it seemed miraculous that Jennifer Possley found a *T. estremerana*. Finding so few plants certainly caused us concern and highlighted the urgency of our conservation efforts.

On another day, on yet another mountain, we scrambled to the summit of La Silla de Calderón (elevation: 3,700 feet) in Monte Guilarte State Forest in Puerto Rico’s west. We were in search of *Polystichum calderonense*, a fern species only known from two mountaintops. Our climb rewarded us with breathtaking views and an opportunity to collect spores and the tiny buds that are borne on the end of fronds.

At the top of Mt. Jayuya (elevation: 4,260 feet), near the center of the island, University of Puerto Rico graduate student Yahaida Camacho has been studying the dwarf tree fern, *Cyathea dryopteroides* (synonym *Alsophila dryopteroides*) for the past two years. She expertly guided us to

individual plants where we were able to collect fronds with ripe spores. Unlike the fern habitat of *Tectaria* or *Polystichum*, this was an elfin forest. All the trees had comparatively low stature, though they still towered above us. These elfin tree ferns share habitat with large tree ferns, giving the forest a beautiful tiered effect.

Surrounding this sky island was a formidable perimeter of weedy grasses and aggressive, thorny *Hypolepis* ferns (similar to bracken, but with spines), which most likely deter all but the most fern-obsessed visitors.

In southwestern Puerto Rico, we visited the tropical dry forest in the Sierra Bermeja mountain range (ranging from 600 to 1,000 feet), where the U.S. Fish and Wildlife Service has a small preserve. Most of the range comprises private ranches or ‘fincas’. Volcanic, serpentine, chert, red clay and amphibolite rock formations are the foundation for the unique plant residents. With our botanist colleagues, we climbed to the peaks in search of four federally endangered species: grasses *Aristida chaseae* and *Aristida portoricensis* (pelos del diablo), aster *Vernonia proctorii* (synonym *Lepidaploa proctorii*) and heath shrub *Lyonia truncata* var *proctorii*. Rainfall and plant



RIGHT
Jennifer Possley and Joyce Maschinski with Puerto Rican colleagues.
Photo by C. Pacheco


BELOW
Federally endangered *Lyonia truncata* var. *proctorii*.
Photo by O. Monsegur



densities were much lower here than in the fern habitats (they reminded Dr. Joyce Maschinski of Arizona), but the vistas were equally spectacular.

On the first peak in Sierra Bermeja, a sober shock greeted us. A landslide caused by road construction on unstable soils had buried one-third of the *Lyonia* plants known from this site. We were too late to rescue those plants. The remaining plants were accessible, but the steep mountain slopes and unstable scree (the mass of small, loose stones covering the slope) made our collections precarious. What's more, as we gazed across the landscape, we saw our plants covered with the parasitic love vine, *Cassytha filiformis*. Why would this parasitic vine target the rarest species on the slope—and do so with such vengeance? As we spotted our target species along the slopes, we collected seeds or stem

cuttings and recorded GPS locations. In some locations, we encountered many individuals in a cluster, while in other locations they were sparse and spread far and wide.

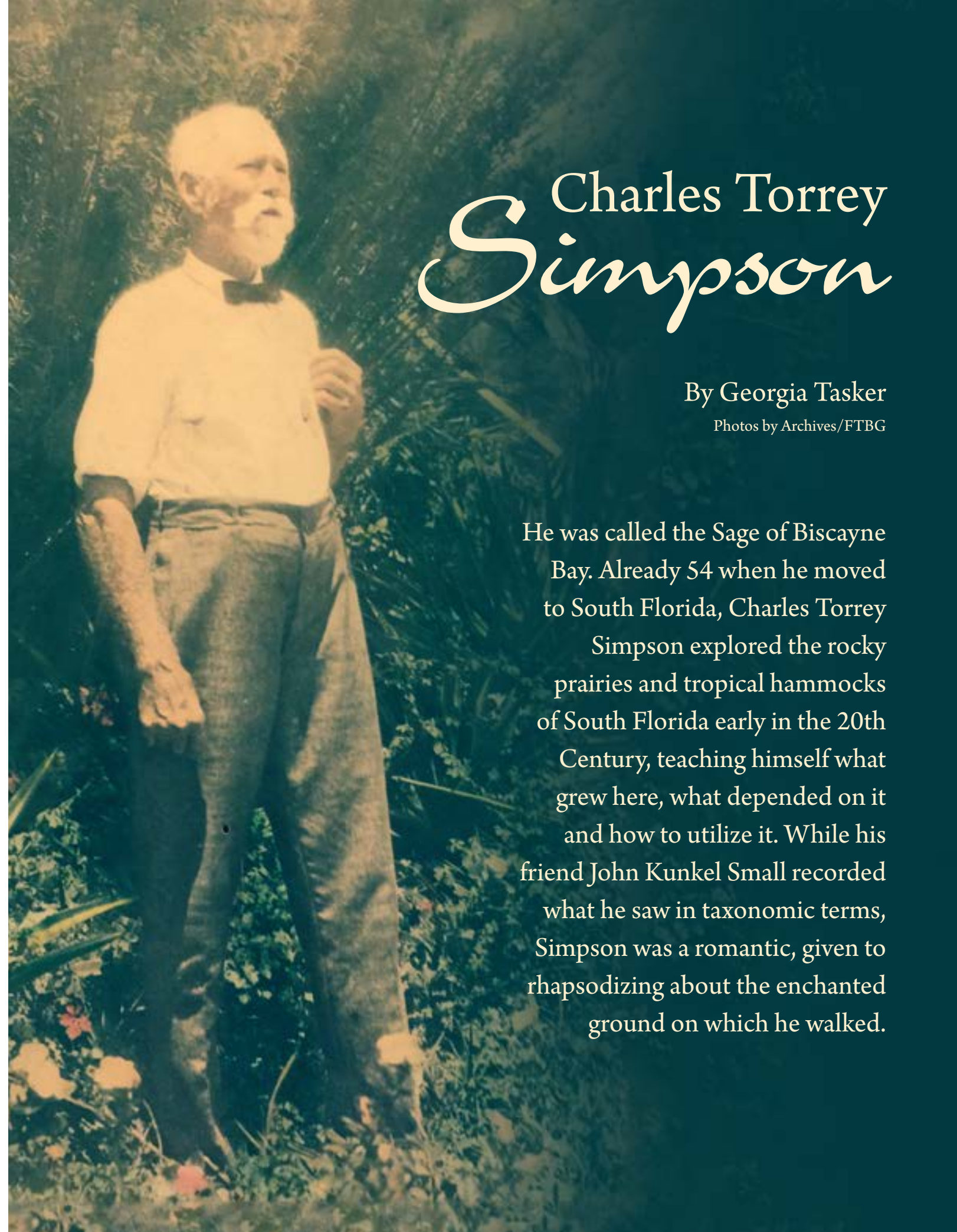
Our goal was to collect a representative sample of the genetic diversity within each population. Capturing seeds, spores or stem cuttings at the perfect stage of development often proves challenging on a collecting trip. Even with a trained eye, it is difficult to collect *Aristida* seeds and fern spores at the peak of ripeness—and the plants don't always coordinate with our collecting calendar. Nevertheless, we are already beginning to unlock the secrets to propagating these sky island species, increasing the likelihood that we will be able to safeguard their germplasm for decades to come at Fairchild, in Puerto Rico, and at the National Center for Genetic Resources Preservation. 

.....
We are grateful for funding from the U.S. Fish and Wildlife Service and for logistical and field support from our host, Omar Monsegur, and colleagues José Cruz Burgos, Iván Llerandi-Román, Carlos Pacheco, José Martínez, Xiomara Labiosa, Ramón Rivera, José Sustache, Jeanine Velez Gavilan, Benjamin van Ee, Rubén Padrón, Yahaida Camacho and José Albarracín.

Charles Torrey Simpson

By Georgia Tasker
Photos by Archives/FTBG

He was called the Sage of Biscayne Bay. Already 54 when he moved to South Florida, Charles Torrey Simpson explored the rocky prairies and tropical hammocks of South Florida early in the 20th Century, teaching himself what grew here, what depended on it and how to utilize it. While his friend John Kunkel Small recorded what he saw in taxonomic terms, Simpson was a romantic, given to rhapsodizing about the enchanted ground on which he walked.



After arriving in South Florida in 1903, Simpson spent the next 30 years tramping through the tropical watery wonderland around him. Dr. David Fairchild referred to him as the John Muir of Florida. But Marjory Stoneman Douglas wrote: "It has been said that if Mr. Simpson had lived in California he would have been considered a second John Muir. To us, he is no second anything, but always Charles Torrey Simpson himself. ..."

Miami's Simpson Park is named for him, as is Simpson's stopper, *Myrcianthes fragrans*. A native orchid, *Calapogon tuberosus* var. *simpsonii*, also honors him. Simpson's apple cactus, an endangered species, once was named *Harrisia simpsonii* thanks to J.K. Small, but now is called *Harrisia fragrans*.

Tall and strong, Simpson was a self-taught expert on mollusks who had worked for the Smithsonian Institution (with a starting salary of \$75 a month). He collected his first freshwater shells as a youngster in Illinois, and ultimately became an expert on them. He learned to love plants and nature from his mother, while his schooling was lacking because "parsing a sentence was a task beyond me and fractions and mathematics, I just hated. The fields and woods were my school."

Simpson served in the Union army in the Civil War, and then joined the Navy for three years. After that, he returned to Illinois and married. "In the next few years, I became a Jack of all trades—farming, carpentering and mining, and for nine years I worked an Illinois coal mine," he told the *Miami Daily News* in 1931. "While following the plow, it was my custom to carry a little box on the plow handles and when a shell or specimen was found, I put it in the box and looked up the subject in a book or sent the specimen to the state geological survey."

For a few years, he lived in Bradenton, Florida, and worked as a carpenter. He traveled to Honduras for west coast Florida nurseryman Pliny Reasoner, collecting ornamental plants. He had an affair with his business partner's wife and took his family to Nebraska in the wake of the scandal. He went bankrupt as a farmer, yet continued his passion for shell collecting and wrote scientific papers on them. He came to the attention of William Dall at the Smithsonian Institution's Museum of Natural History, who offered him a job.

At the Smithsonian, he classified and arranged 2,000 species of freshwater mussel shells. His 500-page report, "A Synopsis of the Naiades, or Pearly Fresh-Water Mussels" was a reclassification that was a revolutionary work but was criticized by some authorities. A year later, his biographer Elizabeth Rothra says, he produced a "monumental study of 1,540 manuscript pages with 7,600 entries." It would languish unpublished for 12 years. Discouraged, Simpson resigned and moved to Florida to retire.

He bought 9½ acres in Little River fronting on Biscayne Bay. "It was a wild jungle of rocks,



Charles Torrey Simpson standing in his hammock at his home, the Sentinels, in Little River.

native palms and mangrove trees," he told the *Daily News* in the 1931 interview. "I was enchanted with the natural beauty of the place and wanted to rest and study wild life." His brother Joseph, a plant collector in Bradenton, wrote about his purchase, "If it is a piece of that high hammock on Biscayne Bay just north of Lemon City, then I must congratulate you ten thousand times ten thousand on the beautiful paradise that you have selected for your future home."

Simpson built his own home, which survived the 1926 hurricane but not the Palm Bay Club of later decades. He called it the Sentinels for the two pines in front of it. He designed it to stand 10 feet above ground. "From basement to rooftop, outside and in, it is my own handiwork and after 28 years it stands without a crack or a strain," he said in an interview.

Henry Nehrling, who collected plants in Gotha, Florida, outside of Orlando, persuaded Simpson to write a paper for the Florida Horticultural Society. "I wrote a paper on Dade county plants and Dr.

David Fairchild and Charles Deering liked it so well, they had photographs taken and had the matter published and distributed free as a guide for plant growers of this area. Then I got my foot in it. Fairchild wanted me to write something to help growers of plants and flowers, and I wrote a little book called 'Ornamental Gardening in Florida.'"

"Simpson introduced to South Florida a new form of tropical landscape design: a departure from formal, geometric plantings," Rothra wrote. "Influenced by the American rustic trend seen in other parts of the country, Simpson had demonstrated his concepts on his own grounds at the Sentinels. Now his innovative ideas would change the way many Floridians viewed their property."

Nature, Simpson wrote, is the great landscape gardener. He liked "banks of shrubs against masses of trees" as well as views in the distance. Planting beds "should be careless and irregular ..." And the concern among early botanists for destruction of natural areas prompted Simpson to recommend, "If one has a piece of untouched high pine forest I would suggest that it be left for a wildwood garden."

In 1927, James Pray, chairman of the Harvard School of Landscape Architecture, wrote Simpson, asking for a copy of "Ornamental Gardening in Florida" because, "the first part of it at least is such a clear statement of sound doctrine independent of locality."

Liberty Hyde Bailey, David Fairchild, John Gifford, John Kunkel Small, Charles Deering, plant people all, knew Simpson and each other. And while they revolved like planets around the Fairchild sun, Simpson was the sun to South Florida gardeners, and his hammock was a favorite out-of-this-world tour.

"Simpson introduced to South Florida a new form of tropical landscape design: a departure from formal, geometric plantings."

-Elizabeth Rothra



ABOVE
Young Charles Torrey Simpson.

BELOW
Simpson, left, with Dr. David Fairchild on the day he received the Meyer Medal.





On shore at Lake Hicpochee and 3-mile canal, Florida, May 1917. "C. T. Simpson is not praying although using ecclesiastical language. In jumping from the boat, he landed on mud instead of sand."

-J.K. Small
Photo by J.K. Small

"His charming personality and unfailing generosity towards every one who came for information or plants made his place a general rendezvous."

-David Fairchild

David Fairchild recalled in "The World Grows Round My Door" that Simpson's hammock included exotic palms. "Beautiful rare orchids and bromeliads were fastened to the oaks. It was an education in the botany of the tropics to wander with this great naturalist through his place and hear him tell about his plants."

Fairchild mentions him again in "The World Was My Garden," writing, "His charming personality and unfailing generosity towards every one who came for information or plants made his place a general rendezvous. Professor Simpson and I took a liking to each other from the start and a friendship developed which lasted to the end of his life."

South Florida's colorful tree snails (*Liguus fasciatus*) were a natural attraction for Simpson, and he collected them and wrote scientific papers about them. Yet, he warned, "at present the *Liguus* are almost exterminated in Florida." Those in Cuba, where he believed the snails originated, would be wiped out in many areas as forests were cut to grow sugar cane.

Naturalist Simpson wrote "In Lower Florida Wilds" in 1920. In it, he tells of venturing into Brickell Hammock, which once stretched for miles along the shore of Biscayne Bay. He calls it the primeval forest and his descriptions reveal his love of what he finds: "Only a part of the original forest still stands and it is probably that most of that will soon be destroyed. Let us enter it now before it is too late to observe, study and wonder; to be filled with reverence at sight of so magnificent a growth; for like an old Greek or Roman temple, it is stately and beautiful, even as a ruin."

Following a road cut long ago through the Brickell forest, Simpson describes the trees as forming a tunnel: "We are now in the primeval forest and on either side of us is a solid wall of vegetation towering up sixty or seventy feet. The sight to me is always an inspiring one and it fills me with a vague sense of fear."

To Simpson, limestone sinks in hammocks are made "ravishingly beautiful by the ferns and other shade and moisture loving plants that occupy them. No words that I can summon will properly describe the wonderful effect produced by these fern gardens."

Mangroves that grew below the mouth of Little River, some "braced by air roots fully 18 inches in diameter that sprung from a height of 25 feet above the ground," reached 60 to 70 feet tall. "They were sacrificed to human avarice for the tannin in their bark and the potential furniture in their close-grained, red wood. Today the whole forest is a desolate ruin," he wrote.



Simpson made many excursions to Cuba, bringing back plants. Eventually Fairchild put him on the Department of Agriculture payroll. In 1927, the University of Miami awarded him an honorary science doctorate, the school's first.


He also earned the Meyer medal for plant introduction, about which Marjory Stoneman Douglas wrote in 1923, "The quiet and painstaking and often painful work of such scientists as he, working all unnoticed in the roots of the region, too often, goes without recognition by the people whom his work will most benefit. The scientific mind, it is true, works for the excitement of the chase, for the love of the subject. In Mr. Simpson's case, for sheer devotion to South Florida." Simpson Park, the only ragged remnant of the Brickell Hammock still extant, was dedicated to him in 1927. The city Commission declared him to be "father of all South Florida naturalists."

Like Florida's other early naturalists, Simpson spent his later years rallying for creation of Everglades National Park. He wrote for the *Miami News* in 1928 that, "It was the birds that gave color and

glory to the whole. I cannot describe them, they covered the glades by the millions, roseate spoonbills, the saintly herons and egrets, that dream of color the flamingo, a host of ducks and pelicans and gulls. Only a few now are left of the uncounted millions; that are mostly a lovely memory."

The Tropical Everglades National Park Association was formed in 1928. David Fairchild was president and Ernest Coe the executive secretary. Simpson, Gifford and Stoneman Douglas were among the planners who lured park representatives to Miami in 1930. National Parks personnel came to look at the proposed park area, and Simpson and Gifford took them on a boat trip to the Everglades. Congress approved the preservation of the area for national park purposes.

On December 17, 1932, Simpson went into his office to work on a talk he would soon give; he fell out of his chair and died of a heart attack.

David Fairchild dedicated a copy of his book "Exploring for Plants" to the surviving Flora Simpson. Among the things he wrote: "As I sit and look out upon the palms and lianas and bamboos which the professor planted in the early days of his sojourn here, I seem to hear his joyous laugh again and see the sparkle in his face. It has never seemed the same here since he went, and I have never ceased to miss his companionship." 



TOP
A path winds through Simpson Park.

ABOVE
A portrait of Simpson hangs in the garden center at Simpson Park, depicting the "Sage of Biscayne Bay" receiving his honorary doctorate.

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PLANT COLLECTIONS

FAIRCHILD'S FERN COLLECTION

Text and photos by Mike Freedman





Ferns at the Garden are on the move. Ferns' popularity heyday during the 1970s led to an expansive, if chaotic, fern collection at Fairchild. A fairly recent Fairchild initiative to restore South Florida habitats has brought a new interest in ferns, many of which are imperiled here. We're also collecting wild fern material from many tropical regions and propagating exotic ferns of special interest.

ABOVE (L-R)
Native ferns as replacement for invasive exotics?

(L) Native *Thelypteris grandis* (stately maiden fern), growing in plots 32A and 134, being tried where **(R)** *Phymatosorus scolopendria* (wart fern) is currently growing.

The Garden is fortunate to have a dedicated conservation department. Most of us are unaware of the number of fern species that grow in at-risk habitats, such as solution holes. Not only are these ferns numerous, but many are spectacularly beautiful, like *Adiantum tenerum* (brittle maidenhair) growing on the west wall of the Gallery Building, among other places, and *Ctenitis sloanei* (Florida tree fern). There are filmy ferns, ferns that have short-lived green spores and miniature ferns like *Thelypteris sancta* (Caribbean maiden fern), *Thelypteris reptans* (creeping maiden fern, found on rocks on the southwest side of the William F. Whitman Tropical Fruit Pavilion) and *Microgramma heterophylla*, climbing vine fern growing at the base of the large oak in Plot 3B—all ideal candidates for terrariums. Other native ferns can be used as bedding plants, as epiphytes or to grow in and cover rock walls. Jennifer Possley, a member of the Fairchild Conservation Team, has been fighting to rescue ferns on the brink. Spores that she's collected from these ferns are being grown here and at a lab in Ohio.

Many of the ferns grown from these spores have already been returned to local nature preserves such as the Deering Estate and Hattie Bauer Hammock, restoring endangered populations there to a sustainable level. Others have been planted in selected locations around the Garden. Walking around the central island in the William F. Whitman

Tropical Fruit Pavilion, you'll see beds of *Tectaria heracleifolia* (broad halberd fern), a fern that's listed as threatened in Florida. This planting has been so successful that countless young examples of this fern can be seen growing on the rocks of the east mist wall. This is a phenomenon that we hope to see spread, as spores from rare native ferns once again recolonize old habitats. To aid in returning a healthy native fern population, ferns grown by Fairchild staff will sometimes be offered as distribution or sale plants. To ensure survival of rare native ferns, spores are continually being collected and stored in a seed bank in Colorado.

Collection of Tropical Ferns

Ferns have a great advantage over flowering plants—they produce spores, rather than seeds. Cutting a ripe fern frond in Haiti or Hawaii can yield millions of viable spores that can be brought home in a small envelope. Once home, some of these spores can be planted and the rest stored in a refrigerator. Jason Lopez, Dr. Brett Jestrow and other Fairchild staff and local botanists have brought back fern spores from a number of tropical countries. Recently Jennifer Possley and Dr. Joyce Maschinski traveled to Puerto Rico in search of nearly extinct ferns. They were able to bring back a few good fern fronds. As a result of this trip, hundreds (thousands, really) of these endangered ferns are now growing in our facility.


LEFT
Native *Adiantum tenerum* (creeping star-hair fern) plants itself on the rock wall of the William F. Whitman Tropical Fruit Pavilion.

RIGHT
Thelypteris sancta growing at the Fairchild nursery.

Propagation of Exotic Ferns of Special Interest

As mentioned, Fairchild's fern collection was once quite extensive. Of the 10,000 or so ferns in the world, we probably had several hundred. I can recall seeing nearly all of the 18 or so species of *Platycterium* (staghorn fern) on the walls of our Tropical Plant Conservatory (then called "The Rare Plant House"). Because this is such a small and interesting group of plants, I've decided to try to restore our collection of staghorn ferns, planting some individuals around the Garden and distributing or selling the rarer and more unusual species. At the moment, seven species are under spore cultivation here, with expectation of acquiring spores from a further five or so.

Because fern spores occur in such quantities, can travel so far on air currents and can grow so readily on damp surfaces, care must be exercised in choosing ferns to grow and propagate. In the past, some exotic ferns have escaped and become nuisances. Lime-loving (high pH) ferns are particularly dangerous. *Phymatosorus scolopendria* (wart fern) and *Pteris vittata* (Chinese brake fern) are examples of exotic ferns that have become established here in South Florida, perhaps forever. Exotic ferns that grow in acidic soil or are epiphytic stand a better chance of behaving themselves, as they're unlikely to find local wild habitats that aren't hostile to their growth.

At the Garden we have the ability to vary temperature, to water during the dry season, to grow ferns in special soils, etc., in order to favor their continued health. As with the staghorn ferns, sometimes tree ferns or other exotic ferns that need specialized care will be offered for distribution or sale to the public. One aspect of the Garden's original mission was to cultivate and distribute plants of interest. Ferns are now becoming a prominent feature of that mission. 

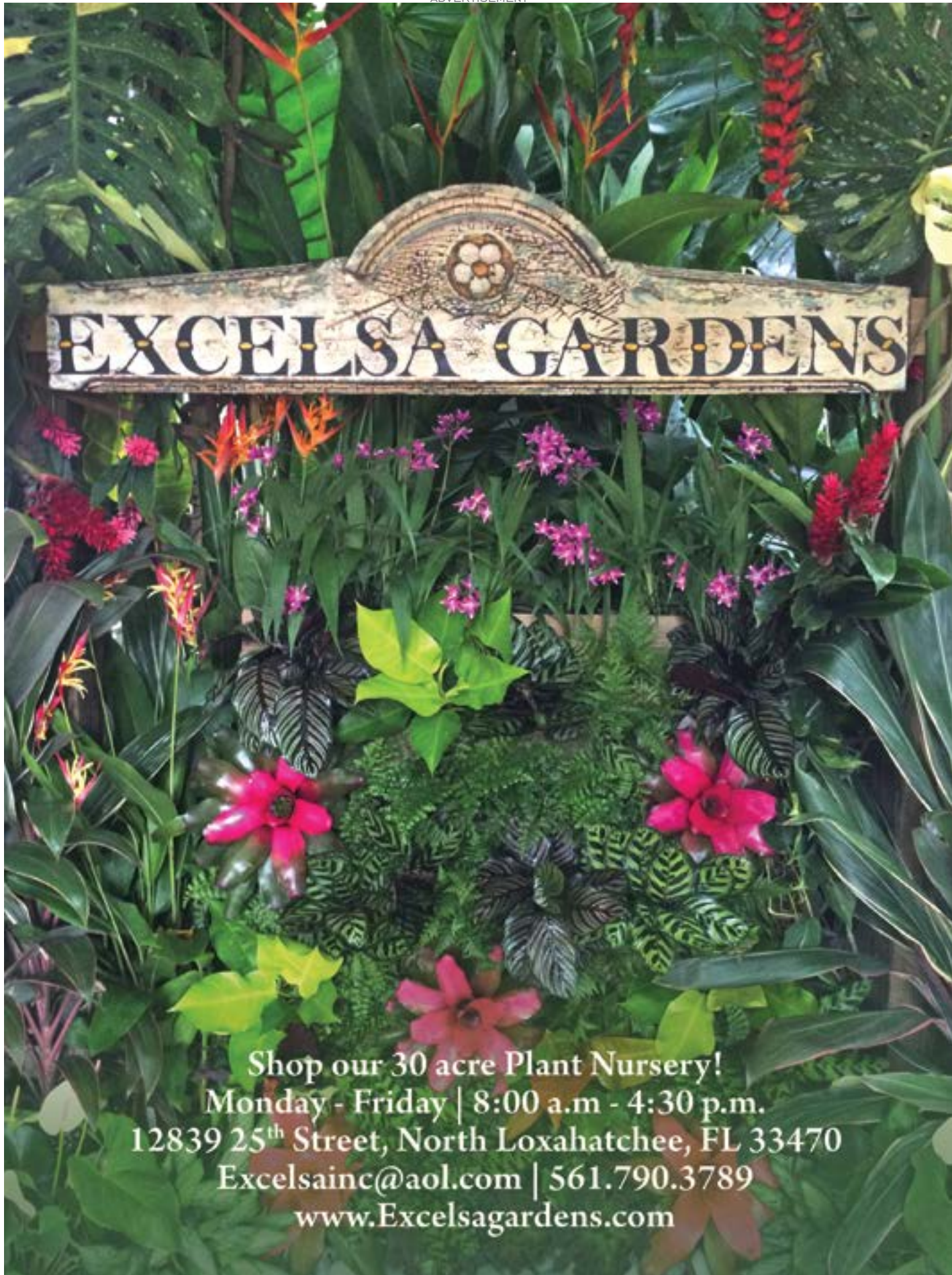
Worth the Wait

By Jennifer Possley

Mike Freedman mentions that some of the rare ferns in Fairchild's rare native fern program are "grown here" at Fairchild. This process of cultivating ferns from spore takes patience and dedication that can only come from a true love of ferns. Take the Caribbean maiden fern (*Thelypteris sancta*) as one example. The United States' only population of this diminutive fern grows in a Miami-Dade County preserve, under a canopy of Brazilian pepper (a management nightmare!).

After several attempts, I finally made a collection of healthy spores from wild plants in October 2013. I passed the spores to Freedman, who immediately started the laborious process of propagation. Finally, almost two years later, plants have reached full size.

The fern pictured above and its cohorts will likely be planted at Fairchild or in a Miami-Dade County preserve in order to safeguard the species' existence in Florida.



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FAIRCHILD TROPICAL BOTANIC GARDEN



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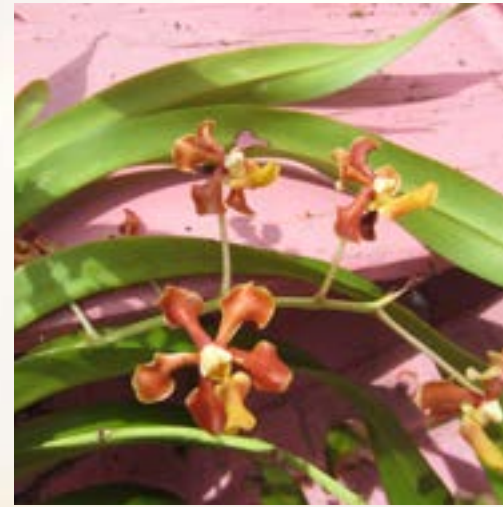
FAIRCHILD TROPICAL BOTANIC GARDEN

Beachcombing for ORCHIDS Seram Island, South Moluccas

Text and photos by Martin Motes, Ph.D.

Taxonomy is the science of naming, describing and classifying organisms, including all plants, animals and microorganisms of the world, and it often takes one to faraway places. However, typically the only delight the eye finds is in herbarium specimens of plants that have been dead a century or more. Fairchild's Herbarium contains a scientifically important collection of tropical plants, collected over the past 80 years or so.

Perhaps, then, it shouldn't be surprising that the pursuit of a living specimen of the first *Vanda* orchid species described by western science, *Vanda furva*, led me almost to the farthest reaches of Indonesia.



The first photo of *V. furva*, 300 years after it was described.

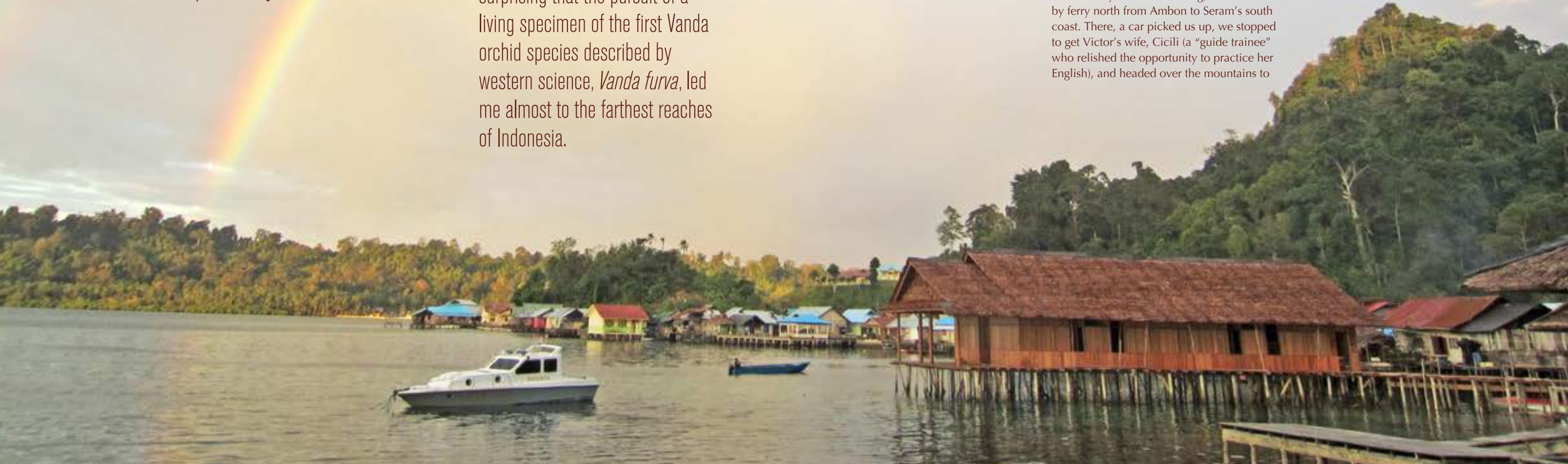
First described and illustrated by Georg Eberhard Rumphius in the 17th century (the type specimen is his drawing), *Vanda furva* has been a source of confusion for more than 300 years. Determined to get the identity of *V. furva* straight for the monograph on the genus *Vanda*, I decided I needed to visit the South Moluccas, where Rumphius had found the species growing in mangrove trees. In 2011, I flew to the island chain's main city, Ambon, and set out in search of *V. furva*. It would not be easy to find the plant, nor Rumphius' other *Vanda*, *V. saxatilis*, as the mangrove habitat and trees where Rumphius had found *V. furva* were almost entirely gone. On that trip, neither species could be found in the region's dooryard gardens, and 10 days of searching the coastal roads of Ambon and the nearby islands of Seram and Boru failed to yield either of Rumphius' vandas.

So, last year, I decided to return and take another tack. I began my trip similarly, flying into Ambon. Upon landing, I met with my guide, Victor, who immediately provided valuable assistance. I showed him Rumphius' drawings of *V. furva* and *V. saxatilis*, and he thought that he had seen similar plants on the north coast of the largest Moluccan island, Seram. Early the next morning, we set out by ferry north from Ambon to Seram's south coast. There, a car picked us up, we stopped to get Victor's wife, Cicili (a "guide trainee" who relished the opportunity to practice her English), and headed over the mountains to

the island's north coast. Along the way, we made several stops to photograph orchids *in situ*—sadly, the most visible were on the canopy in branches of forest trees that had been felled for lumber. In one very exciting moment, looking high up in the canopy of a standing tree, we saw what appeared possibly to be *Renanthera moluccana*, a plant so rare that neither a herbarium specimen nor a photo exists. Fortunately, it wasn't the last time we'd spot that elusive plant.

On Seram's north coast, we boarded a skiff, in which we traveled several kilometers across the open seas to our lodge. Constructed largely of *Sago* palm frond lumber, it perched on pillars above a coral reef resplendent with colorful fish, anemones and other sea life, including sea cucumbers. Next morning, we headed out to search for the Vandas in a long boat with two crew from the lodge.

Our first stop, a sheer rock cliff sparsely dotted with trees, proved fruitless; we found only the ubiquitous *Vandopsis lissochiloides*, which from a distance we had presumed to be *V. saxatilis*. Our second stop, however, proved to be one of the most unique littoral (the intertidal zone of a beach) habitats on the planet. A tree-covered mountainside





PREVIOUS PAGE
The fishing village on the north coast of Seram.

ABOVE
The author with *P. susannae* and cable cover from nearby construction.
Photo by Victor Lawatan

plunged at a 75-degree angle to a coral reef, where it broke into small patches of white sand punctuated by rocky outcroppings and caves etched by the sea (some even with stalagmites). Wildlife abounded, from black-tipped sharks hunting in the shallows to frigate birds only half a kilometer away working tuna schools in the fathomless depths of some of the deepest waters in the world.

Upon landing on a small beach, we discovered *Phalaenopsis amabilis*, which the locals call “moon flowers,” as well as several species of *Dendrobium*. Walking and wading for barely 20 meters, we came upon a *Vanda* plant in a small mangrove. Although we believed it was either *V. furva* or *V. saxatilis*, the plant was not in flower—so we weren’t able to identify it. Another 15 minutes of walking and wading brought us to the same plant in bloom. The flower looked like Rumphius’ *V. furva*, which he described as having a lip like a tooth. We were certain we had discovered a flowering plant in exactly the habitat in which Rumphius had found it more than 300 years ago!

Continuing along on this incredible coastline, in the space of less than a kilometer, we found 20 more orchid species in 12 genera. Most remarkable was the widespread but elusive *Dipodium picta*, a plant so rare only four have been reported in all of northern Australia. A *Cymbidium*

relative, this plant has an essentially monopodial growth habit (it grows upward from a single point)—unlike the sympodial (lateral) growth habit of *Cymbidium*. Because the species are related, botanists believe *D. picta* likely represents the evolutionary link between the two diverse groups.

The first day of exploration had accomplished nearly all that I had hoped for from the trip, but Rumphius’ second *Vanda* species had yet to be found. The next morning, we set out from our lodge in the opposite direction into a river estuary. There, we found swamp densely populated with Sago palms, punctuated with hardwood trees. The trees supported various orchid species, mostly dendrobiums, but also *Coelogyne*, *Trichoglottis* and *Pholidota*. Then, in a tree overhanging the river, we spotted a *Vanda*—this one broader and with thicker leaves than the species we had found the previous day. Not much farther on, we found another plant in full bloom. The plant had clear yellow, roughly triangular-shaped lips, curiously doubled over on itself. The unique redoubling of the lip created a tooth-like shape, which, together with the yellow color, matched the description of *V. furva* that Rumphius had written. At that point, we realized that the plant we had discovered the day before was, in fact, *V. saxatilis*.

The final pieces had fallen into place and 300 years of puzzlement over Rumphius’ two *Vanda* species was resolved. The unique redoubling of *V. furva*’s lip created the tooth-like shape that Rumphius described. *V. saxatilis*, the plant we had discovered on the first day, also has a tooth-like (as thick as broad) lip typical of many other related *Vanda* species. The true *V. furva* had never been observed and photographed—the photos contained here in *The Tropical Garden* are the first ever taken! Because of this, all commentators mistook *V. saxatilis*—our beachside plant, which was known from the South Moluccas—for *V. furva*. While Rumphius’ drawings of the two species’ flowers are not clear enough to have resolved the confusion, his illustration of the plants clearly shows the distinct difference between these two species. Rumphius shows *V. furva* as a large plant with broad leaves and *V. saxatilis* as smaller with narrow leaves. This is just as the two species are in life.

As if our good fortune could not have been greater, growing in the same tree as the true *V. furva* we discovered was a *Renanthera moluccana*, the extremely rare plant we thought we’d glimpsed high in the forest canopy days before. Although unfortunately not in flower, the *Renanthera* bore an old flower spike, complete with several seedpods. Until then, *R. moluccana* was known only from an illustration in Rumphius’ work—a plant with no herbarium specimen nor even a photo known to science. The photo published here is the first record of the plant of *R. moluccana*.

With all of our goals accomplished, we were able to spend the next day exploring a mountain slope. Following a narrow path beside a dry watercourse, we ascended through secondary forest that contained the only remaining large trees old enough to support epiphytic orchids (clove or durian trees). Colorful butterflies—numerous in both quantity and variety—were in constant motion around us, accompanied by beetles, centipedes and other insects. On one large tree, we spotted *Grammatophyllum speciosum*, the largest of orchids. We also encountered a species from the cosmopolitan genus *Vanilla*.

Having measured and photographed the specimens for the Herbarium at Fairchild,

one more task remained that last afternoon before we could return to Ambon the next morning: returning our *Vanda* specimens to the wild. Export of orchid species—even for scientific purposes—is strictly controlled by the Convention on International Trade in Endangered Species (CITES). Our present knowledge of both *Vanda* species would indicate that their habitat is critically endangered and every effort should be made to conserve them. Thankfully, Victor knew of an uninhabited island with mangrove trees that would be suitable hosts for the specimens, which we had measured and photographed. As it happened, the island was almost precisely halfway between the two locales where we had found the species. We returned our specimens to nature.

After our return to Ambon the next day, Victor and I explored the island a bit, examining roadside weeds and dooryard gardens. As we traveled a coastal road beside an open hillside, I spotted a flash of white in the tall grass. Stopping and returning, we were elated to discover the crown jewel of Rumphius’ species, *Platanthera susannae*, which he had named for his beloved wife. Pure white and incredibly intricately formed, *P. susannae* is among the most beautiful orchids in the world. It was growing barely a meter from a newly dug ditch for high-speed cable. The discovery of this exquisite species was a fitting, and thrilling, end to my journey.

TOP RIGHT
The first photo of *R. moluccana*, so rare no herbarium specimen exists.

BELOW
The incredibly intricate flowers of *P. susannae*.



DISCOVERING *Vanda aliceae*

Text and photo by Martin Motes, Ph.D.



Vanda aliceae

Early in the 20th century, Dutch botanist J. J. Smith discovered a *Vanda* species growing on Bacan Island in the north Moluccas of Indonesia. He identified it as *Vanda hastifera*. During research for the monograph of the genus *Vanda*, I came across Smith's drawing of the flower. I quickly realized that, while similar to *V. hastifera*—which had been described in Borneo, this species from 3,000 kilometers away on the other side of the Wallace line was a new species yet to be described.


Someone needed to go out to Bacan Island and rediscover Smith's plant! I, of course, volunteered.

One reaches Bacan by first flying to Ternate in the Moluccas. There, I met my guide, Harris, who arranged our passage on an overnight ferry to Bacan. We arrived in Bacan in the dawn, with plenty of time for exploring the coastline near the port. Later, Harris—who is from Bacan—hooked us up with the local naturalist/crocodile hunter.

We went with him to a deserted island that was literally covered with tens of thousands of *Vandopsis lissochilloides*. There, we found a half-dozen other orchid species in several genera—but not our *Vanda*.

The next morning, we explored more of the coastline and were returning to our hotel when we passed a garden with numerous *Arachnis* and *Dendrobiums* visible over the wall. It is always useful to seek input from local orchid lovers, so we stopped. There in the garden, attached to a tree, was our *Vanda*! After brief bargaining, the lady of the house agreed to a price of 10,000 rupee (a little less than \$10) for a sample. She wanted me to take the entire plant; when told I only wanted the flowers and a single leaf to measure, she pointed to the numerous other orchid flowers she would gladly sell me for the same price.

Armed with our type specimen and numerous pictures, we booked the overnight ferry and returned to Ternate. Upon our return, we visited several other orchid collections and found another specimen of the new species. We were told this specimen had been collected on the neighboring island of Halmahera, a likely extension of the range of *V. aliceae*.

The same garden held an un-flowered plant of what was clearly a *Vanda*, its ragged leaf tips a dead giveaway. It, too, was said to have come from nearby Halmahera, although exactly where was unknown. No known species of *Vanda* have been reported from Halmahera. With just two days left before my return flight, there was only sufficient time to explore that island's more accessible, populated areas. Unfortunately, two days' search yielded no results. Someone will need to go out there and find that second new *Vanda* species. I reckon I'll volunteer. 

The Rare Fruit Council International

By Carla Hatten

At our fruit sales, shoppers frequently ask, "Are these fruits organic?" There is widespread public belief, promoted by the organic food industry, that organic food is safer, more nutritious and tastes better than conventional food. These beliefs have fueled increased demand for organic food, despite higher prices and lack of scientific evidence.

Organic food is food produced in a way that complies with organic standards set by government organizations, using methods of organic farming. In general, organic farming responds to site-specific farming and crop conditions by integrating cultural, biological and mechanical practices that foster cycling of resources, promote ecological balance and conserve biodiversity.

One of the most important aspects of growing fruits and vegetables year after year is fertilizing. Any fertilizer, organic or not, is a material that provides certain nutrients that help plants to grow. The difference between organic and artificial chemical fertilizers is the origin of the nutrients. Organic fertilizers are made from materials derived from living things, such as manures and compost. Chemical fertilizers are manufactured from nonliving materials. These products are often made from petroleum products and rocks. Organic fertilizers work over time to create a healthy growing environment; they are easily biodegradable and do not cause environmental pollution. While chemical fertilizers provide rapid nutrition, they can contaminate both the land and water. One of the best features of organic gardening is the ability to locally produce fertilizers and other organic ingredients, and the easiest among them is compost. Compost provides air, water, organic matter and microorganisms to your plants, thus enhancing their growth. It also maintains a healthy atmosphere for the soil and helps keep insects, plant diseases and weeds away.



Adam Byrd with a 50-pound Mai 1 Jackfruit.
Photo by Matthew Snow, MD

The biggest advantage of using compost is that the organic matter in compost is partially decayed, so its volume is much lower. Furthermore, microorganism activity has already started in the compost, so the concentration of these microorganisms is very high. This makes compost a concentrated and easy-to-absorb source of organic matter for the growing plants.

For all these reasons, I would rather eat fruits and vegetables that are free of chemicals, even if they do come at a slightly higher price.

The Rare Fruit Council International meets the second Wednesday of every month at Fairchild at 7:30 p.m. in the new Paul and Swanee DiMare Science Village classroom. Meetings include fruit tastings, door prizes, educational programs with speakers and lively discussions about tropical fruits and their culture. Admission is free and the public is welcome and encouraged to join our club. Other activities include propagation workshops, field trips, plant sales, farmers markets and community education.



Mangifera indica

By Georgia Tasker

No one has ever seen a non-cultivated *Mangifera indica*, the mango from which South Florida's multitude of cultivars have been selected, according to Dr. Richard Campbell, Fairchild's senior curator of tropical fruit. "There's no record of it being collected," he says. "Is there such a thing?"

Mangi is the Indian vernacular for "mango" and *fero* is a Latin word meaning to bear, according to *Stearn's Dictionary of Plant Names for Gardeners*. But did *Mangifera indica* really originate in the foothills of the Himalayas, as its name might imply, or did it come from Vietnam or Thailand or the Malaya peninsula?

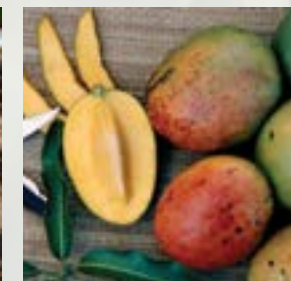
Fossil leaves of mangos have been found, and the earliest hail from northeast India, although experts cite the center of greatest diversity as western Malesia—consisting of peninsular Malaya, Borneo and Sumatra. Those areas are among the places Campbell and Dr. Noris Ledesma, Fairchild's curator of tropical fruit, have searched for mango's wild relatives to use in The Fairchild Farm's mango-breeding program.

There are 69 or 70 species of *Mangifera*, with 26 or so producing edible fruit, according to the 1993 mango bible "The Mangoes, their Botany, Nomenclature, Horticulture and Utilization," written by Andrew J.G.H. Kostermans and J.M. Bompard. Campbell and Ledesma are using that reference as a guide for their collecting, as it represents 40 years of fieldwork in Asia.

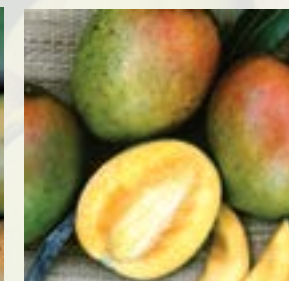
Many wild mango species are forest dwellers, but the oil palm industry and spreading populations throughout Southeast Asia are destroying those forests, adding urgency to the collection of wild mangos and their vital germplasm.



'Angie'



'Julie'



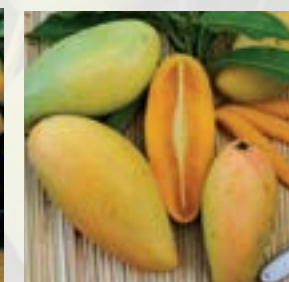
'Bombay'



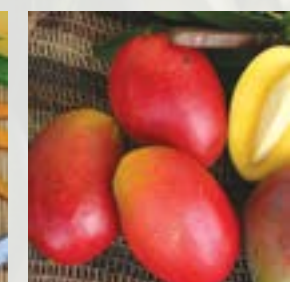
'East Indian'



'Graham'



'Nam Doc Mai'



'Cogshall'

Some of the wild mangos the Fairchild scientists have collected include:

Mangifera caesia, which Campbell says may be a combination of several species. *Caesia* means light blue.

Mangifera pajang, which is from Borneo, Malaysia and Indonesia. Pajang was a 16th-century kingdom in Java.

Mangifera quadrifida, a Bornean species with clusters of small purple fruit; *quadrifida* means cut into four.

Mangifera applanata, which Campbell says probably contains genes from several species but has fruit that actually looks like a mango. The origin of *M. applanata* is unknown.

Mangifera foetida, the horse mango that has such a strong odor it is called the Durian Mango; *foetida* means foul smelling.

While some of the new wild mangos are grafted and growing well, trees for sale at Fairchild's Annual International Mango Festival will include only these cultivars of *Mangifera indica*:

'Angie', named for Angie Whitman, wife of the late Bill Whitman, a trustee of Fairchild and donor of the William F. Whitman Tropical Fruit Pavilion.


'Julie', a mango of unknown origin, but widely grown in Jamaica; it is unknown where the name originated.

'Bombay', another cultivar widely grown in Jamaica; this mango was taken there in the 19th century. It also is called 'Paheri' and was introduced to the United States by Barbour Lathrop and David Fairchild in the 1920s.

'East Indian', which was taken to Jamaica by immigrants from eastern India.

'Graham', a seedling of Julie that was introduced from Trinidad in 1932; is it named for Graham Fairchild, Dr. David Fairchild's son?

'Nam Doc Mai', from Thailand; the meaning of its name is unknown.

'Cogshall', a Haden seedling named for a family on Pine Island. 



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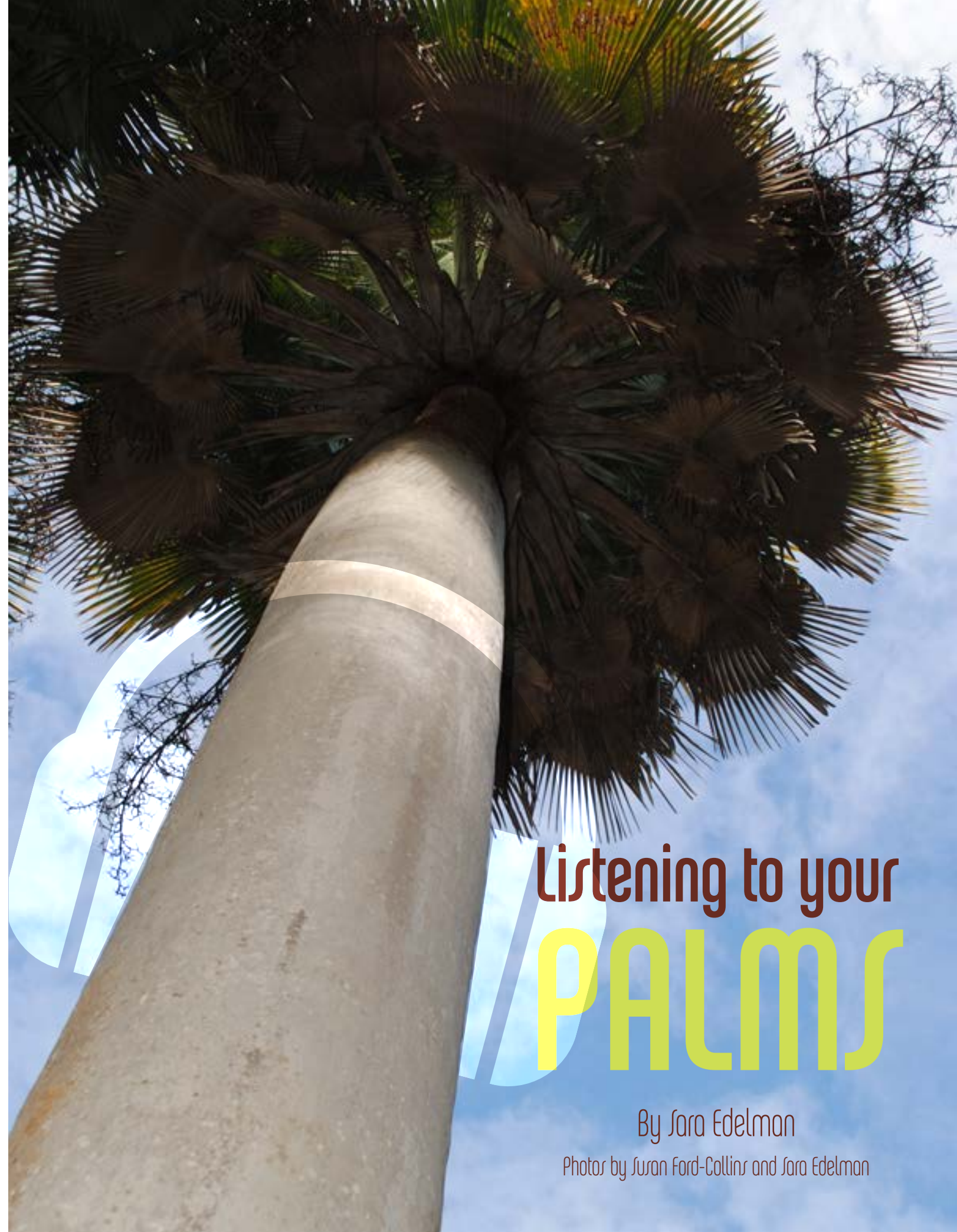


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AH-2603



Listening to your PALMS

By Sara Edelman

Photos by Susan Ford-Collins and Sara Edelman

When I tell people that palms talk to me, their reaction is usually shock and disbelief. Wide-eyed, they respond, “But palms can’t talk!” Just as humans express their needs, so do plants.



This lady palm (*Rhaps excelsa*) is perfectly content. Note the many dark-green leaves.

All living organisms communicate, and palms are no exception. While they can’t verbally convey their wants, they have perfected the art of body language. As their caretakers, we must learn and understand their language in order to tend to them appropriately.

Palm needs are simple—food, water and protection—and their language mirrors this simplicity. They communicate all their needs with their plant body: leaves, trunk and inflorescence. Using form and color, they can express happiness, hunger, thirst and oversaturation. When these needs are ignored, the result can be fatal. Here are ways to learn your palm’s language and respond to its needs:

I’m content

Content palms are quiet palms. Their crown is composed of many dark-green leaves. Leaves turn brown and die only as new leaves are produced. The green color on the leaves is consistent—no gradients or yellowing. The trunk is solid and strong with no splitting or holes. Happy palms have enough resources to produce flowers and reproduce. The state tree of Florida, *Sabal palmetto*, is generally a “happy” palm. While susceptible to leaf skeletonizer, this Florida native is tough and low-maintenance.

While content palms are quiet, unhappy ones will display it in their leaves, crowns and trunks.

I’m hungry

When palms are unable to get enough nutrients from the soil, they get hungry. Their leaves will change from deep green to yellow or brown. Palms crave magnesium, potassium and manganese. Palms in need of magnesium will have lime-yellow leaf tips; date palms (*Phoenix sp.*) are commonly magnesium hungry. Palms in need of potassium will have yellow-brown spotting, as sugar palms (*Arenga sp.*) often do. Manganese-deficient palms will have frizzled newly developing leaves. This is most common in Chinese fan palms (*Livistona sp.*) and paurotis palms (*Acoelorrhaphe wrightii*). Many palms in our South Florida landscape suffer from deficiencies due to our nutrient-poor soils.

Note that removing discolored leaves is one of the worst things you can do to your palms, because they store nutrients in their leaves. When you remove living, non-brown leaves



Leaves of this paurotis palm (*Acoelorrhaphe wrightii*) show signs of potassium deficiency, a very common nutrient deficiency in southern Florida.

simply because they appear discolored, you are taking away nutrients from an already deficient palm. The palm is trying to tell you what it needs: removing fronds exacerbates the issue.

I’m thirsty

Palms show their water needs in their trunks. When a palm is not getting enough water, its trunk will shrink. The trunk looks empty and hollow, because just as severe dehydration can injure humans and animals, it causes internal damage that can be fatal for a palm. Royal palms (*Roystonea regia*) are found in swamps and require a lot of water. Too often, their extreme thirst is ignored and they die of dehydration. Make sure you give your thirsty palm some water. The effects of ignoring this need are disastrous.


I’m bloated

Conversely, overwatering your palm can be just as serious. When we drink too much water, we feel bloated. Palms feel the same way. However, if the overwatering continues, their internal structures bloat and their trunk can split. While trunk splitting is not fatal, it is an invitation for infection and disease. Bismarck palms (*Bismarckia nobilis*) are often overwatered. In the wild, they grow in the deserts of Madagascar and have low water requirements. When they are irrigated with the rest of the plants in your backyard, the most common result is trunk splitting. If your palm trunk is splitting, change the irrigation schedule immediately. Your palm is telling you, “I’m over-saturated!”

Over-irrigation of this bismarck palm (*Bismarckia nobilis*) has caused its internal structures to bloat and its trunk to split. While trunk splitting is not fatal, it opens the individual to secondary infection.

I’m cold

The majority of palms are from tropical rainforests. Temperature, rainfall and humidity do not fluctuate greatly in those climates. In southern Florida, we may joke that we don’t have seasons, but the palms would disagree. Dry air and cooler temperatures chill palms. Then, when temperatures drop deeply and quickly, palms can be injured. Leaves turn brown around the edges. Cold-damaged leaves are the equivalent of goose bumps and bud rot is their version of hypothermia. When palms get too cold, the center of growth freezes and rots. The newest leaves may fall out of the crown. A few treatments of hydrogen peroxide could save your palm, but you must act quickly. Be observant after a chilly spell.

Palms grow slowly and also die slowly. They will communicate their needs throughout their entire lives. Learning to listen to your palm will help it thrive and may even save its life. If you have these body-language cues down, you are on the path to communicating with your frondly palms! 



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The Edible Mango Garden

By Richard Campbell, Ph.D.

Edible gardening in South Florida is not really about tomatoes and peppers. Certainly, we have a few months where we can have an impact in the vegetable arena, but we are ultimately at the mercy of our tropical weather.

Yet, we are pushed by the media and by our friends from the north, so we buy and we plant...we buy and we plant...and we buy and we plant. In the end, we are sure that we are bad growers or that our changing climate makes it impossible to vegetable garden here in South Florida. But fear not South Florida edible gardener, for your salvation hangs from the limbs and boughs of our most loyal friends. Of course, I am speaking of the mango and her cast of tropical fruit associates.

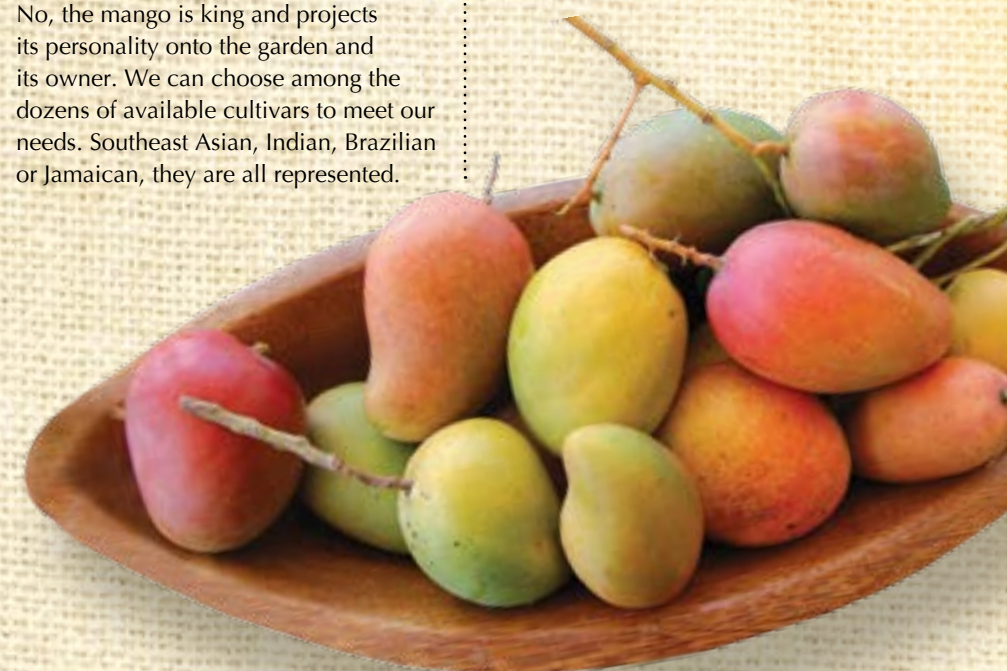
Drive around town in the late spring and early summer and admire the fruit trees. The mango, avocado, sapodilla and jackfruit stand strong against the summer sun, flaunting their pendulous fruit. The very sight provides for our edification and affords the gardener within each of us a most powerful and simple pleasure. These are the sights meant to please, and we are drawn to them—led into an edible Garden of Eden, as in the days of old. The fruit tree is the star, the temptress of Eden—and the mango is the most provocative of them all.

"Why mango," you ask? The answer is as obvious as a stroll around your neighborhood. The mangos hang from your neighbors' trees, from trees in empty lots and dusty rights-of-way. The mango thrives where no vegetable dare go. Mangos grow among the rocks and rubble, in the infertile sands and in the most verdant estates. The fruit thrives on the abject neglect of the street, suffering a much worse effect under an overindulgent hand. The mango in the edible garden thrives under the watchful eye of the exacting horticulturist, measuring care so as to provide for the mango's needs, but withhold excess. The tree flourishes and fruits, and the gardener eats a hearty meal by his or her own hand.

There is a mango for all tastes, all likes and uses. The mango can be used as a vegetable, as a fresh fruit or for preserves. It can be sweet or savory, mild or spicy. It is both a fruit of the aristocracy and the people, certainly achieving much more than the zucchini. No, the mango is king and projects its personality onto the garden and its owner. We can choose among the dozens of available cultivars to meet our needs. Southeast Asian, Indian, Brazilian or Jamaican, they are all represented.

Every imaginable color and texture is available, allowing one to uniquely mold the garden into a personal statement. The only question is: "What does your mango garden say about you?"

The 'Angie,' 'Julie,' 'Fairchild,' 'Cogshall,' 'Mallika' and 'Nam Doc Mai' are just a few varieties that every edible garden should boast, but the list is long and there are no wrong answers. It is here in the mango garden that you can toss aside your inhibitions and bring in anything from the bold and sassy to the reserved and elegant. Even availability in a commercial nursery is not a requisite. Take a class or two and practice a bit, and your horizon will widen to include hundreds of mangos from around the world. Go forth and multiply your mangos and the edible garden. Plant them in the spring, enjoy them in the summer, prune and care for them during the fall and respect them always.



I used to think of begonias as common houseplants that my great-grandmother might have grown for the summer, not much competition for the magnificent and unusual plants we can cultivate in the subtropics. But as usual, a closer look reveals much more to the story: The genus *Begonia* offers species and hybrids of dizzying variety.

BEGONIAS

Beyond the windowsill houseplant

Text and photos by Kenneth Setzer

First, a little family history: The genus *Begonia* belongs to the plant family Begoniaceae, and contributes a huge number of members, with about 1,400 species. *Hillebrandia* is the only other genus in the family. A rare Hawaiian endemic, it is the only family member native to Hawaii. A paper in the *American Journal of Botany* in 2004 indicates that *Hillebrandia sandwicensis* is one of the older branches on the family tree: While it is now only found in Hawaii, the species actually predates the formation of the Hawaiian archipelago by millions of years. It must have originated elsewhere, and is therefore probably a relict species, the remainder of a once-wider distribution.

Back to begonias: *Begonias* mostly inhabit humid, tropical and subtropical habitats, and are found throughout the tropics, excluding Australia. Most—but not all—begonias display asymmetric leaves, and usually white or pink flowers. In most other flowering plants, the sepals (the small parts below the petals, which together constitute the calyx) are green and clearly distinct from the petals. In begonias, the sepals and petals are often both brightly colored and nearly indistinguishable; together they are referred to as tepals.

Tiny *Begonia* seeds are unique in having a ring of “collar” cells that allows one end of the seed to open (acting like a door) for the seedling to emerge, akin to a chick breaking out of an egg. Of course, you would need a good microscope to view this.



Begonia nelumbifolia, the lily pad begonia. Its huge, nearly round, peltate (stalk attached underneath) leaves indeed look like those of the lotus. Give this large begonia room.



Begonia bipinnatifida is shrub-like and rare in cultivation. It requires high humidity as in a greenhouse or terrarium. The deeply divided leaves contrast dark green with wine-red undersides.



The showy, hot pink flowers of *Begonia maculata*.


Visually, begonias differ wildly: consider *Begonia nelumbifolia*, the lily pad begonia, which is common in Mexico and Central America. One could use its gigantic leaves as dinner plates, or as odd hats. Some begonias are even epiphytic (growing harmlessly on other plants), with *Begonia convolvulacea* growing to liana proportions. The tiny *Begonia bipinnatifida* looks more like a fern than a begonia. *Begonia bogneri*, with long, grass-like leaves, also doesn't look very begonia-like.

Even with so much diversity, begonias from different continents can often interbreed, a factor in the thousands of varieties and hybrids available.

Begonia species sharing certain similarities are grouped into botanical sections, of which there are currently 66. The sections make identification and classification a bit easier. For hands-on horticulture, however, the American Begonia Society places begonias into eight horticultural groups (see sidebar). These groups do not necessarily correspond to taxonomic criteria such as phylogeny or relatedness, and many plants have characteristics befitting more than one group.

Very generally, most begonias don't like extreme, long exposure to direct sun, though many do fine in bright light, provided they have access to moisture. In “*Begonias: Cultivation, Identification, and Natural History*,” author Mark C. Tebbitt advises that begonias with pale, thin leaves generally prefer high humidity and low light; those with thicker, hairless leaves like more light. Here in the Garden, I have found identical species flourishing in the shady Richard H. Simons Rainforest and along paths in direct sun.

Potted begonias don't tolerate “wet feet” well, and can rot from overwatering (especially tuberous types entering dormancy). However, they do thrive in high humidity, which can be increased by misting and group plantings.

Regions of high *Begonia* diversity are studied as possible refugia—areas that remained relatively unaffected during past events such as glaciation, thus allowing cold-sensitive plants like begonias to survive ice ages. This is one tough genus. Pretty neat for grandma's windowsill houseplant. 

American Begonia Society *Begonia* groups

Rhizomatous begonias grow from rhizomes, and while they spread horizontally, will not reach great heights.

Cane begonias have thick stems resembling bamboo. Many are known as “angel wing” begonias.

Semperflorens, aka “wax” begonias are grouped together because of their waxy foliage. They live up to the name “ever-flowering.” They have bushy growth and are good for year-round plantings.

Rex, a type of rhizomatous begonia, is grown for showy, colorful leaves. All of its varieties are descended from *Begonia rex*.

Shrub-like begonias have a growth habit of multiple stems emerging from the soil surface to form a shrub-like appearance.

Tuberous or semi-tuberous begonias grow from tubers and are prized for their showy flowers. In cooler areas, they will go dormant in fall and winter; look for swollen stem bases.

Thick-stemmed begonias have, predictably, thick stems, and rarely branch.

Trailing-scandent begonias have a trailing growth habit; these can be trained to grow up trees in warmer climates and are also great in hanging pots.

Find more information at the American Begonia Society's web site: www.begonias.org.



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Integrated Pest Management:

Putting bugs to work for us Text and photo by Kenneth Setzer



Integrated pest management (IPM) is a way of looking at the big picture when it comes to pest control. Rather than taking a “spray and pray” strategy of ridding our plants of harmful bugs or our environment of invasive species, IPM takes into account natural predators and a pest’s lifecycle while using a minimum amount of chemical pesticide, if any at all.

IPM has been employed in a range of situations: in agriculture, horticulture, conservation and home gardening. It can utilize fairly complicated strategies involving years of scientific study, or be as simple as cleaning your garden shears or quarantining new plants to avoid spreading fungi or other possible pathogens.

IPM is a simple concept, but, as you can imagine, a large, complex topic. And it is more necessary now than ever before. As global trade has become more prevalent, so too have hitchhikers—in the form of invasive, often destructive, organisms. There are innumerable examples of this, including the emerald ash borer and Asian longhorned beetle. Some harmful organisms have been introduced in other ways, such as the Burmese pythons that

escaped captivity as pets and are currently harming the Everglades ecosystem. At the same time, some natural pathogens—otherwise a normal part of the environment—are running rampant, possibly due to a warming climate.

I’m sure you have heard about the invasive air potato (*Dioscorea bulbifera*). This pest plant has been a bane of the outdoors in the Southeast U.S. for decades. A climbing vine native to tropical Asia and Africa, it has been known to blanket natural areas in the Southern U.S., killing native plants in the process. It was introduced to this country as a possible food source (it requires detoxification) or ornamental, and is noted as having been introduced to Florida in 1905. Plant explorer William Bartram noticed it in a Mobile, Alabama, garden as early as 1777. *D. bulbifera* spreads very quickly, and can re-sprout from underground tubers as well as from the bulbils (tiny secondary bulbs) it produces and drops to the ground to create new plants. The bulbils resemble small potatoes—hence the common name.

A Biological Control for Invasive Air Potato

What to do? Physical removal isn’t permanent unless you find and remove all of the subterranean tubers; even something as drastic as burning a field to the ground might not work, because disturbed, cleared areas are especially vulnerable to air potato. Herbicides work, but again leave the underground tubers viable, plus herbicides cause other damage.

In their search for alternative methods of control, scientists looked to the invasive plant’s native home—and its native predators. A shiny red beetle was found in Nepal, and later in China, that provided hope. *Lilioceris cheni*, a leaf-eating beetle, was tested over years and found to eat nothing other than *Dioscorea bulbifera* plants; it does not even eat other, related *Dioscorea* invasives, nor does it eat native *Dioscorea* species. Adult beetles even feed on the air potato bulbils.

In 2011, air potato beetles were initially released to Kendall Indian Hammocks Park in Miami-Dade County, and Long Key Natural Area in Broward County. The result has been a decrease in *D. bulbifera* vines and an increase in native plants. The beetles continue to be reared and released as a natural bio-control. So far, so good.

Biological Controls in Your Yard

You can practice biological controls like this in your own yard. Not only are air potato beetles becoming available to the public, but ladybugs (beetles in the family Coccinellidae) are also readily available for purchase as controls for aphids, scale, psyllids and other plant pests. Green lacewing larvae also consume aphids, mites, thrips, whiteflies and others. Researchers are even using parasitoid wasps to attack pests like the emerald ash borer.

By outsmarting the pests, we can put beneficial bugs to work for us!



TOP: *Lilioceris cheni*, the air potato beetle, decimating the invasive air potato



Eastern gamagrass, or dwarf Fakahatchee grass, *Tripsacum dactyloides*, forms lovely seed heads that lean gently to one side, as if caught in the beginning of a swan dive. Once you begin looking at flower and seed stalks of grass, you may discover their delicate beauty.

SEEDS

in a package

text and photos by georgia tasker



Ogleonema commutatum fruits are yellow, then orange, then red. Small yellow seeds inside are easily squeezed from the berry, cleaned, soaked overnight in water and planted just beneath the surface of damp sphagnum moss, where they germinate in their own good time.



Jamaica caper, *Coparis cynophallophora*, has generally demure seedpods as they are developing, khaki-colored and bashful. But when they open, the pods' sticky interiors are red. While most seeds germinate near the tree, some birds must surely be attracted to them. Why else fuss with producing the color?

For some reason, a common name for *Majidea zanguebarica*, the black pearls of Zanzibar, strikes me as wonderfully romantic, oozing mystery and intrigue. *M. zanguebarica* is a small tree with compound leaves from East Africa. As a tree, it's just okay, but the pods are fabulous. It is hiding near the Jean DuPont Shehan Visitor Center, behind the catering tent.



Woman's tongue tree, *Albizia lebbek*, used to be more plentiful in Miami neighborhoods. Its cream-colored powderpuff flowers are intoxicatingly aromatic, but its bad behavior (it root suckers) has landed it on the invasive plant list. The undulating seedpods are light beige to yellow in color, contain brown seeds and seem rather modest when compared to the royal poinciana pods so thrilling to squirrels.



Akee, *Blighia sapida*, is the national fruit of Jamaica, but it originated in western Africa. It arrived in Jamaica in 1793 with Captain William Bligh. Akee fruit must split open before it reveals its seeds, and only then can the pulp be eaten; otherwise it is highly poisonous. It grows on some older properties in Miami, but is not a common tree.

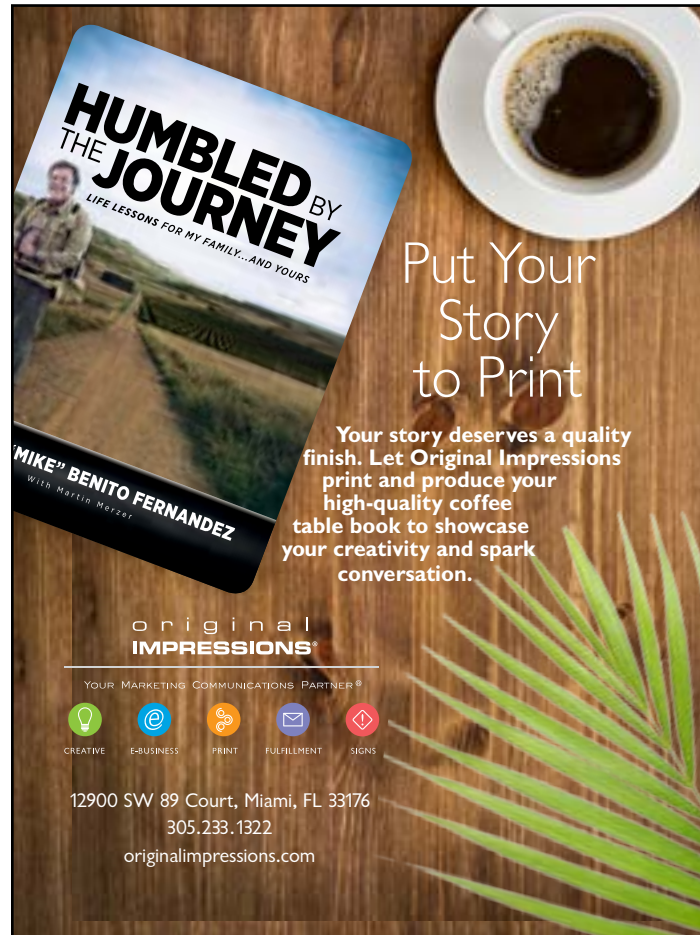


Adansonia digitata, African baobab, sometimes is called the dead rat tree because its seedpods hang by long pedicles and look like—you guessed it—dead rats. After flowers are pollinated by bats, the seedpods may grow to six or eight inches long. White seeds are considered a food, and are high in calcium and vitamins.



Bucida molineti, described by Manuel Gomez de la Maza, a botanist from Havana, Cuba, is sometimes called the geometry tree because its branching pattern forms tiers. This tree is from the Bahamas, and its seeds and leaves resemble those of its better-known big brother, *Bucida buceras*—the black olive. It is living in the lowlands among other Jewels of the Caribbean.

This is the fifth in the series "Plants and their Seeds." The first story appeared in the Summer 2014 issue, the second in the Fall 2014 issue, the third in the Winter 2015 issue and the fourth in the Spring 2015 issue.



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A hyper-interesting hyperdominant

Mauritia flexuosa

Text and photos by Timothy Perez



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The Amazon Rainforest is often described as a vast sea of trees (a sea that is unfortunately quickly evaporating). The metaphor is apt because many first-time visitors to the diverse Amazon can feel adrift in the forest’s endless green expanses. Indeed, my first hike through the Amazon Rainforest was overwhelming; unfamiliar species were everywhere with no discernable pattern. As a new student working at Fairchild Tropical Botanic Garden and Florida International University, I am still learning to navigate the waters of tropical plant diversity. Fortunately, I have access to Fairchild’s diverse living collections, where I find safe harbor from taxing taxonomy.



Preparation of the South American palm weevil, *Rhynchophorus palmarum*, for consumption. Photo by Geoff Gallice

Humans aren’t the only species that uses *M. flexuosa*. The South American palm weevil, *Rhynchophorus palmarum*, feeds on the moriche palm, and in the marketplace, humans feed on both! Juvenile weevil larvae are harvested from rotting palm trunks and taken to market, then grilled and consumed. The most flattering descriptions of the larvae’s flavor invoke bacon, but my palate detects woody flavors with undertones of soil. They are an important source of proteins and nutrients, especially calcium, for many indigenous cultures of the Amazon. While these beetle larvae may not wind up on your

Plant lovers who may not be dazzled by bright plumage or large animals will surely take pleasure in the aesthetic beauty of the moriche palm swamps. The slender, light-colored trunks can ascend upwards of 100 feet (30 meters) and are often bedecked with wild *Vanilla* orchids, which are rare outside the swamps. The palms’ disheveled, pendulous inflorescences—with hundreds of fruits—contrast the linear patterns of their trunks. Crowning the palm are its many-pinnuled, costapinnate leaves. Individually or collectively, any plant enthusiast can appreciate *M. flexuosa*. Moriche palms are a favorite of mine not simply




In the foreground, an anaconda at the edge of opaque and placid waters of a *Mauritia* palm swamp. Photo by Patrick Campbell

One familiar species within the collection is *Mauritia flexuosa*. Also known as the moriche palm, this species can form expansive, nearly pure stands in permanently-inundated sites, and patches of these stands occur throughout much of the Amazon basin. In fact, recent work by tropical ecologists (including my advisor, Fairchild/FIU plant conservation biologist Dr. Kenneth Feeley) indicates that a very large proportion of the trees within the Amazon rainforest are composed of a relatively small number of “hyperdominant” species—one of which is *Mauritia flexuosa*. This species is so common that it has special names that vary from country to country and culture to culture.

It is thought that Pre-Colombian cultures may have intentionally or unintentionally aided dispersal of this palm as people ate its fruit and discarded its seeds. Today, the moriche palm remains an important food and economic resource for many South American communities. When ripe, the egg-sized fruits are harvested and their shiny maroon, fish-like scales are peeled away to reveal rich orange flesh that is commonly used for drinks and desserts. The thick, sweet and slightly-fermented juice from these fruits can easily be purchased from small street-side vendors when in season. Oils from the fruits are also gaining popularity for use in many different cosmetic products.

plate, they may soon be damaging your backyard. The USDA has labeled these large beetles as potential palm-pests and vectors for plant diseases.

Another species that consumes moriche fruits is the Brazilian tapir, *Tapirus terrestris*. *Aguaje*, as moriche fruits are called in Peru, constitute a major part of tapirs’ diets and can disperse their seeds over long distances to new swamps. And, the still, dark waters of these moriche palm swamps are excellent places to encounter the anaconda, *Eunectes murinus*. Furthermore, brightly-plumed parrots roost among the palm’s costapalmate leaves.

for aesthetic allure or because their fruits and leaves are easy taxonomic identifiers. Rather, *M. flexuosa* is special because it is a reminder of the fascinating and complex ecology of the Amazon. It is one of thousands of species, each with unique ecological associations, and Fairchild Tropical Botanical Garden contains excerpts of these ecological stories from all over the world. For me, *M. flexuosa* is one such story, and it makes Amazonian diversity a little less intimidating and a lot more interesting. 

.....
 Timothy Perez is a member of Fairchild’s Graduate Studies program as a Ph.D. student at Florida International University, and is a member of Dr. Kenneth J. Feeley’s tropical ecology and conservation lab. His research interests include understanding tropical diversity, adaptations that promote large distributions and the effects of climate change on Amazonian plant communities.

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Tribute Program Commemorative Gifts

In Memory of
Dorothy Sacher
Mr. and Mrs.
Stephen D. Pearson
In Honor of Loretta Mackay
Mr. and Mrs. Fred Bacher
In Memory of George Khoury
Dr. and Mrs. Alfred Feingold
In Memory of
Gerald L. Gallagher
Ms. Janet Patacca
In Memory of
Gerald Gallagher
Ms. Diane Myers

Tribute Bricks

In Memory of Yvonne Shaw
Ms. Fay P. Aronson
In Memory of
Jossie J. Figueredo
Ms. Mariaelena Ortiz
In Memory of
Monique Benoit Nadeau
Mrs. Marie C. Fournier
In Memory of Carl Cergol
Friends of Fairchild
In Memory of Ray Casares
Ms. Marie Anello
In Memory of
Edna C. Shalala
Ms. Patricia M. Cloherty
In Memory of Nicolas Crespo
Ms. Marie Dexter Crespo
In Honor of Baili
Eve Lawrence
Mr. and Mrs.
Eric T. Lawrence
In Memory of
Teresa de Cardenas Soto
Mrs. Rossana Mendez-Clay
In Memory of Klara Farkas
Ms. Andrea Muller
In Memory of Jon A. Nickloff
Mr. James B. Nickloff

In Honor of
Luis Javier Salazar Bassalik
Mr. Luis J. Salazar Bassalik
In Honor of
Zach and Katarina Segal
Dr. and Mrs. A. James Segal

In Memory of
Linda Lehrmanon
Gail Harris
Marilyn Lesser
Joan Worton
Rusty Weinstein
Rebecca Kryz
Liana
Lynn Seiler
Cindy Soloway
Marie Lerner
Robin Rose
Judy Rosenthal
Cornelia Phillipson and Terry Weinstein

In Memory of
Gwendolyn Roberson
Mr. W.J. Roberson II

Tribute Benches

In Memory of
Dr. Jean Bijan Samimy
Dr. Lina Samimy
In Memory of Klara Farkas
Mr. Thomas A. Farkas
In Memory of Valerie Joseph
Mr. Lance Joseph
In Memory of Naomi Bell Hand
Ms. Francinelee Hand

Tribute Trees

In Memory of
Jossie J. Figueredo
Ms. Mariaelena Ortiz
In Memory of Marshall Glasser
Ms. Hillary S. Cohen



wish list

Fairchild has a wish list of items that will enhance our programs, but we need Wish Makers. We hope you see an item 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 ONLINE HERBARIUM

- Extra-Tall Tripod, \$150
- Macro Zoom Lens for Sony SLR Camera, \$800
- Laptop Computer, \$2,000
- New Display Giclee Prints on Canvas for Public Events, \$2,000
- Plant Canopy Imager, \$6,000
- Seed Germination Chamber, \$8,500
- Mid-Size Pickup Truck, \$26,400
- GPS Unit (GeoXT 6000), \$8,000

FOR THE RESEARCH LIBRARY

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

FOR SPECIAL EVENTS

- Mobile Kitchen, \$3,000—WISH FULFILLED!

FOR THE FAIRCHILD FARM

- Golf Cart, \$7,000

FOR THE VISITOR EXPERIENCE OPERATION

- iPad, \$500
- Digital SLR Camera, \$500

FOR MEMBER AND DONOR SERVICES

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

FOR OUR STUDENTS

- New Vehicle for PlantMobile Outreach Program, \$25,000
- Solar Conversion Kits for Education Golf Carts, \$4,000
- iPads for Explorer Field Studies Program, \$2,500
- SMART Board for the Corbin Classroom, \$2,000—WISH FULFILLED!
- Table-Top Easels, \$125
- Art Display Panels, \$1,000—WISH FULFILLED!
- Dark Field Microscope, \$600
- Canon Double-Sided Feed Scanner, \$3,000

FOR OUR VISITORS

- Golf Cart, \$7,000
- 3 Wheelchairs, \$975—WISH FULFILLED!

FOR THE LIFELONG LEARNING PROGRAM

- Laptop and LCD, \$1,200

To fully fund a wish, donate a portion of the cost or donate the actual item, please contact Leslie Bowe at 305.667.1651, ext. 3338, lbowe@fairchildgarden.org or please visit www.fairchildgarden.org/Donate

Spring brought warm weather, beautiful blooms and fun events to Fairchild

By Brooke LeMaire



The Spring Garden Festival featuring the 36th Annual Spring Plant Sale

The Spring Garden Festival kicked off the season with local foods and edible gardens. The 36th Annual Spring Plant Sale was a tremendous success, and many plant species grown by Fairchild horticulturists sold out within the first few hours. Expert-led demonstrations showed guests how to make the most of their gardens, including how to attract butterflies. Garden market vendors distributed fresh vegetables, herbs and handmade products, while food vendors served refreshing meals. Cooking demonstrations by local chefs showed guests the best ways to prepare dishes for the spring, and students participating in The Fairchild Challenge Green Cuisine competition debuted their best vegetarian creations. The Spring Tea Garden offered a relaxing ambiance with sweets and savories.

The 9th Annual Fairchild Artists in Bloom

The 9th Annual Fairchild Artists in Bloom was held in April, exhibiting more than 150 original works by students and instructors from art courses offered through Classes at Fairchild. Participating art students and instructors ranged from beginners to advanced, with a focus on capturing nature on canvas. Media included watercolor, oil and acrylic paintings as well as pastel and botanical illustrations.



Congratulations to The 2015 Lewis Vaughn Memorial Scholarship High School Winners

Daniel Viciana and Meaghan Senzig
Robert Morgan Educational Center
with Dr. James Vaughn

FAIRCHILD TROPICAL BOTANIC GARDEN



The Fairchild Challenge Global Competition

During the 2014-2015 school year, The Fairchild Challenge, in collaboration with its Fairchild Challenge Partners offered a Global Competition. For the first time, 10 national and international institutions created a challenge that allowed students to share their talents and a piece of their world. Students looked for pollinator syndromes in local plants and created drawings depicting the interaction between a plant and pollinator. To the right are the winners for middle and high school.



FIRST PLACE—MIDDLE SCHOOL
Emma Bennett, MAST Academy,
Fairchild Tropical Botanic Garden, Miami



FIRST PLACE—HIGH SCHOOL:
Miranda Miller & Jessica Burch,
Woodland Hills High, Phipps
Conservatory & Botanical Gardens,
Pittsburgh, PA

National Public Gardens Day

Fairchild participated in National Public Gardens Day on May 8 by offering reduced admission to all visitors. Created by the American Public Gardens Association, the day is a nationwide celebration that invites people to explore the beauty of their local green spaces while raising awareness of the important role public gardens play in promoting conservation, education and environmental preservation.



Chihuly at Fairchild

The much-beloved Chihuly at Fairchild art exhibition closed on Sunday, May 31. The six-month glass exhibition featured the largest and most comprehensive collection of artist Dale Chihuly's work, with works from the various series of his 45-year career represented.

Fairchild welcomed hundreds of thousands of visitors to the Garden of Glass during the six months. Guests marveled at the delicate beauty of Chihuly's works as they strolled the grounds.

On Thursday and Sunday nights, the Garden remained open until 9:30 p.m. giving visitors an opportunity to see the works beautifully lit and creating a unique and magical experience.



Photo by Morgan Brooks/FTBG

L.E.A.F. (Let's Explore at Fairchild)

Children and their families enjoyed, learned and had fun during L.E.A.F.: Let's Explore at Fairchild spring programs.

This past spring, children of all ages enjoyed activities ranging from gardening and crafting to completing educational worksheets while learning about conservation.

This enjoyable family program runs from September through May, every second and fourth weekend of the month, 11:30 a.m. - 2:30 p.m.

For a complete list of themes and dates, please visit www.fairchildgarden.org/Visit/Family-Fun

Early-Bird Walks

Our birding volunteers took visitors on a journey to discover Fairchild's many species of birds and wildlife on Early-Bird Walks. Arriving early in the morning to see and hear the different calls of dozens of birds provided a peaceful and informative start to the day.

The Early-Bird Walks program will resume this fall, every weekend from September through November. If you cannot wait until then, come to Fairchild and discover our summer South Florida residents!



Photo by Morgan Brooks/FTBG



Fairchild Lecture Series

As part of the annual Fairchild Lecture Series, experts in their respective fields presented engaging talks on topics including attracting birds to Florida gardens, conserving pine rockland habitats and creating botanical reliefs. Stay tuned for the 2016 Fairchild Lecture Series schedule, which will be available soon.



Basic Horticulture Classes

Fairchild's horticulture volunteers were offered a series of horticulture classes this spring, taught by Fairchild's knowledgeable and experienced horticulture staff members. Shown above, fern specialist Mike Freedman, taught fern reproduction, identification and propagation, and the volunteers each received a plant to add to their own "mini-Fairchild" collection at home.

THE FAIRCHILD CHALLENGE

Congratulations to the 2014-15 Fairchild Challenge Top Scoring Schools

High Schools
1st Miami Palmetto Senior High School
2nd Miami Killian Senior High School
3rd South Plantation Senior High School

Middle Schools
1st Palmetto Middle School
2nd George Washington Carver Middle School
3rd The Biltmore School

Elementary School
1st Air Base Elementary School
2nd Palmetto Elementary School
3rd LaScuola

Congratulations to the 280 Pre-K through 12th grade schools that participated in the 2014-15 Fairchild Challenge. For more information about the program and a complete list of participating schools, please visit www.fairchildchallenge.org



We're Taking Donations of Antiques, Collectibles and Old Books

On November 13-15, 2015, we will celebrate the 75th anniversary of The Ramble! This festival has continued through the past 75 years because of volunteers' countless hours of work and dedication to Fairchild. Volunteers who work on festival favorites, such as Antiques and Collectibles and Old Books, have already begun the process of accepting donations, pricing and preparing items for sale.

To donate antiques, collectables or books to The Ramble, contact Natalie White at 305.663.9081 or via email at nwhite@fairchildgarden.org.

David FAIRCHILD'S PHOTO ALBUMS

By Nancy Korber
Photos by Fairchild Archives, Dr. David Fairchild
Photo Album #19



Do you have a shoebox full of photographs—or, given today's technology, a cell phone or flash drive full of hundreds of undescribed images? So did Dr. David Fairchild. Luckily for us, he also kept meticulous records and created at least 22 detailed photo albums. During the past several years, Fairchild's archive volunteers have been capturing all the information Fairchild left about those scrapbook images. The information comes from a number of sources, including his pocket notebooks, the albums themselves and even the edges

ABOVE
View from sweet potato patch on hillside on Antigua route to Boggy Peak. Antigua, January 26, 1932.
Photographer unknown

LEFT
Collecting a seed cluster of *Pseudophoenix* on the Island of Saona. January 20, 1932.
Photo #57788 by P. H. Dorsett

of the negatives for those images. Combining the information provides a detailed record of Dr. Fairchild's travels for more than a 10-year period.

Most of the images illustrate the Allison V. Armour Expeditions that took place during the 1920s and the 1930s. We have 21 albums from 1924 through 1932, which have images from all over the world—including England, France, the Canary Islands, Morocco, Singapore, Sierra Leone, Sumatra, Ceylon, the Bahamas and many more locations.



Charcoal boat bringing charcoal from Nevis. St. Kitts laws forbid its forests being burned. St. Kitts, January 22 or 23, 1932.
Photo #18305-5 by D. Fairchild



Dr. David Fairchild preparing to photograph *Crotalaria sp.* growing in a field at the base of Mount Messy on the estate of Mr. B. S. Davis, January 24, 1932.
Photo # 57846 by P. H. Dorsett, Misery, St. Kitts.



One additional album from 1944 includes images mostly from Casa Popenoe in Antigua, Guatemala, taken in 1944.

The albums themselves provide an interesting and often historically important view of the natural history of the areas through which Dr. Fairchild traveled. He commented extensively on the plant life, of course; but he also included images and information on human culture. The albums also tell the story of an international plant hunter in the early to mid-1900s.

LEFT
Avenue of tamarinds 100 years or so old on St. Joseph's road out of Roseau, Dominica, January 30, 1932.
Photo #18384-5 by D. Fairchild, Dominica,

We are working to digitize all of these albums so that they can be available on our website, easily viewable and searchable by you. Soon you'll be able to travel with Dr. Fairchild through the far corners of the world in search of plants useful to the United States.



VISIT US

Fairchild Tropical Botanic Garden
10901 Old Cutler Road, Coral Gables FL 33156
T: 305.667.1651 F: 305.661.8953
7:30 a.m. - 4:30 p.m. (except Christmas Day)

Admission: Free for Fairchild Members and children 5 and under. Non-members: \$25 for adults, \$18 for seniors 65 and up and \$12 for children 6-17.

Eco-discount: If you walk, ride your bike or take public transportation to Fairchild, receive \$5 off admission for adults and \$2 off admission for children. Members, remember to bring your Rewards Card to earn your gift passes!

★ Military Discount: We are pleased to offer active military personnel free admission. Please present Military IDs.

FAIRCHILD BLOGS

Found at Fairchild
Discover Fairchild past and present with Fairchild writer Kenneth Setzer. www.fairchildgarden.org/FoundatFairchild

Gardening with Georgia
Plant writer extraordinaire Georgia Tasker writes about plants and everything Fairchild. www.fairchildgarden.org/GeorgiaTasker

GIFTS THAT GIVE BACK

Give the gift of Fairchild
Inquiries: 305.667.1651, ext. 3351
donate@fairchildgarden.org
www.fairchildgarden.org/GiftIdeas

MILLION ORCHID PROJECT

Learn how you can participate in The Million Orchid Project: a program that will restore one million orchids in South Florida. Inquiries: Morgan Brooks 305.667.1651, ext. 3309 www.fairchildgarden.org/MillionOrchidProject

GET INVOLVED

Become a Member
Become a member and enjoy Garden benefits all year long. Inquiries: 305.667.1651, ext. 3301 or 3362 membership@fairchildgarden.org www.fairchildgarden.org/Membership

Volunteer
Become a volunteer and help the Garden grow. Inquiries: 305.667.1651, ext. 3324 volunteer@fairchildgarden.org www.fairchildgarden.org/Volunteer

Give
Donate to the Garden and help support Fairchild's programs. Inquiries: 305.667.1651, ext. 3351 donate@fairchildgarden.org www.fairchildgarden.org/DonateNow

EVENTS AND PRIVATE RENTALS
Information about events can be found on Fairchild's website. Tickets for certain events may be purchased online. Interested in having your event at Fairchild? Please call us or visit our website. Inquiries: 305.667.1651, ext. 3359 specialevents@fairchildgarden.org www.fairchildgarden.org/Events

SHOP AT FAIRCHILD
Visit The Shop at Fairchild for a large selection of gardening and culinary books, home decor items and unique gifts. Inquiries: 305.667.1651, ext. 3305 shop@fairchildgarden.org store.fairchildonline.com

GET YOUR BINOCULARS
You may borrow a pair of binoculars to get a closer look at Fairchild's wildlife. Please ask at the Visitor Center's information desk.

FOLLOW US

 www.fairchildgarden.org

@FairchildGarden



77th annual
**MEMBERS' DAY
PLANT SALE**

Saturday and Sunday
October 3 and 4, 2015
9:30 a.m. - 4:30 p.m.

In conjunction with

 **bird festival**
AT FAIRCHILD

Thursday through Sunday
October 1, 2, 3 and 4, 2015
9:30 a.m. - 4:30 p.m.

In partnership with
Tropical Audubon Society (TAS)



Bird Festival at Fairchild is made possible by the generous support of the James A. Kushlan Bird Conservation Program.



FAIRCHILD TROPICAL BOTANIC GARDEN

Exploring, Explaining and Conserving the World of Tropical Plants
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