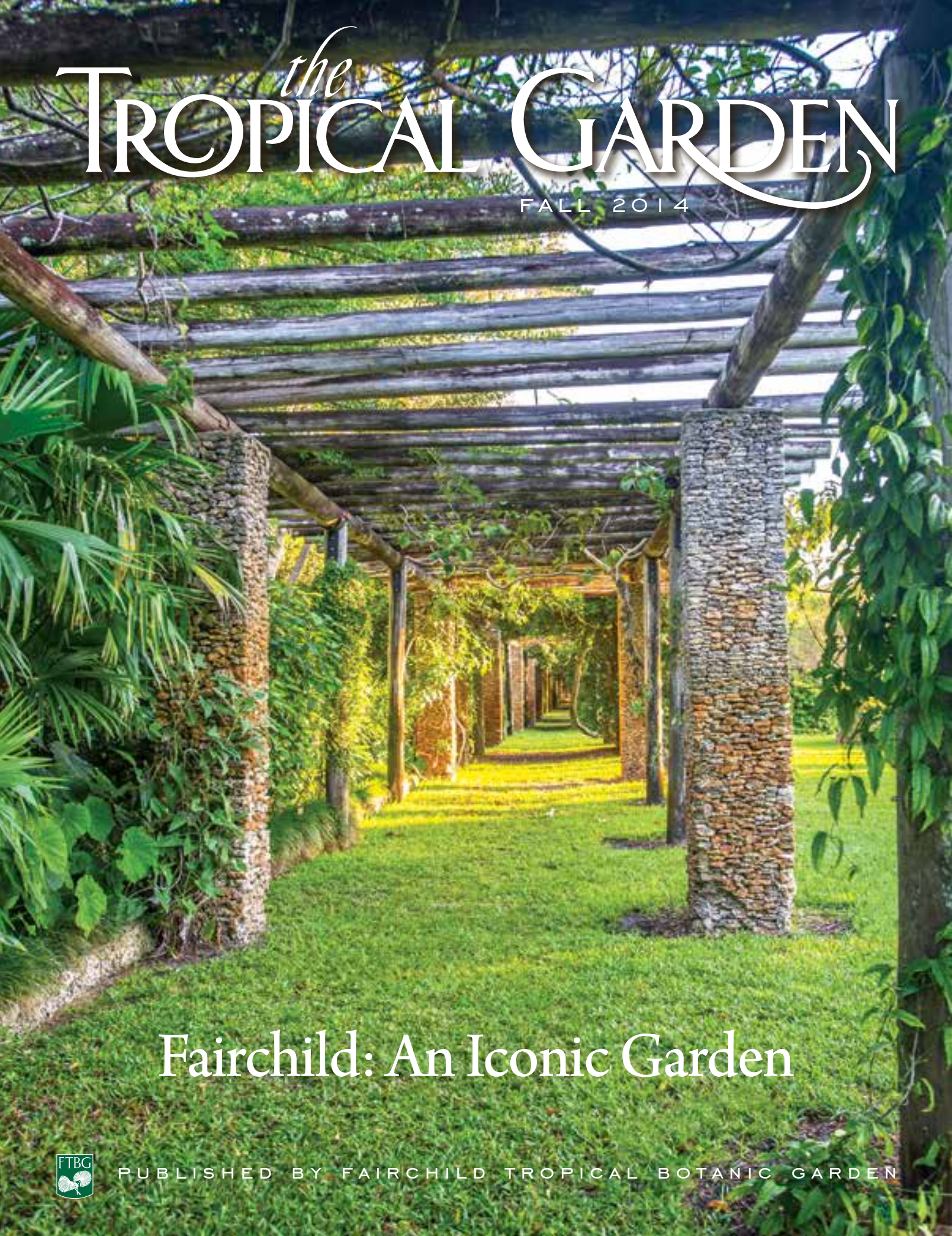

the TROPICAL GARDEN

FALL 2014

Fairchild: An Iconic Garden

PUBLISHED BY FAIRCHILD TROPICAL BOTANIC GARDEN

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Photo by Rey Longchamp/FTBG

FEATURES

DEPARTMENTS

FROM THE DIRECTOR

During the past several months, our staff and volunteers have been working on major, behind-the-scenes projects that will have a lasting impact on our Garden and our community. One of those projects, the development of a brand-new, blockbuster Chihuly exhibit, is about to transform our landscapes into a stunning display of art and nature. Also behind-the-scenes, we have quietly launched new education programs that will revolutionize the way we teach botany.

This fall we opened BioTECH@Richmond Heights, a new magnet high school with a dedicated botany curriculum—the first of its kind in the United States. The school, located in Miami-Dade County's Richmond Heights area, is operated by Miami-Dade County Public Schools in partnership with Fairchild and Zoo Miami.

The first class of 142 ninth graders started at BioTECH this fall, with enriched coursework that emphasizes the life sciences. At the end of their 10th grade year, students will choose to specialize in either zoology or botany. Those who choose the botany track will take a series of college-level botany courses at Fairchild, and will have special opportunities to conduct tropical plant research with our scientists. As they approach graduation, we will help place those students into college programs in the plant sciences.

We are currently recruiting new students from throughout South Florida to attend BioTECH next year and beyond. Through our Fairchild Challenge Middle School Program, we are able to identify and encourage talented students with an interest in plants and conservation. Laboratory research is emphasized at BioTECH, and we have helped develop the school's labs to host Fairchild research and conservation projects. Students have already begun research on orchid conservation as part of The Million Orchid Project.

In addition to the dedicated botany classrooms and labs at BioTECH, we also are making inroads into other high school science classrooms throughout South Florida. This fall, we are delivering shelves, grow lights and flasks of native orchids to 30 high schools across South Florida. Students will conduct experiments on orchid growth and development, helping us understand the biology of our region's endangered orchids.

Now, with the BioTECH labs and 30 high school classrooms dedicating space to plant research, our science infrastructure has more than tripled in size.

This year's art season will be a fantastic opportunity to introduce new audiences to the world of tropical plants. At the same time, we can use our new infrastructure and programs to teach botany with a greater depth than ever before. We are looking forward to the many positive impacts these developments will have in the years ahead.

Best regards,

Carl Lewis, Ph.D.
Director

I was recently driving down Ingraham Highway after leaving Coconut Grove. I made a left onto Le Jeune; then went through the roundabout and headed south on Old Cutler Road before arriving at the Garden. Invariably, I always have the same thought as I head down this very familiar stretch: "I love this drive!" It's beautiful and iconic; uniquely Miami. It's a two-mile microcosm of the greater Miami experience: lush-lined streets, lots of people running or riding bikes, stunning east-west views into the Gables Waterway. It's the confluence of everything that is wonderful about Miami.

In many studies, South Florida's tropical climate, beauty and accessibility to the outdoors are key reasons why people love living in Miami. In fact, a recent study cited that Miamians prefer to be outdoors. While many of us will render this obvious, it helps to be reminded how fortunate we are to live in this great city by the bay.

Nothing says "Miami outdoors" like Fairchild. During the past 75 years, the Garden has created festivals, community outreach, cultural events and educational programming all aimed at encouraging people to enjoy the outdoors. As the temperatures cool, our great Garden beckons with a special kind of excitement that kicks off in December.

In 2005, Dale Chihuly partnered with Fairchild to bring his magical art to the Garden. The *Chihuly at Fairchild* exhibition was so well-received that Chihuly agreed to extend his exhibition an additional year. Those first two exhibitions were thrilling: Hundreds of thousands of visitors enjoyed the Garden and Chihuly's beautiful glass installations. We were also able to create endless opportunities for learning about our important programs in conservation science, education and horticulture.

This year, it's fitting that we should celebrate a 10-year anniversary of sorts with an entirely new Chihuly exhibition. In December, *Chihuly at Fairchild: A Glass Garden* will open and feature a new collection of glass works. For six months, sinewy, majestic, bold and delicate works will highlight the natural relationship between art and nature—creating evocative movements within our landscape. We'll have special events like Chihuly Nights on Thursday and Sunday nights to ensure you experience garden and glass magic by day and night. Also in December, we will inaugurate the Adam R. Rose and Peter R. McQuillan Arts Center, which will serve as a multi-media gallery of Dale's work.

There is no greater time to enjoy the best of Miami living than now. The *Chihuly at Fairchild* exhibition will once again be a defining moment in Miami's cultural renaissance. I hope to see you at Fairchild this winter.

Warmest regards,

Nannette M. Zapata
Chief Operating Officer and Editor in Chief

PS: We're making it easy to stay connected to everything at Fairchild. In September, we launched a fully interactive website. Users can easily view our events listing, learn about our programs, sign up for RSS feeds for our blogs, register for classes, purchase gift cards and admission tickets and support the Garden by donating online. Members can view and update their records. In December, we're launching the Fairchild app. Our goal is to take the Garden beyond its physical boundaries, directly into your homes and onto your mobile devices—making it easy to stay connected and informed.

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

KENNETH SETZER
Joined Fairchild as a writer and editor with the marketing team in 2013. He contributes to print and digital media. Setzer enjoys writing about natural and human history and is an enthusiastic photographer, with a particular fascination with fungi. His educational background is in linguistics, with a BA from Queens College, City University of New York, and an MA from Florida International University.

MARILYN GRIFFITHS
is the plant records manager at Fairchild. She is responsible for keeping the records of all plants up to date in the living collections database, preparing reports, mapping the plots and maintaining accession tags and display tags on plants. She has been with the Garden for 21 years.

RON MCHATTON, PH.D.
is the American Orchid Society's director of education and chief operating officer. He is an accredited American Orchid Society judge and has been growing orchids since the age of eight. McHatton is responsible for the editorial content and layout of *Orchids* magazine.

ON THE COVER
Fairchild's Richard Danielson Vine Pergola
Photo by Jason F. Lopez/FTBG

the TROPICAL GARDEN

The official publication of
Fairchild Tropical Botanic Garden

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Family Fun

HOWL-O-WEEN AT FAIRCHILD
Friday, October 31
9:30 a.m. - 4:30 p.m.

EARLY BIRD WALKS
Every Saturday and Sunday
now through November 30
7:30 - 9:30 a.m.

LET'S EXPLORE AT FAIRCHILD (LEAF)
Saturday and Sunday
Every 2nd and 4th weekend of the month
10:30 a.m.- 2:30 p.m.

Festivals

FALL GARDEN FESTIVAL, FEATURING THE 74TH ANNUAL RAMBLE
Friday, Saturday and Sunday
November 7, 8 and 9
9:30 a.m. - 4:30 p.m.

9TH ANNUAL INTERNATIONAL CHOCOLATE FESTIVAL
Friday through Sunday,
January 23, 24 and 25
9:30 a.m. - 4:30 p.m.

Concerts

SUNDAY SOUNDS AT FAIRCHILD
Sunday, November 2
Sunday, December 7
1:00 - 2:00 p.m.

HOLIDAY MUSIC AT FAIRCHILD
Sunday, December 14
6:00 - 10:00 p.m.

3RD ANNUAL GARDENMUSIC FESTIVAL
Monday, January 5 through
Sunday, January 18
For schedules and more information, go to www.fairchildgarden.org

Plant ID Workshop

Bring a plant cutting to Fairchild's Herbarium and let our scientists uncover its identity!
Friday, November 7
Friday, December 5
1:00 - 3:00 p.m.

Plant Sales

PLANT SHOW AND SALE PRESENTED BY THE SOUTH FLORIDA PALM SOCIETY
Saturday and Sunday
November 1 and 2
9:30 a.m. - 4:30 p.m.

Art at Fairchild

CHIHULY AT FAIRCHILD
Opens December 6

Lectures

Art at Fairchild
Bob Petzinger, Fairchild Art Historian
Wednesday, December 17
7:00 - 8:00 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

CORRECTION: David Fairchild's Chutney Recipe

In the Summer 2014 issue of *The Tropical Garden*, we printed incorrect ingredient quantities for the chutney recipe on page 69, in the "From the Archives" story, "David Fairchild: Collector of Recipes." The full correct recipe, from the Garden's archives, includes all ingredient listed in kilograms and grams. Below is the original recipe, exactly as Dr. Fairchild wrote it:

Chutney

3 kilograms of mango pulp turned but not ripe
3 kilos tamarind
2 kilograms of stoned raisins
8 kilograms brown sugar
0.5 kilo chilies
2 kilos green ginger
0.5 kilo garlic or 1.5 kilo onions
0.25 kilo mace
65 grams mustard seed
15 grams cloves
15 grams pimento
0.5 kilo table salt
4 liters of best vinegar

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**

Your Benefits...

- **Free** daily admission throughout the year
- **Free** admission to all daytime events and art exhibitions
- **Free** admission to the Wings of the Tropics Exhibit
- **Free** parking
- **Free** admission to all Members-only events, including Members' Lectures, Moonlight Tours, the Members' Day Plant Sale and select Members-only evening events
- **Quick Admit** at all admission points
- **Subscription** to the award-winning magazine *The Tropical Garden*
- **Discounts** on all ticketed day or evening events
- **Discounts** at The Shop at Fairchild
- **Discounts and priority registration** for adult education classes and seminars
- **Discounts** to kids' summer camps
- **Discounts** on a wide variety of products and services from participating Branch Out Partners
- **Free or discounted admission**** to more than 500 other gardens, arboreta and museums in the U.S. and abroad (**certain restrictions may apply)

For more information, please call the Membership Department at 305.667.1651, ext. 3362 or visit **www.fairchildgarden.org/Membership**

FAIRCHILD TROPICAL BOTANIC GARDEN

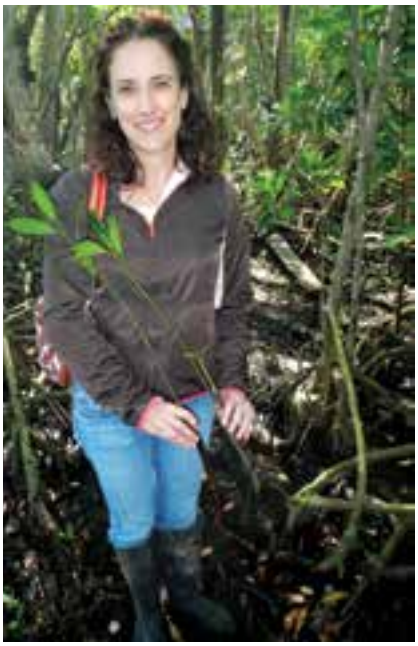
Photo by Gaby Orihuela/FTBG

(L-R) Dr. Arnoldo Santos-Guerra, Dr. Brett Jestrow and Dr. Javier Francisco-Ortega collecting Myrsinaceae in Tenerife for molecular systematics projects. Photo by Alfredo Reyes.

Canary Islands Botanic Garden and Fairchild to Collaborate

In August, Fairchild signed a collaboration agreement with the Botanic Garden of La Orotava, in Tenerife, Canary Islands (Spain). Founded in 1788, the Botanic Garden of La Orotava is one of the oldest tropical botanic gardens within the European Union, and the oldest continuously operating botanical garden in Spain.

This garden is developing a new master plan that will significantly increase its current surface, living collections, research work and education activities. The Memorandum of Understanding between Fairchild and Orotava (through the Instituto Canario de Investigaciones Agrarias, or Canarian Institute of Agricultural Research) seeks to foster collaborations and partnerships in the areas of plant conservation, tropical plant systematics, environmental education and horticulture. Fairchild's herbarium curator, Dr. Brett Jestrow, and Dr. Javier Francisco-Ortega, Fairchild scientist/Florida International University professor, have already traveled to the Canary Islands to start developing botanical initiatives.



A Fairchild Award Winner

Each year, the Everglades Cooperative Invasive Species Management Area (ECISMA) presents one of its members with an outstanding achievement award for tireless dedication to invasive species management in the Everglades. The 2014 award winner is Fairchild's own Jennifer Possley, a field biologist with Fairchild's South Florida Conservation Team. Possley's efforts to combat invasive species have included coordinating inter-agency efforts to remove the invasive mangrove *Lumnitzera racemosa*. More recently, she has focused her attention on an invasive vine called "redwing" that is a problem in Miami's Redland area. Learn more about ECISMA at www.evergladescisma.org.

Jennifer Possley with seedlings of the non-native mangrove *Bruguiera gymnorhiza*. Photo by Dennis Giardina.

(L-R) Leslie Soriano, Victoria Guerra, Angelique Parada and Stephan Alvarez. Photo by Stacy Soriano

Joint Fairchild-FIU Program Students Help with Hands-on Research in Phytochemistry

This past summer, five students worked with two Fairchild scientists and Florida International University professors, Dr. Alejandro Barbieri and Dr. Javier Francisco-Ortega, as well as Fairchild's herbarium curator, Dr. Brett Jestrow, researching plant compounds within the coffee family, Rubiaceae.

The scientists and students tested isolated plant compounds for their biomedical and antitumoral (tumor-fighting) activity, as well as for antibacterial properties. The study, based on Caribbean species cultivated at Fairchild and at Montgomery Botanical Center, stressed the value of botanic gardens' living collections for research. Biological analyses were conducted in Barbieri's biochemical lab at FIU.

This research had a strong mentoring component and involved undergraduate FIU student Stacy Soriano and four TERRA Environmental Research Institute high school students: Victoria Guerra, Angelique Parada, Leslie Soriano and Stephan Alvarez. The high school students received additional support from FIU's Summer Research Internship Program. FIU graduate student Christopher Chin assisted with this study.

This project largely built on recent work based on the Jamaican genus Portlandia, which resulted in two joint Fairchild-FIU publications. The project was supported by a Kenan FIU-ICTB Faculty Tropical Botany Research Grant. ICTB is the International Center for Tropical Botany.

Rosa Rodriguez performing field work for her research in the northern Dominican Republic. Photo by Teodoro Clase

Florida International University-Fairchild Graduate Student Successfully Defends Master's Thesis

Rosa Rodriguez, a student in Fairchild's Graduate Studies Program, earned her master's degree from FIU in August after successfully defending her thesis. Rodriguez, who is head of the conservation program of the National Botanic Garden of the Dominican Republic, wrote a thesis entitled "Genetic Diversity and Conservation of Pseudophoenix (Arecaceae) in Hispaniola." Two research papers have been accepted from her work for publication in the international journals *Plant Systematics* and *Evolution and Botanical Journal of the Linnean Society*. Rodriguez's graduate training was primarily supported by a fellowship from the Fulbright LASPAU program in the Dominican Republic and from research funds from Fairchild. Additional support for her work came from Florida International University, Mohamed Bin Zayed Species Conservation Fund, the International Palm Society and Montgomery Botanical Center.

(L-R) Shi Jipu and Liu Meng with bags of cuttings of native plants they collected to propagate for the Palmetto Bay Wetland Restoration experiment. Photo by Joyce Maschinski/FTBG

Garden Hosts Horticulture Visitors

This summer, Fairchild hosted two distinguished visitors from Xishuangbanna Tropical Botanic Garden in Xishuangbanna, China. Shi Jipu, the garden's vice director of horticulture, and Liu Meng, its horticulturist, spent three months at Fairchild learning about our horticultural practices, recordkeeping and South Florida conservation work. They experienced many enjoyable aspects of Fairchild life during their residency.

Jackfruit

The Largest Fruit in the World

By Noris Ledesma

Jackfruit (*Artocarpus heterophyllus*) is a tropical tree originally native to India and now cultivated throughout the tropics in both hemispheres. It is commonly grown in Burma and Malaysia, and to a certain extent is also grown in Brazil, Mexico, Central America and South Florida.

It makes a handsome tree, with the added benefit of a large (up to 70 pounds) tree-born fruit. When fully ripe, the unopened jackfruit has a strong sweet odor, and its ripe, fleshy bulbs smell of sweet pineapple and banana. Inside the leathery exterior are starchy seeds surrounded by a sweet and aromatic flesh, with a distinctive flavor reminiscent of bananas and tutti-frutti.

Jackfruit are highly nutritious and among the most versatile of fruits. The seeds, young fruit and mature varieties are all edible, and the trees' timber is valuable. Immature jackfruit can be cut into segments, boiled and eaten like a vegetable. It can also be stuffed or sautéed and mixed with any kind of meat. The seeds are good boiled and roasted. Ripe fruit can be chilled or mixed in a fruit salad.

The fruit bulbs are used in soups, main dishes, desserts, milk drinks, ice cream and fruit salads. In India, jackfruit is preserved by boiling with sugar syrup, butter and coconut milk. The bulbs freeze well and they may be used at a later time like fresh fruit. Fresh bulbs are excellent dried or preserved in syrup. Jackfruit has a good storage quality because of its thick peel.

Jackfruit trees begin bearing fruit from seven to eight years after planting. Tender fruits are harvested for use as vegetables during early spring and summer, until the seeds harden. The fruit matures, depending on cultivar, from June to September. Fruit size and weight also vary widely depending on the cultivar.

The latex content of jackfruit also varies widely between cultivars; the stage of maturity and time of year also influence latex quantity. It is best to use latex gloves or coat hands, knives and work surfaces with vegetable oil prior to preparing a jackfruit, in order to minimize the adherence of latex and to ease clean up.

Use your palate as a guide when being creative. Here is one way you can use the largest fruit in the world.

Jackfruit Vegetable Dish

INGREDIENTS:

1 large ripe jackfruit, cubed
5 potatoes, peeled and cut into chunks
2 tomatoes
2 red onions
1 seed nutmeg, ground into dry powder
100 grams (approximately 3.5 ounces) cashew nuts
1 teaspoon cumin powder
1 tablespoon turmeric powder
1 cup heavy whipping cream
1 cup of chopped mint leaves
2 tablespoons olive oil

In a pressure cooker, boil potatoes and jackfruit cubes. Grind tomatoes, onions and dry ground nutmeg powder to make a thick paste.
Fry the cashews and make a liquid paste.
Add tomato, onion and nutmeg paste and stir continuously. Fry for five minutes with olive oil on low heat. Add cumin and turmeric powders together. Add boiled chunks of potatoes and jackfruit to the gravy, along with heavy whipping cream. Cook, covered, for 10 minutes. Garnish with mint leaves and serve hot with steamed rice.

Tatiana Castro and Carlos Eguiluz Rosas transplant orchid seedlings into a Perlite medium. These orchids will soon be moved to Fairchild's nursery for further propagation.
Photo by Amanda Noble/FTBG

Future Scientists at Work

By Amanda Noble

For the first time this summer, The Fairchild Challenge was able to offer paid internships. Eight highly motivated high school students interested in plant biology, ecology and molecular evolution spent their six-week internships helping Fairchild study plants, conduct experiments, further conservation efforts and more. The eight students were selected from 25 applicants, all of whom were actively participating in The Fairchild Challenge through their schools.

The interns worked in the Paul and Swanee DiMare Science Village molecular and orchid laboratories conducting basic botany projects and observing Lepidoptera (butterfly and moth) behavior and biodiversity. They took part in Garden explorations and even took inspiration from the film "The Fruit Hunters" and began researching tropical fruits that were highlighted in the movie. Fairchild staff introduced them to botanical illustrations, preparing herbarium specimens, keeping plant records and horticulture with a behind-the-scenes view of the collections. The interns also participated in South Florida conservation projects such as fern restoration.

Carlos Eguiluz Rosas of Mater Academy Charter High School and Tatiana Castro of TERRA Environmental Research Institute worked in the orchid lab with Florida International University undergraduate environmental science researcher Jay Arce. They helped with Fairchild's Million Orchid Project, an initiative to re-establish South Florida's native orchid populations. Eguiluz Rosas and Castro were also involved with research by Jason Downing, Fairchild/FIU department of biology Ph.D. candidate and Fairchild Challenge assistant. Downing is examining the biodiversity of symbiotic mycorrhizal fungi in *Cyrtopodium* orchids, with emphasis on fungi species needed for orchid propagation.

One of the most important goals of The Fairchild Challenge internship is to inspire young adults to consider careers in plant biology and conservation.

Catherine Martinez of Maritime and Science Technology (MAST) Academy, Danielle Coogan of Coral Reef Senior High School, Tanya Mitjans of Miami Killian Senior High School, Kiannia Mack of Miami Northwestern Senior High School and Lucia Solano and Milagro Cadiz of Booker T. Washington High School worked in the molecular lab with Emily Warschefsky, another Fairchild/FIU Ph.D. candidate and Fairchild Challenge assistant. Warschefsky's project is to build a mango DNA bank so that scientists from around the world can use it to answer research questions. The interns flash froze the leaves of *Mangifera* (mango) specimens to grind and prepare them for DNA extraction.

The interns' time at Fairchild concluded with public presentations on their work in the laboratories, fruit hunting at The Fairchild Farm and a citizen science moth project.

On August 21, Cadiz and Solano presented an overview of their work in Fairchild's molecular lab to Miami-Dade County school board members, Florida International University faculty and an advisor to President Barack Obama. "This is the second biggest moment of my life," Cadiz said. "The first was presenting at Fairchild."

One of the most important goals of The Fairchild Challenge internship is to inspire young adults to consider careers in plant biology and conservation. For Castro, "It reaffirmed the fact that I want to be a botanist." Cadiz and Solano noted that the six-week program enhanced their knowledge of science and agriculture and will help them to advance in college. Eguiluz Rosas, for his part, now feels prepared for his future in research. "The program gives us a framework, so we know what to expect in lab and field work," he said. All the students will undoubtedly take this unique experience with them while they pursue their future career plans.

Kiannia Mack shows DNA samples in microcentrifuge tubes. Excess plant material still needs to be filtered from the mixtures in each tube.
Photo by Judy Frances

Hands-on Science

Starting an Orchid Seed

Carlos Eguiluz Rosas and Tatiana Castro helped with micropropagation of orchid seeds as part of the Million Orchid Project. Castro explains the process for beginning germination: "First, the seed pods are sterilized with alcohol. The powder-like seeds are sprinkled on a [culture] medium with banana powder," she says. The banana powder helps the protocorms—masses of cells that are the orchid's embryonic form—differentiate into roots and stems. Eguiluz Rosas adds, "When the orchids have sprouted small roots, they are transplanted from one flask to another. This is called 'deflasking.'"

Preparing for Mango DNA Extraction

Catherine Martinez, Danielle Coogan, Tanya Mitjans, Lucia Solano, Milagro Cadiz and Kiannia Mack worked on creating a mango DNA bank. Mitjans explains how mango leaves are flash frozen in preparation for DNA extraction: First, specimen leaves are placed into liquid nitrogen to help make their cells brittle. The crushed plant material is then transferred to microcentrifuge tubes. Buffers—chemicals that help break down the cell walls while maintaining DNA—are added to further the cell breakdown, known as lysis.

Kiannia Mack adds that a heating block is then used to warm the concoction of buffer and tissue to break down the cells. A vortex mixes the buffers with the fragments of leaves; the more cells that come into contact with the buffers, the more likely they will break open and release DNA. The goal is to get DNA to stick to a filter so the genetic material can be stored and used for agarose gel electrophoresis, in which DNA samples are inserted into slots containing a gel, which then allows researchers to see approximate amounts and weights of the DNA under an ultraviolet light. Researchers then can determine if there is enough DNA in the sample to maintain it in the bank.

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. Volunteer opportunities range from gardening to guiding, hosting to helping with the Wings of the Tropics exhibit.

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

Thursday, January 8, 2015
10:00 a.m. - 1:00 p.m.

Saturday, January 10, 2015
1:00 - 4:00 p.m.

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

We look forward to meeting you soon!

FTBG FAIRCHILD TROPICAL BOTANIC GARDEN

It may come as a surprise that Garden volunteers assume roles ranging from gardening assistants to lab technicians, and just about everything in between. No matter what job they do, volunteers are often the heroes who help make a visit to the Garden such a magical experience.

Fairchild's Valued Visitor Services Volunteers

By Kenneth Setzer and Arlene Ferris. Photos by Fairchild Staff

Clarice Strang, Ken Strang and Sophia Watkins (R-L) represent three generations of the Strang family, all of whom serve Fairchild as volunteer tram guides. Visitors love being treated to their intergenerational tours, and the family treasures the opportunity that volunteering gives them to learn and grow together.

One group of volunteers who play a unique and highly visible role are the Visitor Services volunteers, which includes tram drivers and narrators, shuttle drivers, Garden hosts and walking tour guides. The 175 volunteers who serve in these positions are the face and voice of Fairchild, ensuring that visitors receive a friendly welcome and enjoy a memorable time during their visit.

The tram tours are always popular; they offer a superb, comfortable way to see more of the Garden than you might on foot, and to learn a wealth of information, both historical and horticultural. **Tram tour volunteers** are trained and given materials to study, but each one also discovers his or her own favorite stories to share with visitors.

A volunteer tram guide for the past five years, Joan Spector shared a tale she won't forget: "A man and his son were walking along the lake behind Tram Plaza one morning," she says. "The father asked if I would like to see the photo he had just taken of his son with the fake alligator. When I was able to breathe again, I sputtered that we have no fake alligators here. Since then, I've included on my tours that all wildlife is very real and very wild, so please don't feed them, pet them or take a picture with them!"

The primary job of **Shuttle drivers** is to transport visitors to various points within the Garden. These volunteers often engage visitors in conversation, sharing information that will make their visit more enjoyable and rewarding. Barbara Willig, a volunteer shuttle

Shuttle driver Joy Reid carries guests from Tram Plaza to the Wings of the Tropics Exhibit and other points of interest. Visitors express great appreciation for the shuttle service, as it helps them learn their way around the Garden.

Volunteer walking tour guide Joe Garrigo shares information with visitors about the Garden's world-class palm collection on his Tuesday afternoon tours of the Palmetum. He has a wealth of information to share, gleaned from his years of guiding.

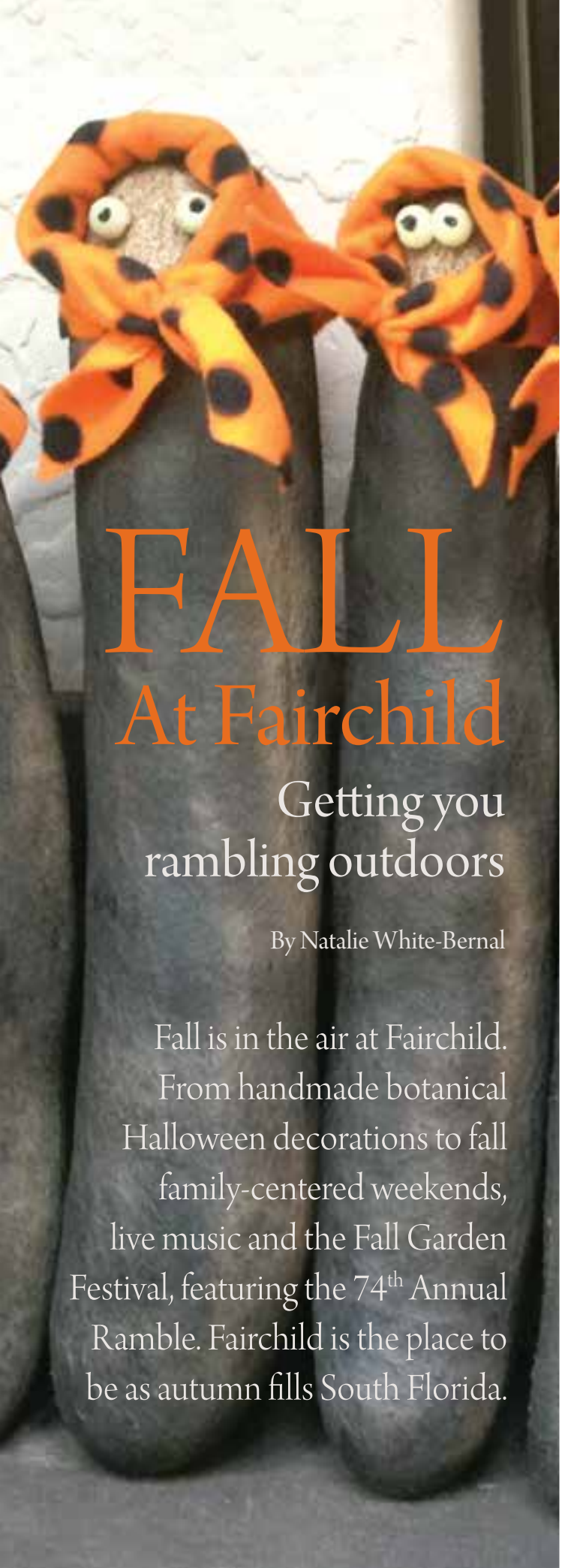
driver for 10 years, shares one experience: "I was driving the shuttle with a family—mother, father and two children—when the mother told me that her young son simply insisted that they visit the Garden because he had so enjoyed his school visit to Fairchild and wanted to share it with his sister and parents," she says.

Walking tour guides provide up-close-and-personal tours of various Garden features. During a Discover the Tropics walking tour in the Lisa D. Anness South Florida Butterfly Garden, volunteer Trish Swinney made a seemingly small, but ultimately very impactful, observation: "Standing near some milkweed, I noticed a female monarch hovering nearby," she recalls. "I explained to a gentleman that she was a female, and since we were near her host plant she was probably looking for a place to deposit an egg, and in just a few more seconds, she did exactly that. I still remember the look on his face and his comment that 'I have lived 80 years, and that is the first time I have ever seen that. Thank you!'"

Garden hosts are stationed throughout the Garden to assist visitors with information and directions. Host locations include Tram Plaza, Cycad Circle, the Tropical Plant Conservatory and Rare Plant House, the Butterfly Kiosk and the Rainbow Kiosk. Like many of our host volunteers, Karen Skruodys says her favorite part of the job "is meeting people from all over the world." And though she laughs about spending a lot of time directing people to the restrooms, she adds that "not a day goes by that I don't feel appreciated by the staff and the guests." Hosts make sure that every visitor to the Garden is greeted by one of our knowledgeable and friendly resident ambassadors.

These four groups of volunteers work together as a team to make the experience of visiting the Garden a fantastic memory for our guests. We are sure that after meeting these helpful volunteers, visitors remember the friendly people they met, as well as the magnificent garden they enjoyed! Keep up the good work and thank you Visitor Services volunteers!

Garden host Ann McMullan is always alert for ways she can assist visitors. She shares her passion for Fairchild and its mission in every encounter she has with the Garden's guests.



FALL At Fairchild

Getting you rambling outdoors

By Natalie White-Bernal

Fall is in the air at Fairchild. From handmade botanical Halloween decorations to fall family-centered weekends, live music and the Fall Garden Festival, featuring the 74th Annual Ramble. Fairchild is the place to be as autumn fills South Florida.

Our Fall Garden Festival, featuring the 74th Annual Ramble takes place November 7–9, 2014, and includes fall family activities, seasonal vignettes from the Salvage Snob, cooking classes and garden demonstrations, as well as Ramble traditions like Antiques and Collectibles, Old and Rare Books, DesignFairchild, the Garden's largest plant sale and more. And, don't miss interactive activities for the whole family, gourmet food and vendors perfect for holiday shopping.

Sunday Sounds kicks off the musical season at Fairchild. Student groups from the University of Miami Frost School of Music will perform classics to contemporary to jazz outside of the Glasshouse Café at 1:00 p.m. on select Sundays throughout the fall.

The 21st Annual Holiday Music concert will bring in the holiday spirit on Sunday, December 14, 2014. This year's event will be conducted by James Judd and features seasonal favorites by the Fairchild Chamber Soloists.

GardenMusic Festival returns January 5-18, 2015, for a two-week residency. More than 20 world-renowned musicians will take over the Garden with daily short concerts, educational activities, children's concerts and formal evening concerts. Artistic Directors Teddy Abrams, Harrison Hollingsworth and Johnny Teyssier of the Sixth Floor Trio have put together a spectacular arrangement of musicians and concert themes, ranging from classical favorites and bluegrass to today's top hits with a twist.

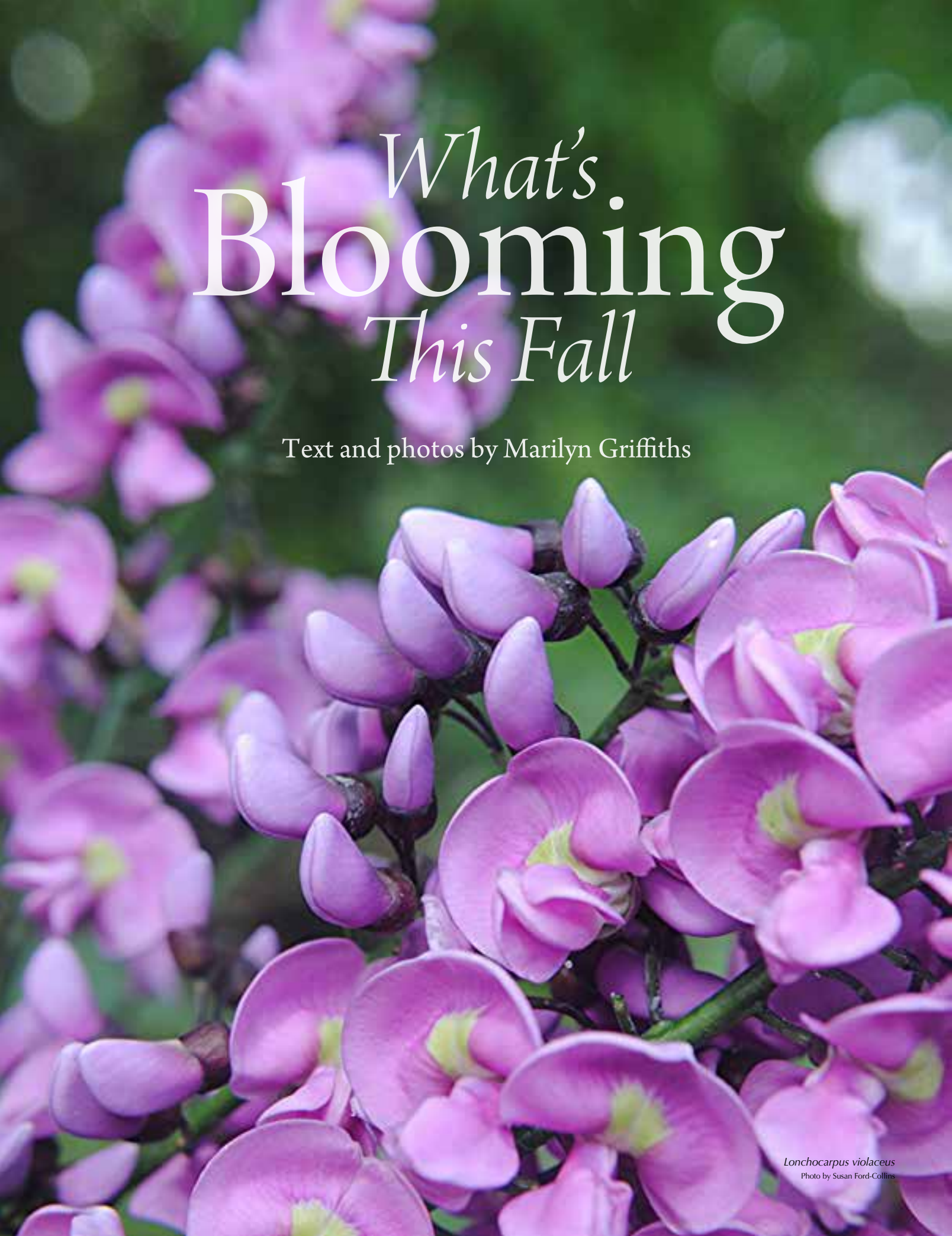
The 4th Annual Splendor in the Garden, Fairchild's trendiest event featuring a fashion show and luncheon, takes place on Wednesday, January 14, 2015. Co-hosted with Neiman Marcus Coral Gables and sponsored by Mercedes Benz, the event features spring 2015's hottest styles in a runway show presented by Ken Downing, Neiman Marcus's vice president and fashion director. Tickets start at $300 and are available online or by phone at 305.667.1651, ext. 3375.

Our annual **Gala in the Garden** takes place on Saturday, February 7, 2015. The black-tie event includes a cocktail reception, silent auction, world-class dinner and dancing to a live orchestra. Proceeds support Fairchild's programs in conservation, science, education and horticulture. Individual tickets start at $750 and are available by calling 305.667.1651, ext. 3375.

The **Valentine's Day** Concert returns on Saturday, February 14, 2015, with ten-time Grammy winner Arturo Sandoval. Bring a picnic or grab a meal from the Glasshouse Café and enjoy beautiful music under the stars at one of our most beloved musical events. Tickets are available for purchase online at www.fairchildgarden.org.

What's Blooming *This Fall*

Text and photos by Marilyn Griffiths



Lonchocarpus violaceus
Photo by Susan Ford-Collins

As the temperature and humidity finally drop after a steamy summer, we find new plants flowering in the Garden. In this issue, we'll look at a few of the trees and shrubs in the area surrounding the Shehan Visitor Center. This list is by no means exhaustive; you will need to discover for yourself all its hidden gems.


Cordia alliodora


Kopsia arborea


Plumeria pudica


Catesbaea spinosa

Opposite the Tram Plaza in Plot 52 there is a ***Cordia alliodora***, cypre or Ecuador laurel, which was planted in 1940. *C. alliodora* is native from Mexico to Argentina. The wood is similar to teak or mahogany and is used for making furniture and cabinets. Lovely white flowers form in clusters at the tips of its branches.

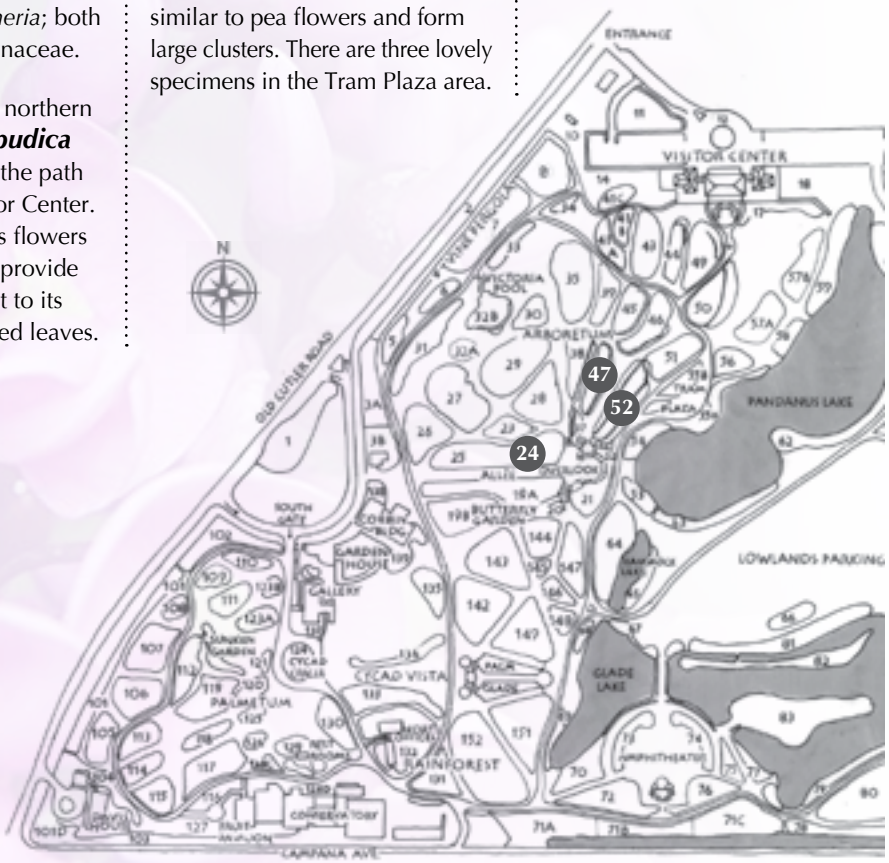
A more recent addition to the collections, ***Kopsia arborea*** in Plot 47 was received in 1999 from Waimea Arboretum and Botanic Garden in Hawaii. It is native from China through Malesia to northern Queensland. The white pinwheel-shape flowers are reminiscent of *Plumeria*; both are in the family Apocynaceae.

Native from Panama to northern Venezuela, ***Plumeria pudica*** (bridal bouquet) graces the path to the north of the Visitor Center. An unusual *Plumeria*, its flowers are not fragrant, but do provide a brilliant white contrast to its deep-green spoon-shaped leaves.

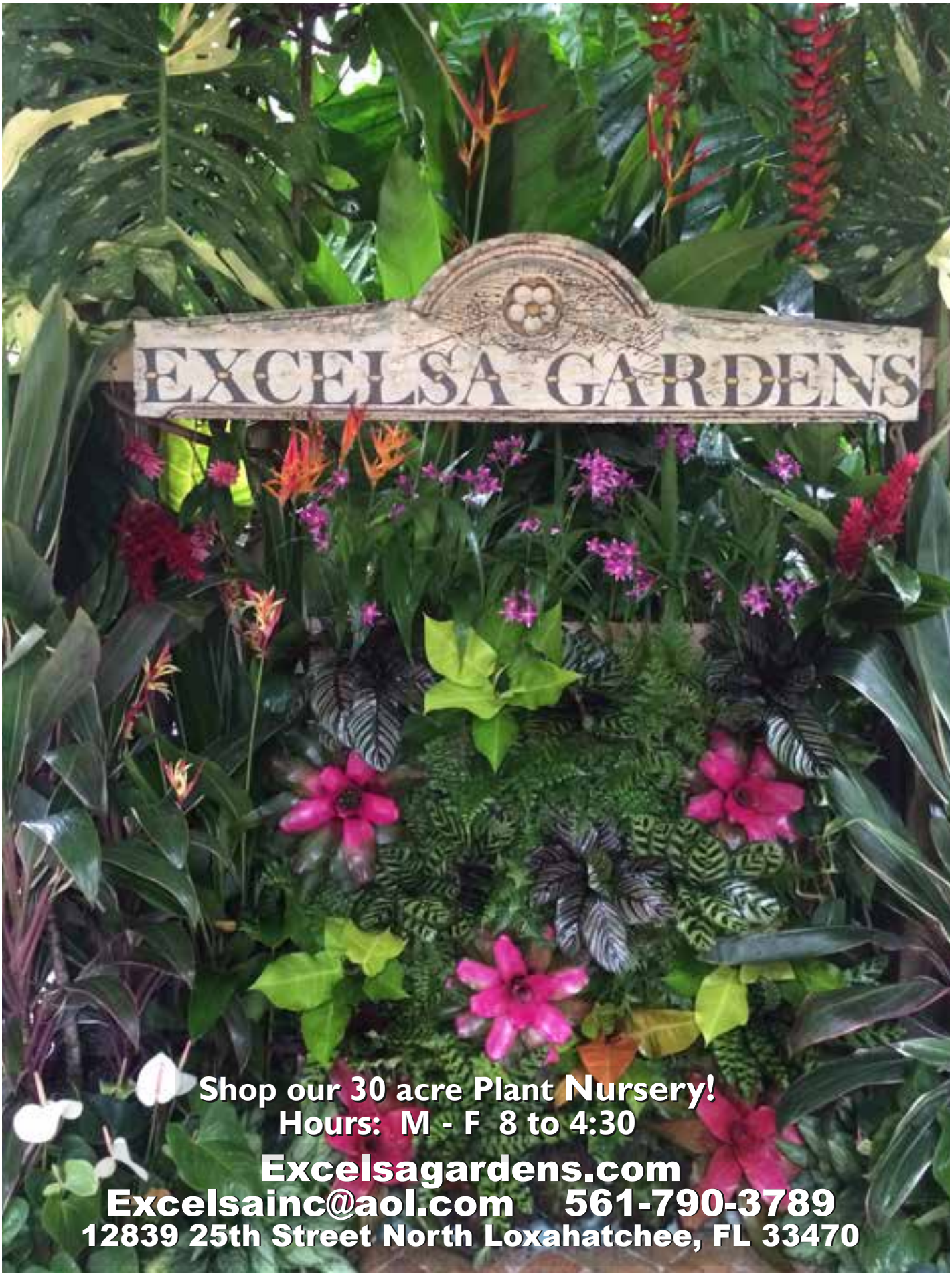
Our lovely specimen of ***Catesbaea spinosa*** (lily-thorn) was planted in 1941. As is typical of many Caribbean trees, *C. spinosa* has very small leaves, which prove less resistance to strong winds. Pendant white bell-shaped flowers cover the tree several times a year. Look for this shrub on the north side of Plot 24, which borders the Allée to the north.

Moving from our white palette to stunning violet, ***Lonchocarpus violaceus***, sometimes called lilac tree, is native to the West Indies and Colombia. A member of the legume family (Fabaceae) its flowers are similar to pea flowers and form large clusters. There are three lovely specimens in the Tram Plaza area.

A plot map of the Garden is available at the Visitor Center and at the South Gate booth. On the reverse there is a current list of flowering plants. Ask one of our friendly volunteers at the desk for a copy. A complete list of plants in the Garden is available at the Visitor Center desk and on our website. Browse through the botanical names or the common names to locate a plant of interest. Our website is an invaluable resource for plant information, horticultural advice and news of plants in the garden.



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



One of the Garden's missions is to conserve endangered plant species. Many palm species are endangered due to habitat fragmentation, degradation and loss—a topic we are very familiar with here in southern Florida.

Conserving Rare and Endangered Palms Through Teamwork

Text and photos by Sara Edelman

Fairchild's horticulture and conservation ecology departments have teamed up with other botanic gardens to collect, plant and cultivate seeds of many endangered palms. Much of the palm conservation work at the Garden has been done on our native *Pseudophoenix sargentii*, but other palm conservation projects involving *Attalea crassispatha* and *Corypha taliera* are important to the Garden as well.

The Florida native Sargent's cherry palm (*Pseudophoenix sargentii*) grows throughout the Caribbean; in the U.S. it is only found on Elliott Key (Biscayne Bay). Although the species is widespread throughout the Caribbean region, its numbers have been decreasing in many of its habitats, and this palm is listed as an endangered species in Florida.

Sargent's cherry palm was discovered to be growing on Elliott Key in 1886, and since then the population has suffered from a wide range of threats. In the early 1900s, many individuals were removed from the wild for use in Miami landscapes. Habitat degradation and fragmentation from development has further decreased the island's population. While hurricanes and storms are a natural part of this tree's life history, with so much stress on the population, these events have had an immense negative impact. On top of all of these things, the palms have a very low rate of reproduction. Growth to reproductive maturation is slow and germination is difficult.

Conservation work conducted by Biscayne National Park, Fairchild and the Florida Department of Environmental Protection has helped increase the Sargent's cherry palm population. Reintroduction of the palm into Elliott Key began in 1991; since then, the population has increased from 50 individuals to 270. Seeds were collected from Elliott Key and grown at

This large *Corypha utan*, a monocarpic palm that is extinct in the wild, is mature and will soon reproduce. One day soon the spear will be replaced by a large inflorescence that will hold millions of flowers.

This stand of *Attalea crassispatha* palms includes about 25 individuals. These palms look very similar to coconut palms and have comparable uses such as edible fruit, timber and thatch. They were driven to extinction in Haiti by overuse and habitat loss.

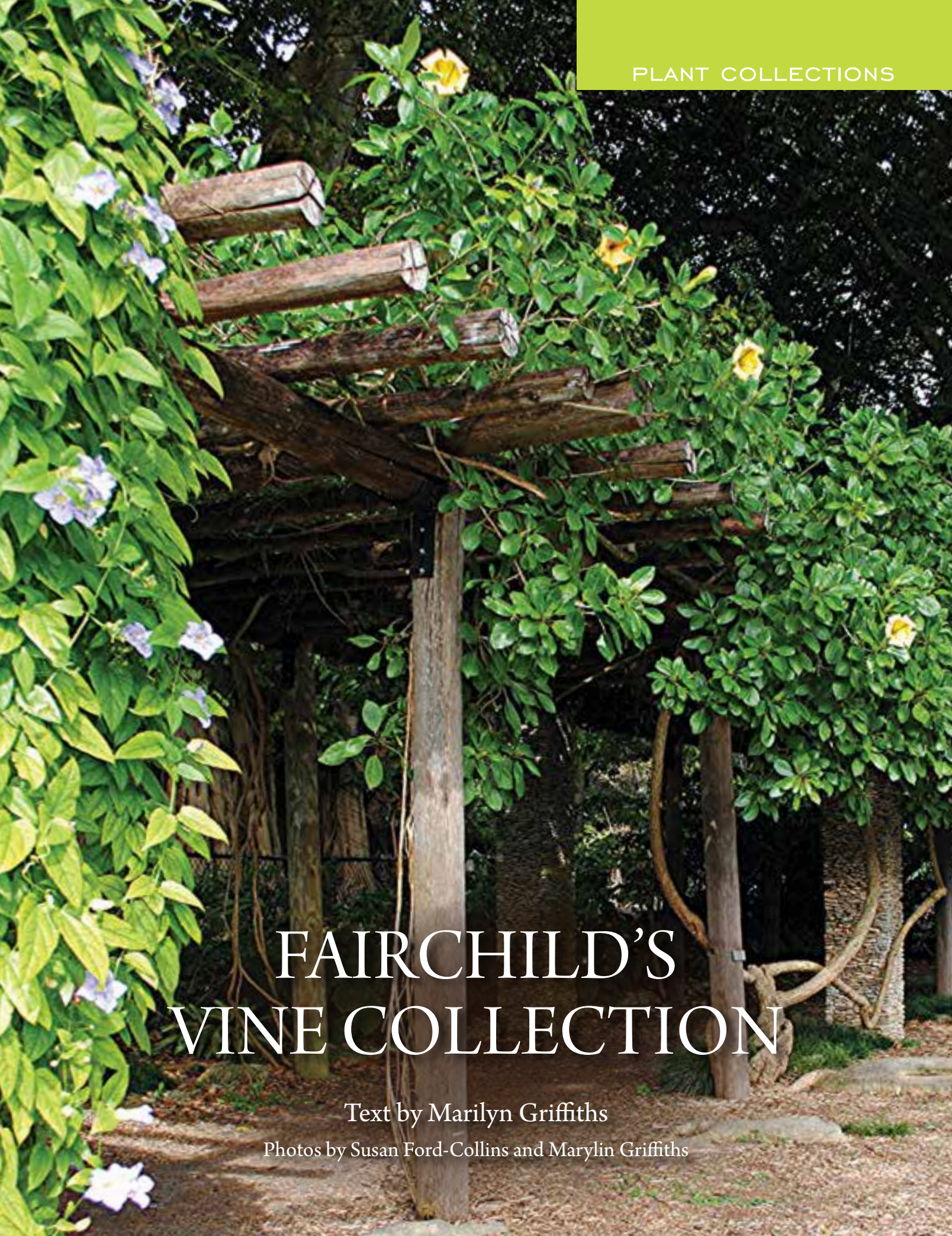
Corypha taliera is extinct in the wild. Hopefully, palms in the collection at Fairchild will produce seeds that will help reestablish the population in India.

Fairchild's nursery, and then the young plants were replanted back into the wild. Many of those young palms survived and are now growing slowly toward maturity. Some of the young palms were also planted at Fairchild, where they are monitored closely, fertilized appropriately and given every opportunity to survive and reproduce. Since they are cared for more closely, they grow faster and reach reproductive maturity sooner than those in the wild. The seeds from the individuals grown at Fairchild are also used for reestablishment.

The critically endangered *Attalea crassispatha* palm may become another Fairchild conservation and horticulture success story. Native only to the southwest peninsula of Haiti, the population of this palm is plummeting due to exploitation of edible seeds and habitat loss to agricultural use. In 1996, fewer than 30 individuals remained in the wild. Fairchild has 38 individuals growing— 26 in the Palmetum and another 12 throughout the Garden. These palms will reach reproductive maturity within the next 10 years, seeds will germinate and young plants will be planted out in the wild. By cultivating this palm, Fairchild may be able to help this population, which is currently teetering on the brink of extinction.

The *Corypha taliera* palm is extinct in the wild, and Fairchild is one of only two gardens in the world to have it in its collection. This palm is monocarpic (it flowers once and then dies), making conservation very difficult. Without non-natural environmental pressures, such as habitat loss and degradation, a monocarpic habit is beneficial. Monocarpic palms have a very long generation time, ensuring their survival throughout the centuries. But, with habitat loss, many palms are cut down before they reproduce. In 1979, the last *C. taliera* growing in the wild was cut down in a village near Shantiniketan, India. The individual was in an early fruiting stage and the villagers cut down the tree and its six-meter-tall pyramidal inflorescence because they feared what was known as a "ghost palmyra tree." Fortunately, an individual later flowered and reproduced successfully in a botanic garden, and Fairchild obtained some seedlings. The palms from these seedlings are growing in the Garden. Although they are very small right now and it will be many years before they reproduce, we hope to use them as part of reintroduction and reestablishment efforts.

While cultivating young plants in the nursery and in the Garden is necessary in order to reestablish populations in the wild, it is only part of the solution. Most of these palm populations face grave problems such as habitat loss, human exploitation and in the rare case of *C. taliera*, fear. In order to reestablish these populations, local communities must want to conserve the palms as well. As we have observed, teamwork among Fairchild, other botanical gardens and local communities is essential in order to restore populations of endangered palms to their historic grandeur.



FAIRCHILD'S VINE COLLECTION

Text by Marilyn Griffiths

Photos by Susan Ford-Collins and Marylin Griffiths

Ladies of the first Vine Committe in the Pergola. 1941.
Photo by Archives/FTBG

In February of 1941, Mrs. John Semple, in her dedication of the new Vine Pergola at Fairchild, said, in part, "The vines, next to the palms perhaps, constitute the most striking feature of the tropics. This collection of flowering vines with its few dozen species is a tiny beginning, and yet it is the first attempt, I am told, to make a special feature of vines in any tropical garden." Little did Mrs. Semple know that 73 years later, her pet project would become one of the favorite locations in the Garden.

The Vine Pergola's structure was designed by William Lyman Phillips, the Garden's landscape architect, and was constructed by the Civilian Conservation Corps public work relief program. A charming description of the process can be found in Lucita Wait's *Fairchild Tropical Garden: The First Ten Years*.

Today, we have 39 species of vines growing on the posts and columns of the Pergola, as well as on the masts in the lawn nearby. From the stunning aqua blooms of *Strongylodon macrobotrys* (jade vine) to the delicate flowers of the *Stigmaphyllon sagraeanum*—our vines hold a special place in the ornamental plant world. Other vines and lianas (woody, climbing vines) grow throughout the Garden. A visit to the Richard H. Simons Rainforest reveals many climbing aroids in the genera *Philodendron* and *Monstera*. *Passiflora suberosa* (corky-stemmed passionflower) is our native vine and the favorite larval host for Zebra Longwing and Gulf fritillary butterflies, and can be seen popping up wherever birds have deposited its seeds.

Vines have different methods of climbing trees or trellises. Twining plants such as *Tecomanthe dendrophila* (New Guinea trumpet creeper) twist their stems around supports to reach the sun. *Bougainvillea* has sharp hooks to grab onto surfaces and lift itself up. Tendrils (modified stems, leaves or petioles) provide another mode of movement. *Tetrastigma voinierianum* (chestnut vine) has very strong tendrils that twist around anything in their path. These thread- or string-like structures help the plant travel long distances in search of support and sun. Charles Darwin conducted several experiments in which he observed and measured

Pyrostegia venusta

Take a stroll under the Vine Pergola. Touch the gnarled old trunks that have been twining for decades. Cool off in the shade and relish the forms and hues of the flowers that appear throughout the year.

Strongylodon macrobotrys

the movements of twining plants. He found that they grew in wide arcs in their quest for light and support. An excellent account of Darwin's experiments can be found in *Scientific Papers of Asa Gray*.

One of the oldest plants on the Pergola is *Derris scandens*. The Malay jewel-vine was received in 1939. The original plant material was collected in Bangladesh for the U.S. Department of Agriculture Bureau of Plant Industry. It has lovely clusters of pink to white flowers that are followed by flat seedpods.

The most popular vine in the collection is the *Strongylodon macrobotrys* (jade vine). As early as late January, long racemes of buds start appearing along it. Soon, aqua flowers emerge, fairly dripping from the Pergola's cross beams. The blooms have a distant resemblance to pea flowers, understandably, as the jade vine is in the legume family. Our records show that flowering continues through May and sometimes into June.

A variety of leaf, stem, flower and climbing mechanisms can be found in our important collection of vines. A former researcher at Fairchild, Jack B. Fisher, used this collection in his morphological studies of lianas. He writes in a 1990 volume of the *Garden Bulletin*: "Visitors admire the Fairchild Pergola because of its interesting and beautiful flowering vines, but scientists see it as a unique resource for better understanding the biology of vines, one of nature's most amazing life forms."

Chonemorpha fragrans

CELEBRATING EARLY AMERICAN NATURALISTS

THE BARTRAMS

BY KENNETH SETZER

Father and son explored for plants and animals from New York to Florida, beginning well before U.S. independence and earning acclaim as America's first naturalists.

The Bartram name is familiar to anyone with an interest in the natural history of the Southeastern United States—if only through all its eponymous flora and fauna, like Bartram's scrub hairstreak butterfly or Bartram's rose gentian. However, the Bartrams themselves—both John and his son William—are intriguing characters from early Colonial America, often celebrated as America's first naturalists.

John Bartram was a plain Pennsylvania Quaker, born in 1699. This diligent farmer-explorer was self-taught in nature, literature and science. His many discoveries—and his simple, upright character—charmed luminaries in the Colonies, including Benjamin Franklin. One can't help but picture John and Ben brainstorming the founding of the American Philosophical Society while drinking chocolate and sitting within earshot of a tinkling harpsichord. The humble Colonial farmer became an explorer, businessman and, eventually, King George III's Royal Botanist. He lived an American ideal—free to reinvent himself in the New World.

His plant explorations stretched from John Bartram's own Colony of Pennsylvania (where he discovered American ginseng, *Panax quinquefolius*) to New Jersey, New York, Maryland, Virginia, the Carolinas (where he found with his son William "an abundance of the ludicrous *Dionaea muscipula*," known also as the Venus flytrap), Georgia and Florida. He initiated a plant export business that supplied curious Europeans with novel North American plants.

John's son William may have followed in his father's footsteps, but certainly did not hide in his shadow. At 14, he accompanied his father on plant explorations in the Catskill Mountains, which ignited in William the same "Botanick fire" that his father felt. More formally learned but less pragmatic than John, William was a gifted artist who romanticized wilderness, whereas John saw more practical uses for what nature provided.

During their first trip south together, John wrote on October 1, 1765: "This day we found several very curious shrubs." The location was near Fort Barrington on the Altamaha River, in Georgia. These shrubs turned out to be even more curious than either Bartram realized at the time. They eventually named the species *Franklinia alatamaha*, the Franklin tree. William found it flowering on his subsequent visit, but after about 1803, all Franklin trees in the area were gone, and none have ever been found anywhere else. They had unknowingly found a remnant population. Extinct in the wild, many Franklin trees grow today in cultivation; they all descend from the samples the Bartrams collected.

William tested life as a merchant's apprentice, turned down a printing apprenticeship with Franklin and tried running a mercantile business; the subtropics appealed to him enough to convince his father to financially back him as a rice and indigo grower in Florida in 1766—an endeavor at which he failed. However, his excellent illustrations of strange, new plants and animals were making the rounds of influential men back in England, ultimately entering the hands of English physician and plant collector Dr. John Fothergill, who was impressed enough to order several drawings. This swayed the course of William's professional life, earning him backers to finance another expedition throughout the wilds of the southeast Colonies.

LEFT
The Great Alachua Savana, currently Paynes Prairie Preserve State Park, by William Bartram.
Image courtesy of the American Philosophical Society.

Exploring the Southern Frontier into Florida, 1773-1777

Much of America, especially inland, was then still unexplored by Europeans. Just imagine the wilds of Georgia, Tennessee and parts of the Carolinas: nearly completely natural, still mostly populated by Native Americans. Florida was a wild jungle by comparison, full of giant reptiles from another epoch and primitive forests draped in Spanish moss—ripe for an explorer eager to document new plants, animals and people.

Upon reaching Florida, William mostly followed the St. Johns River, or River San Juan as he called it, where he made some of his most important observations: coonties, palms, limpkins, ibis, black vultures, sandhill cranes and the infamous painted vulture, spotted near Lake George. In his description of the "painted vulture," William seems to be talking about a king vulture (*Sarcoramphus papa*), but the Yucatan is their northernmost home. For centuries, naturalists have been vexed about just what he saw. William Bartram was a bit, let's say, lackadaisical in his chronology (and in sending promised specimens back to Fothergill), but otherwise his observations are considered reliable. For instance, he described the celestial lily, which subsequent hunters were unable to find; after the lily was rediscovered in 1931, his descriptive accuracy was more or less vindicated. Like the Franklin tree, the straggling vulture could have represented a remnant population, or simply an off-course visitor.

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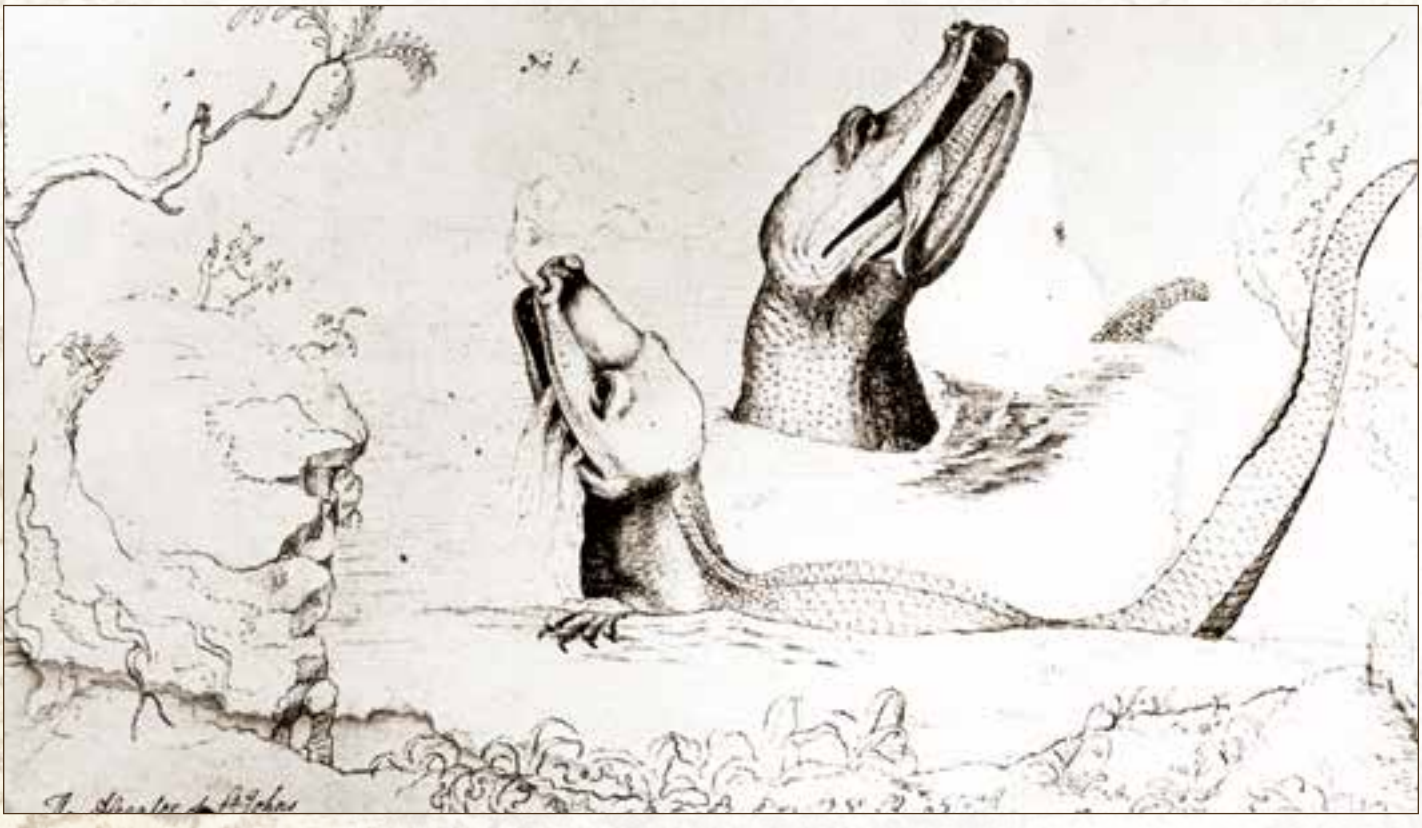


Florida's terrible monsters, by William Bartram.
Image courtesy of State Archives of Florida, Florida Memory.

The rare Franklin tree (*Franklinia alatamaha*), extinct in the wild.
Photo by Kenneth Setzer/FTBG

The endangered Bartram's scrub-hairstreak butterfly (*Strymon acis bartrami*).
Photo by Kenneth Setzer/FTBG

William also made another observation that continues to puzzle naturalists: He observed towering royal palm trees (*Roystonea regia*) around Lake Dexter, northwest of Deland, Florida. This is truly far north of their current natural range of extreme South Florida. But his description fits: trunks 60, even 90 feet tall and "of bright ash color."

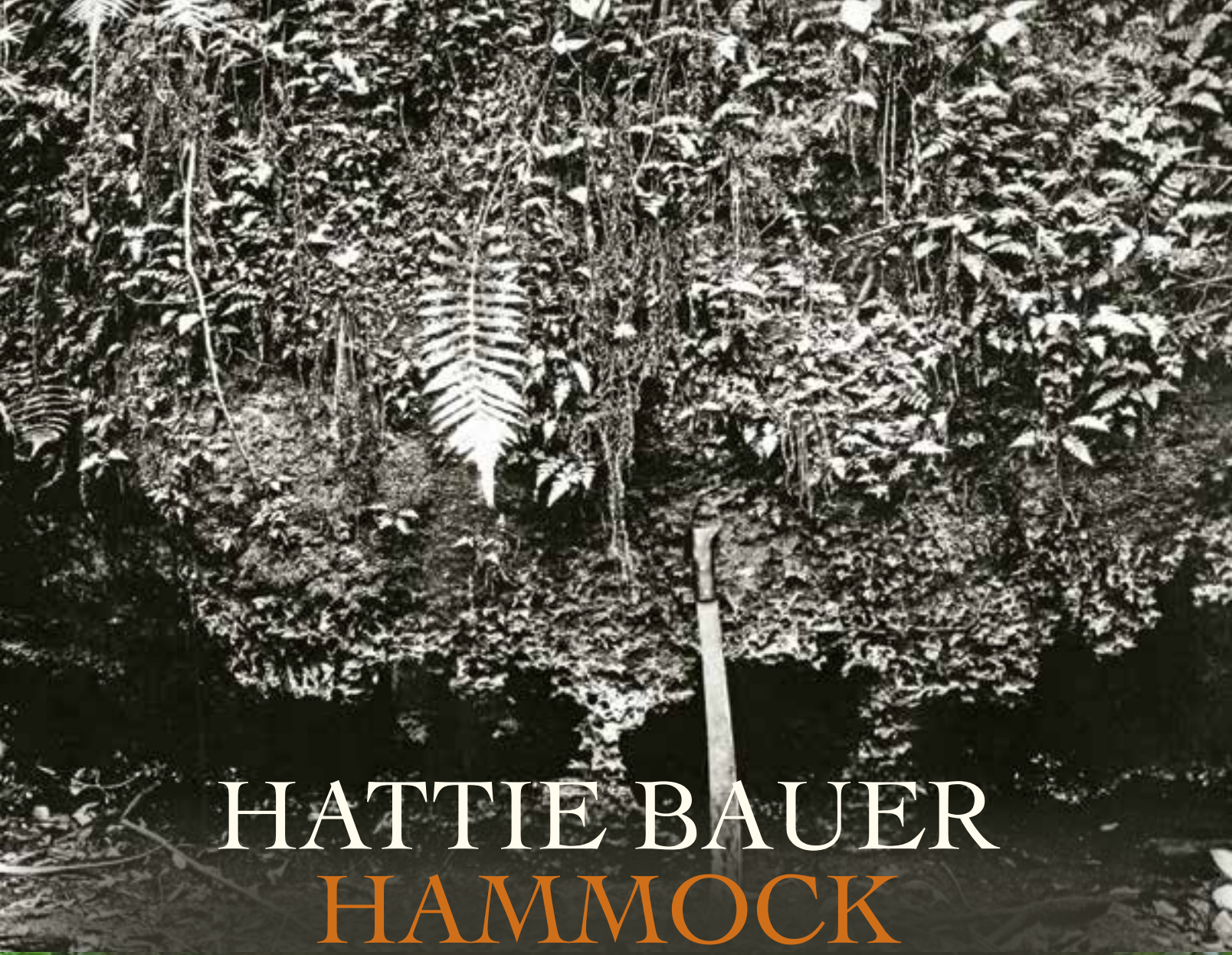
Near Palatka, Florida, William traveled west to describe eloquently—if a bit over-sentimentally— the great Alachua Savannah, now Paynes Prairie Preserve State Park: "The extensive Alachua savanna is a level green plain. It is encircled with high, sloping hills, covered with waving forests and fragrant orange groves, rising from an exuberantly fertile soil. The towering magnolia grandiflora and transcendent Palm stand conspicuous among them … Herds of sprightly deer, squadrons of the beautiful fleet Siminole horse, flocks of turkeys, civilized communities of the sonorous watchful crane, mix together, appearing happy and contented in the enjoyment of peace."

William was fascinated by the many sinkholes and springs of pure water he stumbled into, but was plagued by the alligators he felt stalked him there and in the river. He wrote: "Behold him rushing forth from the flags and reeds. His enormous body swells. The waters like a cataract descend from his opening jaws. Clouds of smoke issue from his dilated nostrils. The earth trembles with his thunder." Pretty accurate, minus the smoke.

Here, he also called upon the Seminole village of Cuscowilla, near Micanopy, where the native chief christened him "Puc puggy," the flower hunter. William's Quaker diplomacy and appreciation of Native Americans and their intimate knowledge of local flora and fauna ensured he became their ally.

William's explorations reached as far south as the "diaphanous" water of Blue Springs (now Blue Springs State Park), where he stopped, turned northward, and began working back home to Philadelphia. He would never embark on such a hunt for "original productions of nature" again, declining a botany position at the University of Pennsylvania and a position on the Lewis and Clark Expedition. Instead, in 1791 he published "Travels," a classic recollection of his 2,400 miles of exploration throughout the Southeast. "Travels" was a hit, especially in Europe. William's sometimes florid, always artistic interpretations of what he saw heavily influenced European Romanticism, including poets Samuel Taylor Coleridge and William Wordsworth. Portions of his journey were even retraced by Thomas Nuttall in 1815 and John James Audubon in 1832.

The Bartram legacy lives on in far more than animal and plant names; "Travels" is considered an irreplaceable source of early observations, particularly of Florida. You can also personally retrace William's path along the Bartram Trail, or even hire a John Bartram impersonator. Or still better, visit the 1728 Bartram House and Garden, which remarkably still stands outside Philadelphia.



HATTIE BAUER
HAMMOCK
A Botanical Survivor

Text and Photos
By Georgia Tasker

Its pocked limestone floor, marked by solution holes, hosted rare ferns and abundant epiphytes nearly a century ago. Today, ecologists are working to remove exotic plants and reestablish those rare ferns.

A dozen years ago, Fairchild Conservation Ecologist Jennifer Possley became the full-time rare plant biologist for natural areas in Miami-Dade County. It is her job to map, monitor, research and restore rare plants in the County's preserves. One of these preserves is the Hattie Bauer Hammock Park, where a homesteader's claim became a tourist attraction and now is undergoing a slow transition into a Florida forest of long ago.

Tom Fennell Jr., left, with his parents Dorothy and Tom Sr. in the Orchid Jungle showroom.
Photo courtesy of Miami-Dade County Environmentally Endangered Lands program.

PREVIOUS PAGE

TOP: John Kunkel Small took this photograph of limestone and ferns in Hattie Bauer Hammock in 1916.
Photo from Florida State Archives.

BOTTOM: Even today, a solution hole is ideal for ferns and exotic invaders such as oyster plants.

Possley is using GIS (Geographic Information System) mapping technology to track her plants and off-site horticulture to grow and reintroduce plants that once called this place home. Restoring this hammock to health is not easy. The naked rock that covers much of it is so rough that even trees seem to stand on tiptoes, their aboveground roots running over each other to find thin organic detritus in solution holes. Plus, fast-growing exotic vines find the humidity and temperature so salubrious they grow roots in the moisture-laden air.

Yet, the bones of the place still are visible: the oaks, gumbo limbos, snowberry and lancewood; the resurrection fern and the maidenhair; the oolitic rock. Here's their story.

From Homestead to Orchid Jungle

Frances E. Bauer and his schoolteacher wife Hannah M. Bauer moved to Florida in 1902. The area in which they claimed a homestead was called Modello, for the Model Land Company begun by Henry Flagler as he brought his railroad south. The Bauers were in their 70s when they made the claim. Jean Taylor, the late South Dade historian, recorded that Mrs. Bauer used crutches and found it extremely difficult to walk over the homestead's eroded limestone.

The Bauers had three children: Walter Raleigh, Martha Arabelle and Hannah Ida Eloise. Walter moved to Colorado, Martha became a nurse and Hannah, known as Hattie, took over the 160-acre homestead claim in 1906, a year after her father died. She built a 10-foot by 16-foot cottage and planted fruit trees—both of which fulfilled the requirements of the Homestead Act of 1862.

"Her first little … cottage has given place to a larger and more commodious one, covered with flowering vines and sheltered by avocado and other fruit trees," reported the *Homestead Enterprise* in 1914. "She now has 15 acres into fruit trees, about one acre bearing, with double that amount for next year."

Sometime in 1916, botanist John Kunkel Small, supported by Charles Deering but working for the New York Botanical Garden, explored Hattie's hammock in one of his many plant expeditions to South Florida. His camera loved the oolitic limestone and solution holes full of halberd ferns (*Tectaria minima,* now *Tectaria fimbriata*), *Trichomanes* and *Dryopteris* (now *Thelypteris)* ferns, *Peperomia obtusifolia* and maidenhair ferns. His recorded botany laid the groundwork for conservation ecologists today.

A threatened halberd fern has taken root in the hammock.

By 1922, Miss Hattie was willing to sell part of her property to a Kentucky orchid grower named Lee Fennell, who was equally taken with the abundant epiphytes and solution holes, live oaks and gumbo limbo trees that somehow grew in the pocked limestone floor. Fennell began to put his exotic orchids in the trees. He created a path through the "jungle" of plants, and in 1923, he created Orchid Jungle, one of the area's first tourist attractions.

For 70 years, four generations of the Fennell family lived and worked at the Jungle, adding tropical plant accents so it more closely resembled a rainforest setting for their orchids. Showcasing orchids as well as aroids and bromeliads, Fennell's Orchid Jungle eventually housed a tissue culture lab where bottles of tiny orchid seedlings could be seen gently rocking in artificial light and growing media. In this way, the Fennells brought the science and art of orchids to visitors.

Hurricanes over the years damaged the hammock, but Hurricane Andrew delivered the crippling blow in 1992. Even though the family valiantly struggled to reestablish the attraction, it finally failed. Thomas Fennell Jr., however, won the Florida lottery, and the economic success of the Jungle no longer mattered. The Fennells had provided 70 years of stewardship.

Restoring Rare Ferns

Miami-Dade County's Environmentally Endangered Lands (EEL) program collected property taxes between 1990 and 1992 to acquire and protect remaining pieces of natural areas. As part of the EEL effort, in 1998, nine acres of Hattie Bauer Hammock were purchased.

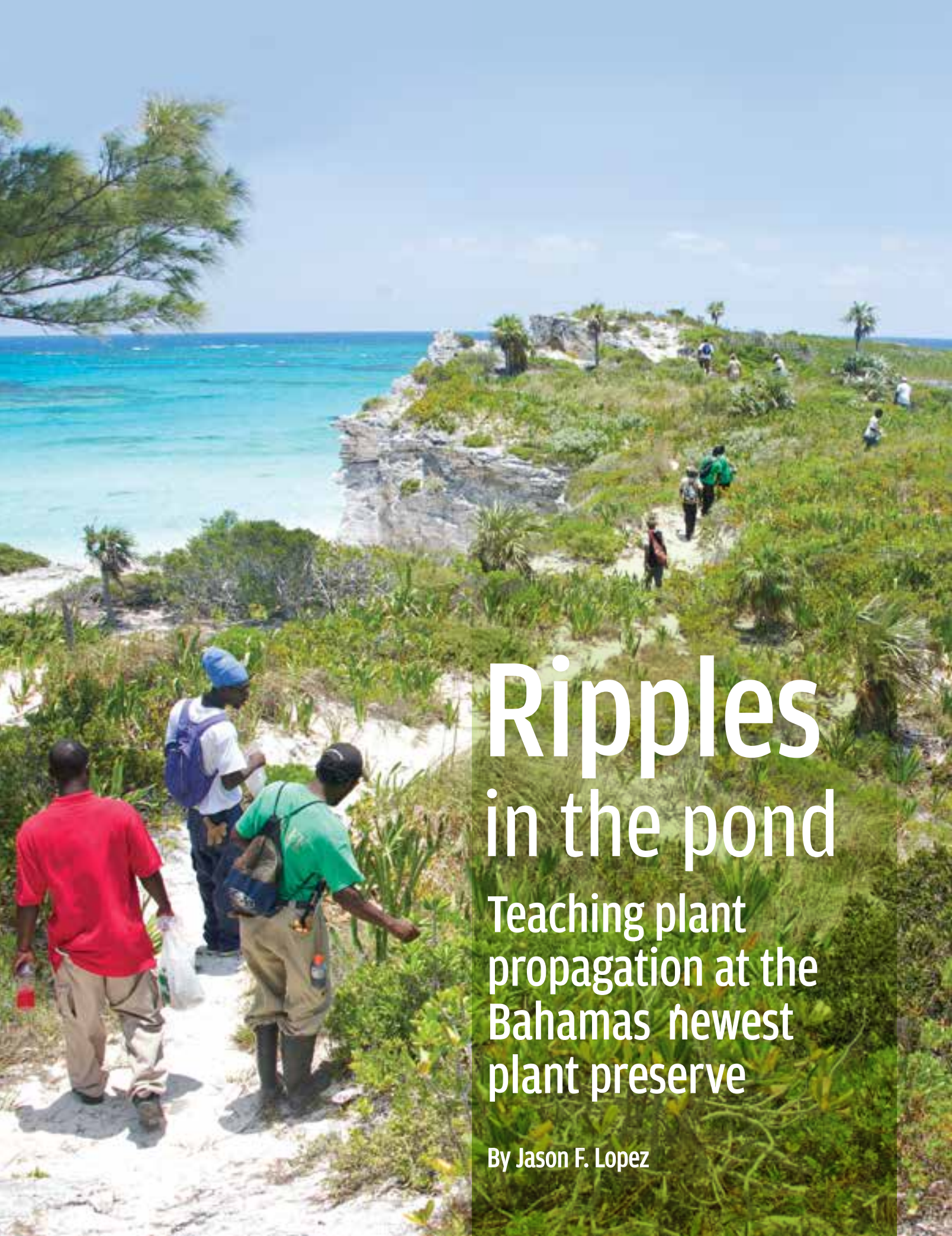
By the time the County acquired the nine acres of hammock, the place was blanketed by the Fennells' tropical plants, which had grown unchecked. Now, every six months, County crews go in and try to keep the exotics at bay. Jane Dozier—an environmental resource project supervisor with Parks, Recreation and Open Spaces—organizes volunteer weeding days throughout the year. A loop trail has been reestablished, but the hammock's buildings are decaying, awaiting funds to make them safe for the public.

Possley has worked with Miami-Dade County and volunteers to reestablish some of the rare ferns that Small recorded nearly a century ago. Removing the exotics, carefully reintroducing halberd and other rare ferns, Possley sometimes finds that raccoons dig up the newly planted specimens within a matter of days. Instead of the layers of ferns and *Peperomias* that Small found, there now are little plastic flags marking reintroductions.

The reputed highest spot in the county has been uncovered at Hattie Bauer Hammock. Called The Mount, it stands 18 feet above sea level. The largest oak in the hammock, known as "Grandfather's Oak," and estimated to be 500 years old, still is upright. And the root of a gumbo limbo that uncannily resembles a manatee remains in the hammock, too.

The limestone is as treacherous now as it was then, and for those of us who remember the grand orchid displays of Orchid Jungle and the always-warm welcome from Tom and Trudy Fennell, the forest and the old buildings are a little melancholy, especially in the rain.

Nonetheless, the nine acres harbor a living museum of South Florida's exquisite evergreen forest, a haven for birds and butterflies and no doubt things that go bump in the night and clamber out of rocky holes. It also includes 32 plants listed by the state as endangered, 15 threatened and two commercially exploited. It is a treasure.



Ripples in the pond

Teaching plant propagation at the Bahamas newest plant preserve

By Jason F. Lopez

PREVIOUS PAGE
The Leon Levy Native Plant Preserve's first-ever staff plant collecting trip to Lighthouse Point, Eleuthera, Bahamas.
Photo by Jason F. Lopez/FTBG

LEFT
Jason Lopez, Fairchild's living collections manager, demonstrates how to take plant cuttings.
Photo by Mark Daniels

Teaching people how to grow plants is an honor. Inside one seed exists an entirety of something, and sometimes, we are a part of it.

Back in March of 2012, as part of a Fairchild expedition to the Bahamian islands of Andros and Eleuthera in a joint venture with the Bahamas National Trust, I became acquainted with Dr. Ethan Freid. My part in the venture at the time was to collect and bring back living plant material to be used in our Garden, while Freid was there as one of our hosts, as an expert botanist in the island's flora and to collect orchids for a new native plant preserve he was developing on the island of Eleuthera.

That preserve— the Leon Levy Native Plant Preserve—is the newest member of the park system run by the Bahamas National Trust (BNT). It sits almost a stone's throw from the beautifully blue Atlantic Ocean, tucked behind a heavily forested border on a quiet coastal road. Thick stands of hardwoods and thatch palms provide shelter from street view, and the preserve's presence is only noticed because of a rocky driveway and handmade sign out front. Inside the iron gates, miles of well-maintained walking paths climb, twist and dive their way through intact native forest, as well as wetlands and other planted areas that showcase plants and their uses from all over the Bahamas.

In my case, productive days in the field on that trip were followed by long nights of processing collected plant material for growing later on. I needed to be sure everything was clean, organized and ready for inspections, travel and, finally, propagation.

This year, two years later, Freid invited me back to the island as a guest of the BNT, to help teach following completion of phase two of the Levy Preserve. Phase one, which opened in 2011, included construction of many of the paths and plantings, the buildings, parking areas and Ethan's Tower, which leads visitors above the canopy for great views of both land and sea. Phase two highlights include a weather station that will hopefully continue to transmit data through even the strongest of hurricanes, as well

Two of Lopez's students tend to their fresh cuttings.
Photo by Jason F. Lopez/FTBG

a new lath house. From this handsomely constructed space, BNT plans to propagate, grow and share Bahamian plants all across the islands, whether by giving a plant to every school kid who passes though the preserve's gates or through major out-plantings across the country.

Excited to share something I'm passionate about and happy to give back, I flew to the island this past May with two goals: Teach a group of people how to grow plants from their own propagations and teach them to do so in their own nurseries.

My students for the week included several of the Levy Preserve's permanent staff members, many of whom had been there since the beginning. Also in the group were two members of the BNT from The Retreat on Nassau, a few local temps hired on for the preserve's second phase and interested members of the local community near the preserve.

Each of the students had some sort of relationship with plants, yet had never attempted to grow groups of plants in a controlled nursery environment. We talked about the workflow of a nursery, how the potting bench should be near the fresh soil pile and a water source. We learned solar sterilization techniques for used soil and covered fresh soil to keep weed seeds out. We did other simple things like sterilizing pots before using them again and making different soil mixes to test how varying groups of seeds and cuttings grew in each. I taught them to find the ripe fruits of plants they hadn't considered harvesting, and then to find the seeds within those fruits. I taught them which parts of the plants to take to start a cutting, how to graft and make air-layers and different record-keeping techniques to track plants over time. The group even had a chance to practice everything they learned on the first-ever full-staff field trip to collect plants at Lighthouse Point on Eleuthera.

Teaching people how to grow plants is an honor. Inside one seed exists an entirety of something, and sometimes, we are a part of it. We provide the soil and water, the bucket to grow in, the food, the space and consistency, and while we don't give life, because a seed is alive, we can sometimes strike it from dormancy. From them we learn time, patience, respect for the seasons, cause and effect, even death. They teach us that the way we treat things matters and that our travels in life do in fact affect other beings.

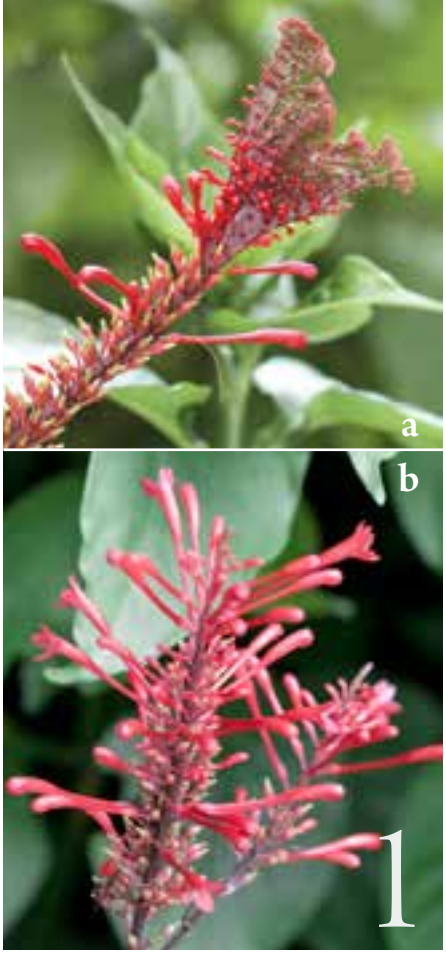
At the area's regular Friday night fish fry, when tourists and residents gather and blend at "downtown" Governor's Harbor to eat, drink and then dance the night away, Ethan told me that I'd "made ripples in the pond." He took a moment to let it linger and then explained that what I'd done the past few days would not only benefit the preserve, but would slowly and quietly change people's lives on the island. I can't imagine a better compliment.

The class learns a new soil mix.
Photo by Mark Daniels

A Beautiful Deformity

Fasciation in the plant kingdom

Text and Photos by Kenneth Setzer



Plants offer probably the greatest variety of form; even within one species there can be great deviation in shape, color and texture, depending on the plant's growing conditions, age or even simple idiosyncrasies. But even with such variety possible, too extreme of a variation can be viewed as a deformity or mutation. One kind of mutated growth in plants is referred to as fasciation or cresting.

You may have encountered fasciated plants before without even realizing it. A plant's flowers might appear to be elongated as though they've been stretched out horizontally, or the growing tip of a plant's stem (the apical meristem) looks unusually flattened and broad, as though multiple stems had fused together instead of growing in the more typical cylinder shape.

I first encountered this phenomenon in a firespike plant, *Odontonema strictum* (an absolute hummingbird magnet that, for me, thrives on neglect). Firespike normally produces long, tubular red flowers arranged along a spike. Set against its deep green foliage, firespike flowers can be quite striking. But recently, some of the inflorescences on my firespike formed into a flattened structure that resembled a folding paper fan or a shoehorn that had been melted a little to include some waves and ruffles at the end. Very odd! I thought initially this was caused by a disease of the plant, and left the unusual growths alone.

A second example of fasciation also grew in my yard. Fasciation is somewhat rare, so to have it present itself in two separate plant species in my small yard seems almost miraculous. A now-deceased lantana (*Lantana camara*) flowered profusely, but eventually produced what looked like broccoli florets, along with the normal flowers. They were almost as large as actual broccoli, were green and soon wilted to brown or black. A wondrous oddity only the kingdom of plants could produce!

What exactly is fasciation?

First of all, it's important to know that fasciation is not a disease. It's the plant's reaction to any number of mostly external forces, taking form as abnormal development in which cells grow perpendicularly to their normal pattern. Fasciation has been noted as a reaction to insect attacks, fungi, viruses, physical damage, a genetic mutation or the bacterium *Rhodococcus fascians*. Exposure to frost has even been implicated. In short, it seems nearly anything can induce fasciated growth. Some older sources I found even blamed excess nutrition for the uncontrolled growth, or an uneven distribution of auxin, the plant growth hormone. That last one makes sense, but it's more of a description than an explanation. We would need to ask what causes the inconsistent auxin levels.

1. Firespike (*Odontonema strictum*) inflorescences showing fasciated (a) and normal (b) growth. Note the much smaller flowers, in far greater numbers, on the fasciated example.

2. *Pachypodium lamerei* 'cristata' with fasciated growth (a) and the normal *P. lamerei* (b).

3. Extremely fasciated growth on a pygmy date palm (*Phoenix roebelenii*).

4. The fasciated bloom of an *Aechmea* bromeliad.

Photo by Marilyn Griffiths/FTBG

Fasciation can manifest in stems, roots, fruits or flowers, though you are less likely to know about it in roots for obvious reasons. It is most apparent in stems and flowers.

There are even variations within fasciation. The abnormal growth may be flattened and fan-shaped, often referred to as "crested." Or it may appear diffusely branched like the business end of a broom, coiled like a snail shell (as in some cactus fasciations) or as a tangled mess of Medusa-like coils. Flowers or leaves growing from fasciated stems are often clustered, undersized and overabundant.

Fasciation doesn't seem to be limited to a particular species or variety of plant. I found references to fasciation in plants as varied as hoop pines (*Araucaria cunninghamii*) and saguaro cacti (*Carnegiea gigantea*)—the former is a gymnosperm, while cacti are flowering plants, angiosperms. These two groups of plants diverged from a common ancestor a very long time ago and are not very closely related.

Commercial appeal

How many times have you heard "one of a kind" as a selling point? We humans at first tend to shy away from the odd ones out, but eventually we prize and value the unique and unusual. Such is often the case in horticulture and plant collecting as well. Therefore, it should come as no surprise to find fasciated plants cultivated as marketable varieties. One such example is the *Celosia*, a genus of plants in the amaranth family. If this plant's flowerheads are of the fasciated variety, they are sold as "cockscomb" celosias. The flowers look quite different than the normal variety, somewhat similar to brain coral. This crested form of fasciation is reflected in the plant's full name: *Celosia cristata*.

Another commonly marketed fasciated plant is *Euphorbia lactea* 'Cristata.' It's sometimes sold as a cactus, though isn't one. The crest is grafted onto rootstock for commercial purposes, and indeed the fasciation is further cultivated to produce ever more startling colors and variegations. Common names for it include crested elkhorn or crested euphorbia. Crested ferns are another ornamental oddity sometimes cultivated for sale. The frond or leaflet tips are the fasciated parts and resemble tiny outstretched hands.

Edible oddities

You must have encountered those huge, misshapen strawberries that look like someone fused together multiple berries and flattened the whole thing a bit. Yep, fasciation again! This can also be found occasionally in tomatoes. Genetic researchers have even looked into fasciation as the reason domesticated tomatoes are so much larger than their supposed wild relatives. Even way back in 1948—ancient history in terms of modern genetics research—an author in *The Botanical Review* noted something to ponder:

> "The commercial value of the tomato owes its existence largely to the increase in fruit size brought about by a prehistoric fasciation mutation in some tropical American valley."

I savor the romantic notion of some prehistoric Native American in the neotropics running across a fasciated tomato and contemplating the idea of cultivating it.

If you don't like having fasciated plants in your garden, just remove any afflicted parts. The odd growth most likely will not return—unless you're lucky.

THE AMBROSIA BEETLE LETHAL WEAPON

New research finds that native beetles can carry and spread the lethal laurel wilt fungus.

By Georgia Tasker

As is the way with nature, the red bay ambrosia beetle/laurel wilt story is changing, says Daniel Carrillo, tropical fruit entomologist with the University of Florida's Tropical Research and Education Center in Homestead. It turns out that several native ambrosia beetles are actually transferring the lethal fungus, *Raffaelea lauricolea*, after following invasive red bay ambrosia beetles into native swamp bay and red bay trees. Trees susceptible to laurel wilt are in the genus *Persea*: *Persea americana*, the avocado; *Persea palustris*, the swamp bay; and *Persea borbonia*, the red bay.

The telltale signs of laurel wilt are still valid: toothpick-like extrusions outside a tree's bark—made by beetles boring into wood, brown leaves remaining on the trees and eventual death.

"We were expecting that the beetle would attack the avocado in large numbers," says Carrillo, "but the situation turns out to be different. The invasive beetle has not become established in avocado groves. But the other ambrosia beetles, the native ones, are capable of carrying the pathogen that the exotic beetle introduced to the country."

The red bay ambrosia beetle first was found in 2002. It carries the spores of the laurel wilt fungus with it as it bores into members of the Lauraceae family (the bays and avocados) just below the bark. There, it forms galleries in the sapwood. Avocados in Jacksonville and Gainesville growing in close proximity to native bay trees were infected with the disease.

But more than 95% of the state's avocado industry is concentrated in South Florida, Carrillo explains. "We knew it was possible that those [trees] were susceptible. We took small avocado trees up north, inoculated them with the pathogen and found them susceptible in a controlled situation," he adds. "So we had several pieces of evidence suggesting that the avocados here were going to get it. But it turned out to be different. The secondary, resident beetles are the vectors."

Researchers still are actively searching for an injectable fungicide and insecticide that can control the fungus and the beetles. "The industry now wants us to try to detect the problem early, remove trees and treat them and the surrounding trees so the problem doesn't expand," Carrillo says. "Research is to kill the beetle and the fungus." Management of the fungus, he adds, "is a nightmare." South Florida has some 16 native ambrosia beetles, although only seven have been found to spread the fungus. "The [native] beetles are everywhere in low populations in normal residential landscapes," Carrillo says. "But they also are found in many other plants, not just those in the Lauraceae family."

Homeowners who find laurel wilt on trees should call the Division of Plant Industry of the Florida Department of Agriculture and Consumer Services. In Miami-Dade, the number is 305.639.3501.

Carillo's further research will clarify whether there is a symbiotic relationship between the fungus and the native beetle, determine just how prevalent the fungus is among native beetles and look at how effective the native beetles are as vectors.

LEAVIN' THE LICHEN ALONE

TEXT AND PHOTOS BY KENNETH SETZER

Some folks think lichens are a bad thing for their trees. Those people can be spotted standing out in the hot sun picking little clumps of gray-green tufts off their tree trunks like a woodpecker hunting for bugs. But it's completely unnecessary. A lichen is unequivocally harmless. But what exactly is it?

It's easy to write a lot of bad puns using the word lichen, but a little harder to explain what it actually is. It's not a plant, nor is it a fungus. It's both—kind of. Sometime in the incomprehensibly distant past, a fungus and a cyanobacterium (also called blue-green algae) decided they were stronger together than apart, much like a human couple, so they formed a union. This symbiotic relationship formed what we call a lichen. So the lichen is really two (sometimes more, with an additional alga) species! Nature is truly stranger than fiction. Each partner uses its own strengths in the relationship. The fungus can break down and extract nutrients from matter that the cyanobacterium or alga cannot, and can also build the "house" for this pairing in the form of the structure we see (called the thallus). The cyanobacterium can photosynthesize and contribute energy to the union in its own, plantlike way.

BELOW
Lichen with cup-shaped reproductive structures visible.

A fruticose lichen on a live oak trunk.

A close look at a tree trunk reveals a world mostly ignored—by people anyway. Spend a few minutes up close with a live oak trunk, and you will see two or three kinds of airplants like *Tillandsia*, multiple types of lichens, insects and spiders, of course, plus any number of life-and-death dramas playing out before your very eyes. You may not view lichens as part of any wild drama, but they are, although at a pretty slow pace. A lichen usually grows on something else, like a tree (making it an epiphyte) or rock (making it an epilith). I can't think of any other organism that can survive on bare rock. Lichens not only come in many forms, but in colors like chartreuse, stark white, red, yellow, orange and, of course, green. There are even lichens that don't need to attach to anything; called erratic, or vagrant lichen, these drifters can and do thrive almost anywhere. After a disaster, like a volcanic eruption or landslide, lichens are likely to be among the pioneers of the new landscape. A lichen can even break down solid rock by accumulating bits of acidic organic matter and retaining moisture from acidic rainfall; over time—don't plan on watching this personally—that acidic matter decomposes the stone back into the soil.

Lichens present a bit of a conundrum as far as scientific naming goes, since they are the result of two or more species cohabitating as one. They form something new, yet are still clearly separate. Conventionally, lichens are named based on the fungal member of the relationship. This can lead to problems: If the fungus involved pairs with a different alga, a completely different-looking lichen will result, but under this naming system it will still be named for the fungus. But no matter. It's all a bit difficult to identify to species anyway, although here are three main shapes you are likely to notice: foliose—leafy lichens, which often grow a rosette of what looks like leaves; crustose—crusty lichens, which often grow quite flat up against a rock or trunk and look like a splash of paint; and fruticose lichens, which look like a tiny shrub. Fruticose lichens are employed as shrubbery on model train layouts.

Unlike most plants, lichens are able to survive periods of desiccation by going dormant. When water again becomes available, they can rehydrate and appear to "resurrect" themselves. This is known as poikilohydry, and is seen in moss as well as in our familiar epiphyte the resurrection fern (*Pleopeltis polypodioides*), often seen hanging along with lichen from live oak branches and palms with rough-textured trunks. When I photographed some of the lichen for this article, I sprayed it with water to get better color. From one image to the next, I could detect movement! The lichen must have been expanding with absorbed water.

So you see, a lichen takes care of itself, and is not a parasite. It does no harm to your trees. In fact, it contributes to the nitrogen cycle and is often the pioneering life form in difficult environments—it survives in Antarctica; will Mars be next? Though used as food in desperate times (by some Native Americans and many early Arctic explorers, who often called it "rock tripe"), it has low nutritional value for human use, though deer, elk and caribou are known to depend on it, and many birds use lichen in nest construction. So you can leave the lichen alone, or better still, take a close look at the life within and around it, and go out at night and shine a UV light on it. Many lichens will fluoresce intensely. Not so bad for a humble little mass on a tree trunk!

Lichen on palm trunk. Is it crustose or foliose?

A LICHEN TAKES CARE OF ITSELF, AND IS NOT A PARASITE. IT DOES NO HARM TO YOUR TREES. IN FACT, IT CONTRIBUTES TO THE NITROGEN CYCLE AND IS OFTEN THE PIONEERING LIFE FORM IN DIFFICULT ENVIRONMENTS.

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AH-2603

ORCHIDS 101

BASIC ORCHID CULTURE

Balancing light, air, water and food

By Ron McHatton, Ph.D.

Knowing which orchid you are trying to grow is your key to meeting its cultural requirements. Orchids, like all plants, need a balance of light, air, water and food to grow and flower well. Let's examine each of these elements.

Two *Cattleya* plants grown under different lighting conditions. The plant on the left was grown in sufficient light to maximize flowering. The plant on the right was grown under too much shade to flower. Note the dark green leaf color of the plant on the right.
Photo by Greg Allikas

Light

Without enough light, orchids may produce lush-looking growth but no flowers. Not giving orchids enough light is the most common reason for failure to bloom. The old notion of orchids growing in dark jungles still persists, and it couldn't be further from the truth. In reality, many have evolved as epiphytes (plants growing on another plant or tree) to take advantage of brighter light available in the upper forest canopy.

How much light is enough? The answer to this seemingly simple question: as much as they will take without burning. This means that the orchid's foliage should not be a lush, dark green. Orchids grown under sufficient light will have lighter, somewhat yellow-green foliage and strong upright growths. The image above illustrates two cattleyas, one grown under optimum light conditions and the other with too little light to produce flowers.

Air

Orchid roots, and eventually the entire plant, will die if they do not get air. This is why, with the exception of a few terrestrial orchid varieties, they do not grow in soil. Orchid potting media should be open, with exceptionally good drainage, yet capable of holding sufficient moisture to support the plant's needs. Orchid plants are also intolerant of a stale, stagnant environment. You should strive for a buoyant atmosphere and must provide gentle air movement at all times. For orchids grown in the home, an overhead paddle fan set on its lowest setting or a portable oscillating fan directed away from the plants can provide the needed air movement.

Oncidium sp.
Photo by Georgia Tasker/FTBG

Wooden Skewer Test: Note how wet the end of the wooden skewer appears, indicating that the plant does not yet require watering.
Photo by Greg Allikas

Water

Without question, more orchids are killed by incorrect watering than by any other mistake. Proper watering consists of two separate components: quantity and frequency. Orchids should be watered just as they dry out. There's unfortunately no magic formula, because your growing area is different from anyone else's. Humidity, air movement, potting medium (type and age) and light levels all play a role. There are several ways to determine when a potted orchid is almost dry: the surface of the potting mix will appear dry; dry pots will feel lighter; clay pots will feel dry; a wooden stake or skewer inserted into the potting mix will come out almost dry (see image above). If in doubt, a finger inserted into the potting mix is perhaps the best way to determine the moisture content of the mix. It will cause no harm to the plant.

When orchids are watered, they should be watered copiously. Keep providing water until it runs freely from the drainage holes. Not only does this soak the potting medium, but it also flushes out salts that naturally accumulate. At a minimum, try to thoroughly water your plants at least once a month.

Watering frequency can be controlled by the choice of pot. For those who really like to water their plants or who live in humid, rainy areas, clay pots—especially slotted pots—are a good choice. Growers in drier climates or those who tend not to water often enough might want to use plastic pots to hold moisture longer.

Fertilizer

Orchids will grow and flower, if their other requirements are met, for fairly long periods without fertilizer. However, you'll get better results with some level of feeding (see the image below). Typically, plants are fertilized once a week during the summer and every two weeks during the fall and winter. Regardless of the fertilizer that you choose, most experienced growers use no more than ½ the label-recommended strength. And by the way, it's best to water first to wet the potting medium before you fertilize.

Fertilizers used on orchids should contain little or no urea. This is because soil organisms must first convert the nitrogen in urea to a form useable by plants, and since orchids do not grow in soil, this conversion does not occur efficiently. The old conventional wisdom used to be that orchids grown in bark mixes needed to be fertilized with formulations high in nitrogen (i.e. 30-10-10). We now understand that these high-nitrogen fertilizers aren't necessary.

Two Vandaceous seedlings illustrate the effects of regular fertilization. The seedling on the left was grown without fertilizer, while the one on the right was fertilized regularly. The plant on the right will reach flowering size and produce more blooms.
Photo by Greg Allikas

Observation

Finally, most experienced growers will agree that observation is the most important key to growing orchids well. Examining your plants on a regular basis will allow you to adjust and correct any problems before they become severe. In subsequent articles we will examine these four elements of culture in more detail, and will look at the orchid genera more commonly found in the marketplace. For more detailed information about growing orchids, visit the American Orchid Society's website at www.aos.org.

Edible Garden Preparation in South Florida

By Richard J. Campbell, Ph.D.

Our soils are shallow and made up of nutrient-poor rock or sand. We have a monsoonal climate with a rainy summer and dry winter. Our summers produce tropical cyclones and our winters, the occasional killing frost, and yet we garden on. Now, it is time to take stock of your edible garden and prepare for the winter season to come. You cannot have fear—but you must also face some realities.

Canopy Management

In order to maintain the health and productivity of the high-density edible garden, canopy management must begin early and continue throughout the garden's life. Thin the upper and middle canopy annually after the harvest through selective limb removal; this allows light to pass to the plants below. Prune for height control to ease your harvest and maintain quality, and to have adequate light. Both height reduction and canopy thinning are required components of hurricane mitigation—a necessary and cost-effective activity for any South Florida edible garden. The earlier the better when it comes to canopy management, as the hurricane season can cause considerable anxiety; it is much easier to sleep soundly if the edible garden is pruned. It's also vital to maintain sufficient light for vegetable gardening in the edible garden. And, through pruning one can fit a dizzying array of crops into a small space.

Mulching

Mulching is the best way to improve your poor soil. Nothing should leave your home garden (unless you're eating or sharing it). Instead of losing this energy- and nutrient-rich organic matter and taking up space in local landfills, recycle plant material for use as mulch in the vegetable garden or around other plants. All plant debris, including leaves, twigs and branches, can be cut into small pieces and placed within the mulch pile or directly into a raised-bed garden box. A hand saw, pair of hand loppers, a machete and hand pruning shears are all that is needed. Hand mulching in the edible garden is a therapeutic activity, and much superior to the invasive procedure of the home brush chipper. Edible gardening is a peaceful activity as long as you keep it that way.

If you don't have enough mulch materials from your own garden, you can also bring in additional shredded plant mulch, although the cost can be considerable and you must be careful not to introduce unwanted weeds.

Prepare the Bed

Now is the time to prepare your vegetable bed for planting and good growth. Turn over the soil every three to four weeks during the rainy season to properly work in the organic mulch that you have added to the vegetable garden box. Now it is time to add manure as well. Composted animal waste or chicken or rabbit manure are perfect fertilizers for your vegetable garden and fruit trees, but they should be incorporated in the soil well in advance of planting to allow for proper soil fauna and flora development. The vegetable garden box is a living and breathing thing when one follows the sustainable path, and managing it properly will take time. Thinking and preparing ahead is the only path to success. Add your mulch to the vegetable box, add your manure, add in a bit of sweat and time for incorporating it all into the soil and then let nature take its course. The result will be a living soil better suited for growth and for fending off pests and diseases. Put your hands into the planting bed and let the soil run through your fingers and toes—your body will remember when we all were good edible gardeners and stewards of our world.

Propagation

Now is the time to sow the seeds, to make the cuttings and to graft the trees that are the future of your edible garden. You cannot ever rest on what you have. There are always new crops to try in the vegetable beds, new hybrids and ideas. Every year one should dream a little and take a leap of faith with some new plant idea. The worst that can happen is failure. Failure in the edible garden is a learning experience. It is normal and healthy, as long as one adjusts and moves in a new direction based on the experience. I always take a percentage of the vegetable garden to grow something risky, something that I crave or have always wanted to try. I am careful not to dedicate too much room to my experiment at the expense of my staple crops for my kitchen. But, a little horticultural risk can be both healthy and fruitful.

For the fruit trees it is time to graft, take cuttings and make air layers. With the fruit tree I do not experiment as much because it will take three to four years to get results, and meanwhile it requires expending considerable energy. Decisions should be more conservative and the planning is considerable. Now you must decide what you want, what is possible and how long it will take. Look around your community and talk to people. Learn from those who are growing what you want to grow. Practice propagation and practice some more, because in this day and age there are few people who will provide grafting for hire in the home. Keep working on grafting until you get it right and then go after the specific clone that you want. No one will refuse you if you ask nicely for a cutting of their tree.

With proper planning and judicious expenditure of energy, the edible garden will take its shape. Now you have a plan and can await the first cold front and the cessation of daily rains. Do not be impatient, for the season will change and the edible garden will cycle on to its next iteration.

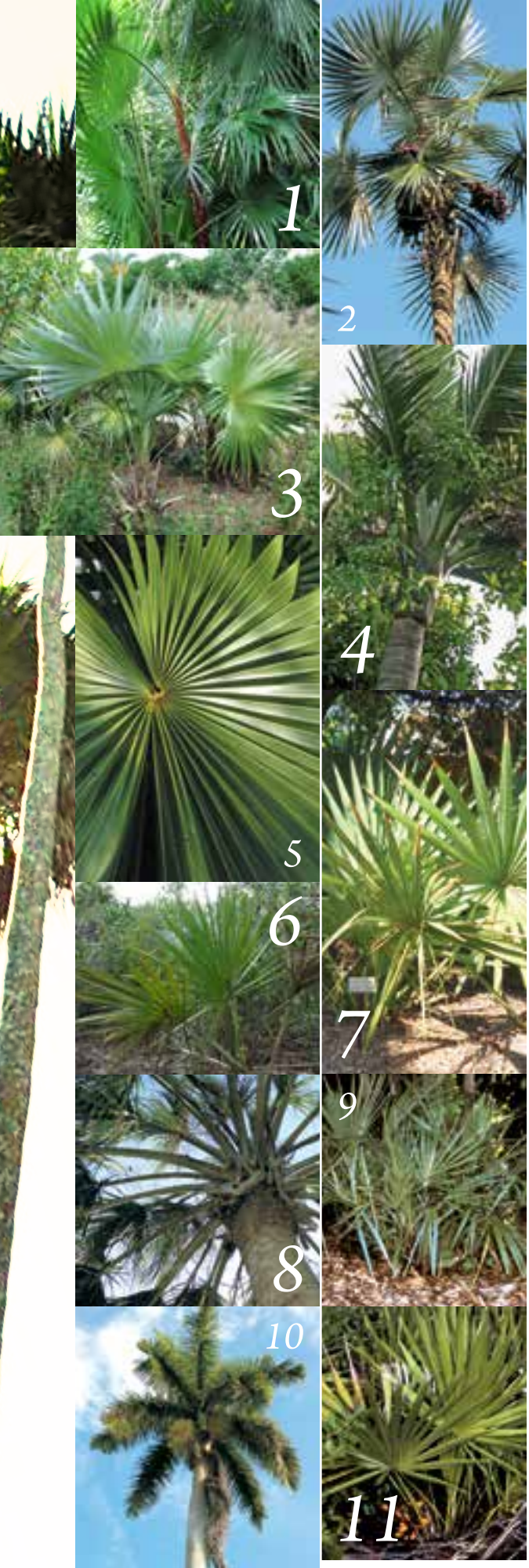
11

WHAT'S IN A NAME:

Florida's Native Palms

BY GEORGIA TASKER
Photos by Fairchild Staff

To master palm names, you must have an encyclopedic mind, as there are between 2,500 and 2,600 species. New palms are discovered regularly and old palms undergoing DNA analysis may turn out to be new as well.



We'll start with a manageable list: Florida's native palms. There are 11 palms native to Florida, most of them residents of South Florida and the Caribbean. One exception is the needle palm, *Rhapidophyllum hystrix*, which grows from northern Florida to coastal South Carolina. In "The Encyclopedia of Cultivated Palms," Paul Craft, Robert Lee Riffle and Scott Zona wrote that the palm may be a vanishing relic species, as it is nearly extinct.

1. Acoelorrhaphe wrightii

Everglades or paurotis palm. The genus name is derived from Greek words meaning "without," "hollow," "fold," "seam," which refer to the physical characteristics of the seed covering. *Wrightii* honors Charles H. Wright, a 19th-century American botanist, according to "The Encyclopedia of Cultivated Palms."

2. Coccothrinax argentata

Silver palm. *Cocco,* from Greek for a berry; *thrinax*, relating to a genus of fan palms with berry-like fruit. *Argentata* is from the Latin for silvered.

3. Leucothrinax morrisii

Keys thatch palm. *Leuc* signifies white for the color of the undersides of the fronds; *morrisii* is for 19th-century British ethnobotanist David Morris.

4. Pseudophoenix sargentii

Sargent's cherry palm. The genus *pseudo* means false and *phoenix* is date palm—the name means "not a date palm." The epithet honors Charles Sprague Sargent, who was the first director of Harvard University's Arnold Arboretum in the 19th century. Sargent wrote the 14-volume "Silva of North America" and headed the Arboretum for 54 years.

5. Thrinax radiata

Florida thatch palm. *Thrinax* is from the Greek for trident, referring to the leaf shape. *Radiata* refers to the shape of the leaves, and means "radiating form."

6. Sabal etonia

Scrub palmetto. "The etymology of the name was never explained by its author," according to Riffle, Craft and Zona. "Stearn's Dictionary of Plant Names for Gardeners" suggests it is "possibly from the South American name for these spineless palms." *Etonia* is a corruption of an Amerindian name for the scrub ecosystem of Central Florida.

7. Sabal minor

This dwarf palmetto's epithet means small.

8. Sabal palmetto

Cabbage palm. *Palmetto* means little palm.

9. Rhapidophyllum hystrix

Needle palm. *Raphis* is Greek for needle; *phyllum* is leaf. *Hystrix* means bristly or porcupine-like.

10. Roystonea regia

Royal palm. *Roystonea* is for Gen. Roy Stone, an American engineer in Puerto Rico. *Regia* means regal or royal.

11. Serenoa repens

Saw palmetto. The genus is named for Sereno Watson of Harvard University, an American botanist who named and described many new species in western and middle North America. *Repens* means creeping.

International Palm Society

By Leonard Goldstein

The International Palm Society is about to celebrate its 60th anniversary.

The society today is a far-flung organization, with affiliate societies active around the world, but it was founded here in Florida. Dent Smith, an oil-field-worker-turned-investment-house-wizard, retired young to Daytona Beach, where, single-handedly, he created the Palm Society as a conduit for sharing his obsession with the stately plants.

From its beginning in 1955, the Palm Society has had strong links to Fairchild Tropical Botanic Garden: among its first directors was Mrs. Marian Fairchild, widow of Dr. David Fairchild, the Garden's namesake. Another of the Palm Society's early members, Lucita Wait, was longtime co-editor of the "Fairchild Garden Bulletin." Of the first 10 founding members of the Palm Society, the only one still living is Stanley Kiem, who for many years was superintendent of the Garden. Not surprisingly, over time many palm enthusiasts have belonged to both the Society and the Garden.

A movie theater parking lot was the site of the initial Palm Society sale in Miami in the mid-1970s. As interest in palms burgeoned, a better sale venue was warranted.

Accordingly, in 1979 Fairchild Tropical Garden hosted the first Fall Show and Sale of the Palm Society, with plants arrayed on tables just outside the Nell Montgomery Garden House. The next year, more space—and less sun—was needed, and the event was moved to the Montgomery Palmetum.

Since then, the South Florida Palm Society has held its Fall Show and Sale at the Garden during all but two years. The show is considered to have the largest selection of species of any palm sale in the world. The 34th edition of this popular event will take place November 1 and 2. Aside from offering plants for sale that weekend, the Society will operate an information center to provide advice for successfully raising palms and to give away fresh seeds of a broad selection of species.

Come see us in November! For more information, including meeting dates, call 305.873.4105.

Medel

lin's Festival of FLOWERS

AN IMMENSE PARADE, AN ORCHID SHOW, MUSIC, DANCING AND MORE WENT INTO THIS YEAR'S CELEBRATION

Text and photos by Georgia Tasker

LEFT
The Festival of Flowers is an annual event honoring flower growers in Colombia's Department of Antioquia.

ABOVE
The honor of carrying flowers is kept within families for generations.

Imagine walking a mile and a half with 50 to 200 pounds of flowers on your back. Imagine that the flowers are attached to a chair-like wooden structure and that you must lift it all by a wide cloth band attached to your forehead, bending forward beneath the weight.

In Medellin, Colombia, *silleteros*—village flower farmers—do just this during the city's much-anticipated *Desfile de las Flores,* or flower parade, the culmination of its weeklong Festival of Flowers, *Feria de las Flores*. Wearing slight cloth shoes and traditional clothes, the *silleteros* bear the weight of history as well as their intricate flower arrangements during the parade. In colonial times, the chairs were made for carrying the wealthy over the Andean terrain of the Department of Antioquia in northwestern Colombia. After a mother began taking her child to school this way, flower farmers soon adopted the chairs for taking flowers to market. Contemporary *silleteros* in the parade are accompanied by Boy Scouts, who offer them water and help them should the journey prove too exhausting, as it sometimes does.

Some 200,000 people from all over Colombia and the world attended the 57-year-old parade this year. Other Festival of Flowers activities include a combined orchid, bird and flower show; a classic car parade and a plaza display of three-dimensional tropical fauna, such as frogs and parrots, depicted completely in flowers.

Colombia exports $600 million worth of cut flowers annually. It is the world's second-largest cut-flower producer, after The Netherlands. Holland produces 80% of the cut flowers sold annually, followed by Colombia's 11% share, says Juan Felipe Posada, honorary president of this year's Colombian Orchid Society 50th anniversary celebration (he served as the society's president for 25 years) and president of the board of the Medellin Botanical Garden.

ABOVE
The bucket orchid, *Coryanthes bruckmuelleri*, received a top award from the American Orchid Society.

BELOW
Small blossoms are attached with a glue gun to create the flower displays.

During the week before this year's parade, the Colombian Orchid Society's Orchids, Birds and Flowers Crafts Fair (*Orquídeas, Pájaros y Flores Feria de Artesanias*) occupied the Medellin Botanical Garden's monumental Orchidarium. A total of 35 orchid exhibits (which makes this the third-largest orchid show in the world after the Taiwan and Tokyo Dome shows) were joined by massive displays of cut flowers. The recently renovated Orchidarium soars more than 50 feet, with an interconnecting honeycomb of pine lattices on 14 bases of steel beams. A two-day orchid conference pulled in speakers from Colombia, Venezuela and the United States.

For the orchid show, a team of American Orchid Society judges from the organization's West Palm Beach judging center and other judging centers in the United States flew to Medellin. They appraised more than 700 entries, some bearing flowers as tiny as gnats, others with individual flowers as large as softballs. The highest AOS award, a First Class Certificate, went to a *Coryanthes bruckmuelleri*. Called the bucket orchid, it produces a flower that opens for one day only, and it unfolded its enormous flower at just the right moment. *Masdevallia* orchids were in abundance, as were *Anguloa* species and many other orchids not grown in hot South Florida.

A day prior to the parade, spectators journeyed up the mountains surrounding Medellin to watch growers building their displays. Music, arepas, churros and sausages, enjoyed with plenty of Colombian beer, spread the joy of the occasion. Santa Elena villagers spent hours attaching blossoms to cardboard backings, some using glue guns for intricately designed patterns—in essence, painting with flowers, and often in three dimensions.

Traditional, junior, pioneer, commercial and monumental groups of arrangements were interspersed among exuberant dancers, singers, bands, gymnasts, military horses, police dogs—even spanking-new orange garbage trucks decorated with flowers. *Silleteros* and *silleteras*, as well as their children, proudly walked the walk. Parade day refreshments included canned vodka. The six-hour parade, watched from grandstands, roadsides, overpasses and trees, was a breathtaking event celebrating 600,000 flowers and the people who love them.

TOP
Dancers added to the extraordinaryly colorful parade.

LEFT
An armadillo created with flowers.

LEAF

Let's Explore at Fairchild

Join the Family Fun at Fairchild!

Let's Explore at Fairchild (LEAF), a program for children and families, is offered on the second and fourth weekend of every month (except during Garden festivals) 10:30 a.m. - 2:30 p.m.

Dicover themed activity stations to do crafts, play games, do planting activities and more!

LEAF is free for Fairchild members and is included with Garden admission. Registration is not required. It is open for children of all ages, but parents/guardians must accompany children at all times.

For more information please visit, www.ftbg.org/visit/family-fun

FAIRCHILD TROPICAL BOTANIC GARDEN

FARMER'S MARKET
AT FAIRCHILD

By The Market Company

Returns Saturday, November 15
9:00 a.m. - 2:00 p.m.

Featuring Local Vendors, Organic Fruits and Veggies, Artisan Baked Goods and more!

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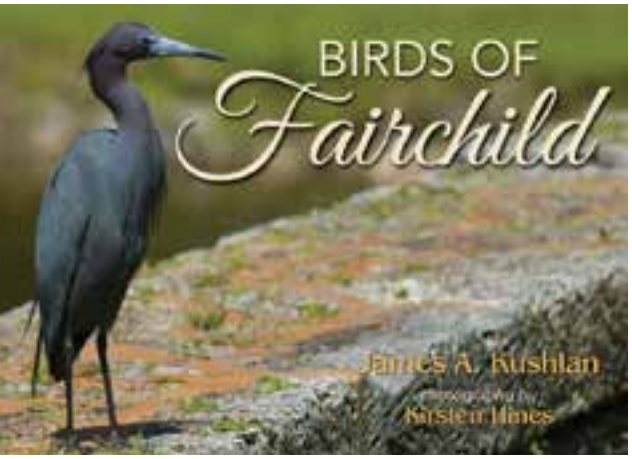
Facebook.com/FairchildGardensFarmersMarket

"Attracting Birds to South Florida Gardens," by James S. Kushlan and Kirsten Hines, could not arrive at a better moment. One in eight birds—a total of 1,300 bird species—is threatened with extinction, according to BirdLife International. South Florida, on the migration path of many songbirds, exemplifies the reasons: habitat loss, climate change, chemical toxins in fields and waterways—these top a long list of injuries to the avian world.



Attracting Birds to South Florida Gardens

Book Review

By Georgia Tasker

Ruby-throated hummingbird

With the disappearance of our pine rockland and evergreen hammocks, as well as the ecological disruption of century-old drainage canals, the region has seen its once-magnificent bird populations plummet. Migratory songbirds are especially vulnerable to habitat loss in South Florida as they search for food on flights to and from South America, sometimes spending 15 hours over open water. Undernourished, they struggle to make the journey to their nesting grounds, lay fewer eggs and fledge fewer young. The next time you fly into Miami International Airport at night, look down at the lights and imagine you are a bird trying to find a near-shore resting spot, some insects or berries on which to feed.

There is a remedy, and the Kushlan/Hines gardening book—specifically for South Florida—can serve as a master class. The writers/photographer not only tell you about our birds—what they eat, where they nest, what time of year they are here—they devote equal attention to the plants they need. They cover how big or small the plants are, when they flower, which birds will benefit from the fruit or insects on the plants, whether they need shade or sun and how birds utilize the plants.

Additionally, the authors emphatically explain what not to do (annoy the neighbors, use pesticides, allow cats in your garden), including what not to plant (although the book would benefit from thumbnail photos of the invasive plants included) and what to carefully monitor.

Butterflies and wildlife are included, even a thoughtful discussion on the "Ethics of Bird Feeding." Exotic birds are found in these pages, as many flourish in our area. There are reminders to retain dead tree snags for cavity-nesting birds, utilize grasses for the insects they contain and the cover they provide and give careful consideration to using impatiens in winter because of their high water requirements.

Published by the University Press of Florida, the book's format is clean and nicely laid-out, making it easy to use. References are generously provided for gardening, bird conservation, South Florida plants, South Florida birds and South Florida wildlife.

"Attracting Birds to South Florida Gardens" is an indispensable reference for every area gardener, and should top the Christmas/Hanukah gift lists for friends who need to know.

"Attracting Birds to South Florida Gardens" can be purchased at The Shop at Fairchild or online at www.fairchildgarden.org

Sustainable Handcrafts are In!

By Erin Fitts

Party Animals Set

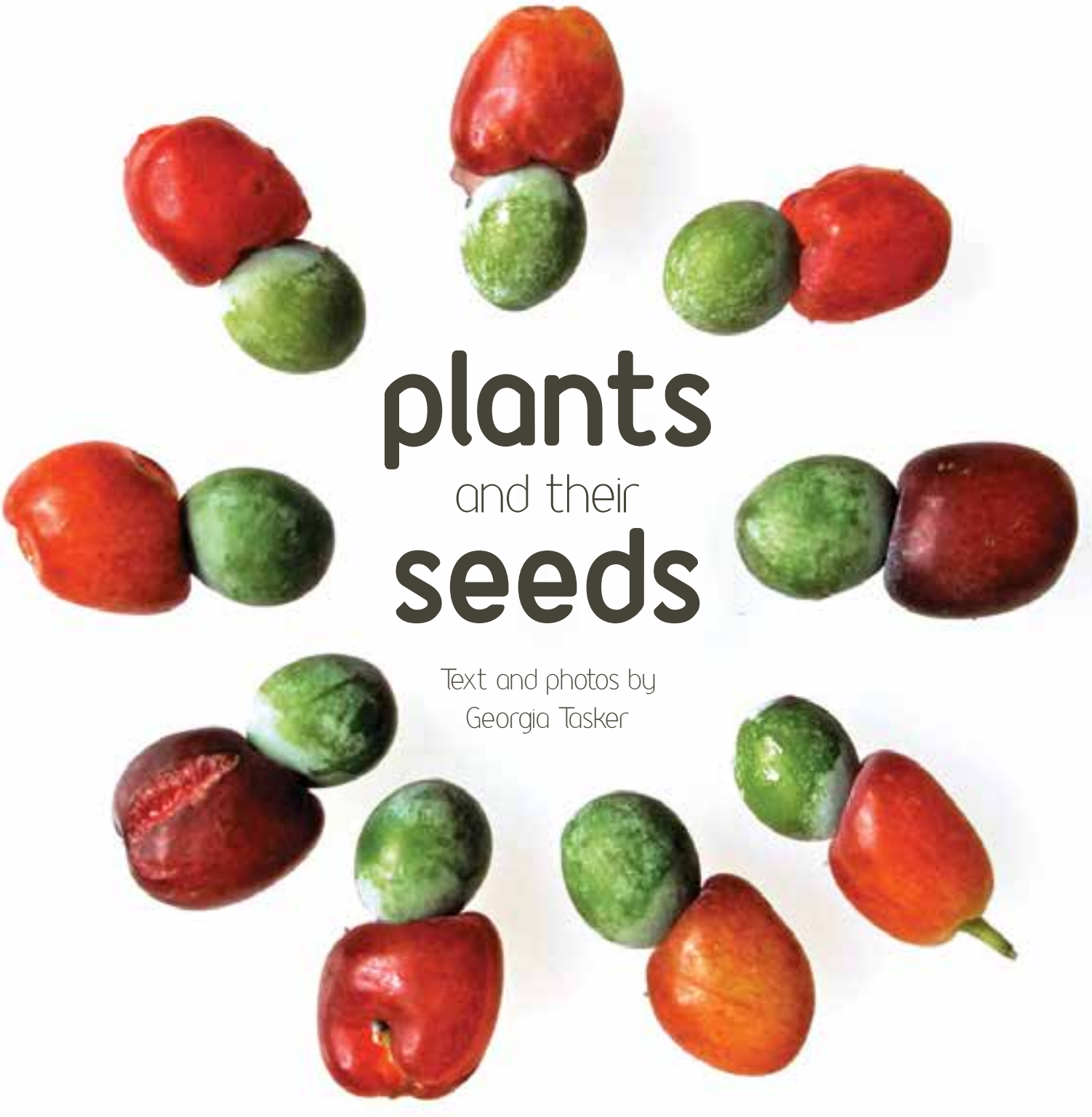
This whimsical set is hand-carved by Jedando Modern, a fair trade organization dedicated to encouraging traditional crafts. The sale of these products benefits local economies, promotes sustainable wood harvesting practices and helps preserve the environment.
$55

Emilio Robba Bowls and Tealight Holders

Handmade in the U.S. from Emilio Robba's artistic designs, this unique collection features realistic silk flowers and plants in Robba's exclusive "illusion water."
$40 - $280

Jabebo Earrings

Various original designs of birds, butterflies, insects and other Florida animals inspire this American artist, who is dedicated to wildlife conservation.
$12.99



plants and their seeds

Text and photos by
Georgia Tasker

PREVIOUS PAGE: *Podocarpus macrophyllus* is a conifer and has a modified cone containing a single seed. The succulent cone is composed of bracts and seed scales of aborted ovules, fused and inflated and looking for all the world as if it would rather be an angiosperm than a gymnosperm.

Avocado, *Persea Americana*, is a berry. And it's berry, berry good for you. An avocado contains antioxidants, anti-inflammatories, oleic and omega-3 fatty acids, and it is good for your heart. The Aztecs called it *ahuacatl*. Our Florida cultivars, from Guatemala and the West Indies, are large and smooth-skinned, making you want to hold one in both hands for sheer tactile pleasure. The fruit is delicately flavored.

Cecropia sp. A pioneer of the South American and West Indian tropical forests, white cecropia leaves are often used in floral arrangements, while the flaccid, finger-like seedpods are edible, containing small seeds in jam. Ants may live in the hollow branches and even the long leaf petioles.

Uncarina grandidieri has pretty yellow flowers and horrid-looking seedpods. A Madagascar native of the dry forest, this succulent lifts its flowers almost horizontally to attract pollinators, not wanting to take any chances on being overlooked in an arid habitat. The recurved hooks on the stalks surrounding the pod are expressions of an inflated intent to be dispersed. Pity the poor lemur who runs into one.

Pandanus sp., or screw pine, is another coastal plant found throughout the Pacific islands. There are male and female plants, with the female doing all the heavy lifting of large, bowling ball-sized, fruits. After about 12 months, the odd, nippled sections begin to expand as the color plane blushes scarlet, a sign that the fruit are mature. Two seeds reside inside an individual husk.

Firebush, *Hamelia patens*, attracts hummingbirds, butterflies and bees with its terminal clusters of slender orange tubular and ribbed flowers. Its clusters of small fruits look like little black stuffed olives, with the pimento sticking out as if it were an impudent tongue.

Bird's-nest *Anthurium* berries are formed on the lower section of the spadix, where female flowers develop. Each berry usually contains two seeds.

Pearlberry, *Vallesia antillana*, dangles teardrop-shaped berries that are somewhat translucent white when mature. They hang like delicate earrings at the end of a twig before the twig branches and continues growing leaves. A rare native in South Florida, pearlberry also grows in the Bahamas, Antilles and Yucatan peninsula.

American beautyberry, *Callicarpa americana*, produces berry-like drupes around leaf axils that are attractive to birds. The grape-magenta color of the fruit is distinctly its own, and puts me in mind of, "When I grow old, I shall wear purple."

This is the second in the series "Plants and their Seeds." The first appeared in the 2014 Summer issue of *The Tropical Garden*.

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
- Laptop Computer for Lifelong Learning, $600
- SMART Board for the Corbin Classroom, $2,000—**WISH FULFILLED!**
- Table-Top Easels, $125
- Art Display Panels, $1,000
- Dark Field Microscope, $600
- Cannon Double-Sided Feed Scanner, $3,000

FOR OUR VISITORS
- Golf Cart, $7,000
- 3 Wheelchairs, $975

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

The following gifts were made between June 1, 2014 and August 31, 2014. Please notify the Member Services and Donor Relations Office at 305.667.1651, ext. 3310 if your information is incorrect. We apologize in advance for any errors or omissions.

MAJOR GIFTS

Ocean Boulevard Properties

Internship Program 2014

Mr. Daniel M. Ziff
Mr. Dirk Ziff
Mr. Robert Ziff

FAIRCHILD GIFTS

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TRIBUTE PROGRAM

Commemorative Gifts

In Memory of Carol Kossoy
The Brass Ring
In Memory of Margarita Suarez
Dr. Michele Colvard
In Memory of Violet Buckner
Mr. Eric Lee
In Memory of James W. Brown
Ms. Shannon Robinson

Tribute Bricks

In Honor of The Kramer Family
Mr. and Mrs. Michael Kramer
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Ms. Jennifer Pfeiffer
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Mrs. Lavinia M. Acton
In Honor of Luis and Dora Brande
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Ms. Christine Rundblad
In Memory of Adam Randall
Mr. and Mrs. Murry Diamond
In Memory of Sherman Carr
In Memory of Carl H. Young
In Honor of Gary Arnowitz
Morris and Anita Broad

Tribute Trees

In Memory of Lupe and Mario Espino
Mr. Rick Hernandez and Mrs. Lucia Espino-Hernandez
In Memory of Thomas Mabry
Ms. Linda Watson

To support Fairchild, please visit www.fairchildgarden.org/Donate

The summer season spread beautiful blooms and fun activities throughout the Garden

We celebrated dads with a hearty and delicious Father's Day BBQ Brunch, including savory barbecued meats and veggies, hearty breakfast favorites and sweet desserts. What better way to celebrate Dad than treating him to flavorful food and the great outdoors?

More than 10,000 visitors attended July's International Mango Festival, which focused on the mangos of Colombia. Dr. Richard Campbell and Noris Ledesma, Fairchild's curators of tropical fruit, led the beloved Mango Auction, where guests bid on hundreds of rare mango cultivars. The Mango Brunch featured mouthwatering mango dishes from some of Miami's best chefs. Plenty of mango trees were for sale for guests interested in growing their own tropical fruit. For many visitors, the day wasn't complete without Fairchild's famous mango smoothies—a perfect way to cool off in the summer sun.

Visitors enjoyed the tastes and aromas of one of the world's most interesting tropical fruits at the Jackfruit Jubilee. The event educated guests on how to grow jackfruit, ways to incorporate it into delicious recipes and which varieties can be found in South Florida and worldwide. Curator's Choice jackfruit trees were for sale as well.

Did you know that honeybees pollinate one-third of our food and that they are vanishing by the millions worldwide? During Honeybee Awareness Day in August, our guests learned these and other important facts. Honeybee Days are celebrated across the nation in order to raise awareness for the conservation of these important and crucial pollinators. Fairchild's guests attended lectures and learned what they can do at home to protect and attract more of these friendly insects. They sampled different kinds of honey and honeybee byproducts and watched a screening of the documentary "Vanishing of the Bees." Guest also learned that there are many things that can be done to help save bees!

On September 13, Fairchild re-launched LEAF—Let's Explore at Fairchild, a weekend program for families and children. The program is offered on the second and fourth weekend of every month (except during Garden festivals). Activities are available from 10:30 a.m. - 2:30 p.m. on Saturdays and Sundays, and take place in Fairchild's Learning Garden and Hsiao Labs. LEAF consists of themed activity stations taught by staff and trained volunteers. Children have the option of rotating through various stations where they can enjoy crafts, play games, do planting activities and more. Upcoming themes include Your Five Senses, Friendly Creatures of the Garden, Carnivorous Plants and other Cool Plant Adaptations and the Art of Chihuly. Please check for dates and themes on the Family Fun page of our website, www.fairchildgarden.org.

A family enjoys a picnic during a sunny South Florida day at Fairchild.

Visitors got an up-close view of the Mango Festival's Mangos of the World Display, featuring more than 400 varieties of mangos from all over the world grown at the Fairchild Farm.

At the Jackfruit Jubilee, Dr. Richard Campbell presented a lecture about the history of jackfruit, the world's largest fruit, and David Fairchild's involvement in bringing it to South Florida.

Visitors learned the importance of honeybees and how to protect them during National Honeybee Days at Fairchild.

Families participated in botanical activities at the launch of the LEAF program, which invites children to learn about the environment in a fun, hands-on way.

Children and families learned about edible gardening while planting herbs and vegetables during the LEAF program.

Barbour Lathrop

The Patron Saint of American Plant Introduction

An adventurous philanthropist devoted to enriching American agriculture, Barbour Lathrop's funding and influence made U.S. plant collection and introduction possible.

By Janet Mosely

Barbour Lathrop's obituary in the *New York Times* mistakenly identifies him as a botanist. His degree was actually in law (Harvard, 1869) but perhaps the error can be forgiven, since he devoted a good part of his life, wealth and prodigious energies to exploring the world looking for plants to introduce to the United States.

Thomas Barbour Lathrop was born in Alexandria, Virginia in 1847 to an aristocratic family who left the south due to his father's views on abolition. Lathrop grew up in Chicago, New York City and Bonn, Germany. After graduating with his law degree from Harvard, he refused to practice law. His reason, as quoted by Marjorie Stoneman Douglas in "Adventures In a Green World:" "A lawyer cannot tell the truth…I wouldn't be a lawyer for all the wealth in the world. I couldn't be frank." His father, unhappy with this decision, refused to give him any further financial support. Lathrop, whose true nature was often brutally frank, moved to San Francisco and became a reporter. He fell in love with the city and would keep a permanent place of residence at The Bohemian Club, of which he was a member. In 1887, after years of living on his meager journalist earnings, he came into his inheritance. Lathrop began travelling the world—and continued to do so until his passing in 1927.

It was on one such journey, in 1893, that Lathrop met young David Fairchild. The chance meeting would change both of their lives. Lathrop was already devoted to the idea of enriching American agriculture and was looking for a botanist to assist him. The resulting partnership between these two men would achieve the goals Lathrop had set for himself—goals that neither man could have achieved on his own. At the same time, in the process of enriching American agriculture, they also enriched each other's lives, developing strong bonds of friendship.

TOP
Shortly before his death, Barbour Lathrop visited the bamboo groves he donated to the USDA in Savannah, Georgia.The Federal Plant Introduction Garden would be posthumously renamed in his honor as The Barbour Lathrop Plant Introduction Garden. Today it is known as the Historic Bamboo Farm at the Coastal Georgia Botanical Gardens. November 19, 1926.
Photo: Fairchild Archives

TOP-BOTTOM
Portrait in pencil presented to Fairchild Tropical Botanic Garden by Henry Field, Lathrop's nephew, on October 27, 1982. Field commissioned Marjorie Stoneman Douglas to write the story of David Fairchild and Barbour Lathrop, which resulted in her book "Adventures in a Green World."
Photo: Fairchild Archives

A young David Fairchild aboard ship on his first expedition with Barbour Lathrop. This photo was taken Christmas Day, 1896, off the coast of Sumatra.
Photo: Fairchild Archives

RIGHT
Barbour Lathrop with Alexander Graham Bell at The Kampong, 1922. The two were good friends and shared an interest in introducing "new foods" into the American diet.
Photo: Fairchild Archives

Lathrop, who never married, would become "Uncle Barbour" to Fairchild's children and grandchildren. Between 1896 and 1906, Lathrop financed four major plant collecting expeditions and other smaller trips, during which he and Fairchild travelled the world. It was during this time, through Lathrop's influence and philanthropy, that the U.S. Department of Agriculture's Section of Foreign Seed and Plant Introduction (SPI) was established. Fairchild was made the section's chief plant explorer and a system for plant introduction was created. The pair brought to the U.S. East Indian mangos, Peruvian alfalfa, Chilean avocados, Egyptian cotton, Japanese bamboo and North European barley and hops. These are but a few of the introductions which have become important agricultural commodities in the United States. In honor of this work, Lathrop was the first recipient of the Frank N. Meyer Medal for Plant Introduction (today known as the Frank N. Meyer Medal for Plant Genetic Resources). He was also designated a special agent of the Department of Agriculture, for which he received a salary of $1 per year.

Lathrop spent his remaining years travelling the world, enjoying membership in The Bohemian Club and visiting the Fairchilds and other family and friends. He claimed to have circled the world at least 38 times, although the exact number is not verifiable. He also kept up with Fairchild's plant introduction work and enjoyed hearing of the exploits of the SPI's agricultural explorers, including Wilson Popenoe, O.F. Cook, P.H. Dorsett and Frank N. Meyer, who continued the search for viable crop and ornamental plants to introduce to the U.S. Lathrop continued his philanthropy toward SPI by funding research and exploration and by purchasing a bamboo grove in Savannah, Georgia in 1917—thus creating a bamboo introduction and experimentation garden for the Department of Agriculture.

In 1927, Barbour Lathrop was travelling his annual route from San Francisco to Chicago. He stopped to stay, as usual, at the Bellevue Stratford in Philadelphia, where he fell ill. His health had been failing for years, and on May 17, at the age of 79, he died. His passing was deeply mourned—particularly by David Fairchild, who credited him with the turn his life took from plant scientist to experienced world traveler and plant explorer. To quote Marjorie Stoneman Douglas again, "He was Barbour Lathrop, a man of wealth, a world traveler, a dashing figure of international society, a man of leisure and brilliant intelligence, who devoted many years and much money to pursue his great idea."

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The Palmetum. Photo by Jason F. Lopez/FTBG

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Dale Chihuly. *Scarlet and Yellow Icicle Tower (detail)*, 2013. Photo by Terry Rishel.