



# *the* TROPICAL GARDEN

VOLUME 72, NUMBER 1

## The Indonesia Issue

77 Years after David Fairchild's famed *Cheng Ho* expedition,  
we return to the island nation to continue his legacy



PUBLISHED BY FAIRCHILD TROPICAL BOTANIC GARDEN



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'THE VERY GARDEN OF THE EAST' 25

## FEATURES



30 AFLOAT IN THE RING OF FIRE



THE *OMBAK PUTIH*:  
OUR HOME ON THE WATER 35

## DEPARTMENTS

- 4 FROM THE DIRECTOR
- 5 FROM THE CHIEF OPERATING OFFICER
- 7 SCHEDULE OF EVENTS
- 9 GET IN ON THE CONSERVATION
- 11 EXPLAINING
- 14 VIS-A-VIS VOLUNTEERS
- 17 TROPICAL CUISINE
- 18 EXPLORING
- 37 WHAT'S IN STORE
- 44 PLANT COLLECTIONS
- 49 BOOK REVIEW
- 50 EDIBLE GARDENING
- 52 FROM THE ARCHIVES
- 59 GARDEN VIEWS
- 62 FAIRCHILD FIELD GUIDE

THE SERPENTINE FLORA  
OF HALMAHERA 39





[@CarlLewis](#)

This issue of *The Tropical Garden* is about continuity. We are pleased to report that the adventurous spirit of Dr. David Fairchild is alive and well in our Garden today. Moreover, that spirit is being embraced by the staff, volunteers and botany students who will carry our work forward into the future.

We recently reconnected with the world of Dr. Fairchild, traveling the same route he explored during his fantastic 1940 expedition to Southeast Asia. We spent 12 days cruising among the Molucca Islands of Indonesia, visiting beautiful, botanically rich and isolated habitats. This issue includes the perspectives of the Fairchild staff members who joined the trip, sponsored by Fairchild Trustee Lin Lougheed.

Dr. Fairchild and his team traveled aboard a 100-foot boat called the *Cheng Ho*, built in Hong Kong in the style of a traditional Chinese junk. The renowned boat designer Ted Kilkenny supervised its construction and served as its captain during the 1940 expedition. Kilkenny's daughter, Anne Kilkenny, has spent her life following in her father's footsteps as a keen boating enthusiast. She joined our cruise, reconnecting with and continuing her father's legacy.



Ted Kilkenny, designer and first captain of the *Cheng Ho*. Photographed on the deck of the *Cheng Ho* in 1940. Photo: Archives/FTBG

We traveled on a 138-foot wooden schooner called *Ombak Putih* ("white wave" in Indonesian), operated by SeaTrek Sailing Adventures. Thanks to the creativity and hospitality of SeaTrek personnel, we were able to design an itinerary that included many places Dr. Fairchild visited, along with some he missed. Just as in 1940, it is unusual for foreign visitors to be able to visit many of the Molucca Islands. As we traveled, it was easy to imagine life aboard the *Cheng Ho* 76 years ago, and to plot future expeditions in the region.

As we compare our modern observations to Dr. Fairchild's 1940 photos and notes, we see how some habitats are surprisingly resilient in a changing world. Some islands seem untouched by the decades of war, political turmoil and environmental upheaval that have impacted parts of Southeast Asia. Mining, logging and other forms of development are now affecting others. Like Dr. Fairchild, we have become fascinated with the region's incredible plant life and deeply concerned about its future.



Anne Kilkenny (right), daughter of Ted Kilkenny. Photographed on board the *Ombak Putih* with her husband Jon Naviaux (left). Photo by Eva Villagrasa/SeaTrek

The Moluccas would take a lifetime to fully explore. Fortunately, we have many botany students, in our high school and university programs, who are eager to continue where Dr. Fairchild left off. Here in South Florida, thousands of high school students followed our travels online as we posted photos from the field.

Continuity is important at an institution like ours, where our founders had a clear vision of what the Garden could become. As you read this issue, I hope you are inspired to follow Dr. Fairchild's path, become more involved with our Garden and explore the world of plants.

Best regards,

Carl Lewis, Ph.D.  
Director



[@ZapataNannette](#)

**A**s the editor-in-chief of *The Tropical Garden* magazine, I always feel a sense of pride each time we close and publish an issue. The sense of accomplishment is profound, and I imagine the excitement and anticipation that you, our members, experience when you see the beautiful publication in your mailboxes.

Here at Fairchild, we work very hard to bring you the most accurate, expert and beautiful representation of the work our staff is doing in tropical botany. Our focus has always been to offer scholarly-level research articles as well as practical information on botanical science, articles about our innovative and engaging education programs, fascinating feature articles focusing on the broader Garden community, a look into the Garden's long history via our Archives, time-sensitive stories about the South Florida plant community via Bug Beat and Gardening in South Florida, and, of course, articles about the Garden's plant collections, events and volunteers.

With this general framework, we're able to pack a full spectrum of information about tropical botany, science education, conservation and the Garden into every quarterly issue. In December, the Editorial Board met to discuss how we can take this framework and an already award-winning publication and make it even better. Starting with this issue, here's some of what you'll see:

### **An Immersive Botanical Literacy Experience.**

Each issue will focus on one topic or one theme. This issue will focus on the recent two-week expedition several of our scientists, volunteers and supporters undertook to Indonesia. Retracing Dr. David Fairchild's famous *Cheng Ho* expedition shortly before WWII broke out over the Pacific, several staff members bring you their firsthand experiences. Our scientists share the fascinating and diverse world of tropical plants they discovered and that will soon be available—not just in the Garden's plant collections, but also for member distribution. We'll also share the culturally important ethnobotany of plants from Southeast Asia, how Miami-Dade County students participating in The Fairchild Challenge artfully connect with the flora of this part of the world as part of their core learning, the king of Indonesian fruit: Mangosteen, the Garden's long history with this region of the world and more!

### **Feedback.**

So often I receive feedback from you about the magazine and the Garden. You've shared "attaboys," pointed out errors, made suggestions for future stories, showed us your favorite Garden moments and more. This feedback is necessary and immensely valuable. We'll share some of it in our new "Feedback" section.

### **The Fairchild Field Guide.**

At the back of the magazine, you will find the Fairchild Field Guide. In each issue, this field guide will show all of the locations in the Garden's plant collections and plots referenced in the articles—making it an infographic of how our work correlates to the Garden's collections. The articles are the legend, and the Garden's collections and plots are the map.

The Garden's mission includes the following: "inspiring a greater knowledge and love for plants and gardening so that all can enjoy the bounty of the tropical world." Inspiration abounds at Fairchild. And it's what inspires us to inspire you by sharing our knowledge about tropical botany and the Garden. This is our goal.

We hope you like these new features. Let us know what you think. We're listening.

Warmest regards,

Nannette M. Zapata, M.S./MBA  
Chief Operating Officer



LEFT - RIGHT

**Brett Jestrow, Ph.D.**, is Fairchild’s herbarium curator, a position he has held since 2010. Using anatomical and molecular methods, Jestrow seeks to understand Caribbean flora while actively collecting plants for both science and horticulture.

**Chad Husby, Ph.D.**, is Fairchild’s botanical horticulturist. His work focuses on international plant exploration to enhance the Garden’s collections and to find worthy new plants to share with the public. In addition, he collaborates with the Garden’s science and education programs. He received his undergraduate degree from Alma College, a Master of Applied Statistics from Ohio State University, a master’s in horticulture from Virginia Tech and a Ph.D. in biology from Florida International University.

**Jason F. Lopez**, Fairchild’s living collections manager, has worked at Fairchild for 12 years as a key member of the horticulture department. He was born in South Miami and raised amongst the plants he now grows. His focus has been maintaining the existing world-class scientific and ornamental plant collections throughout the Garden’s 83 acres, including the Rare Plant House, while also rebuilding the wild-collecting traditions of years past.

**Carl Lewis, Ph.D.**, is a botanist, explorer and educator. He joined the Fairchild science staff in 2001, and has served as director for the past eight years. With a passionate belief in the importance of plants to society, Dr. Lewis is developing our Garden into a place where everyone can learn about botany.

# the TROPICAL GARDEN

The official publication of Fairchild Tropical Botanic Garden

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**ON THE COVER**  
Afloat on the  
*Ombak Putih*  
Photo by Jason F. Lopez/FTBC



## SCHEDULE OF EVENTS



### ART & SCULPTURE AT FAIRCHILD

“Landscape Photography”  
from the Martin Z.  
Margulies Collection  
Through March 26,  
free with admission

### March

**SUNDAY SOUNDS**  
Sunday, March 5  
1:00 p.m. Glasshouse Café,  
free with admission

**EVENING LECTURE SERIES  
AND MOONLIGHT TOURS**  
Thursday, March 9  
6:00 – 9:00 p.m.  
Tickets: \$12 for Members;  
\$25 for Non-members

**15<sup>TH</sup> ANNUAL  
INTERNATIONAL  
ORCHID FESTIVAL**  
Friday, Saturday  
and Sunday  
March 10, 11 and 12  
9:30 a.m. – 4:30 p.m.

**THE ORCHID TEA  
GARDEN**  
Friday, Saturday and Sunday  
March 10, 11, and 12  
Baobab Courtyard  
10:30 a.m. – 3:30 p.m.  
Tickets start at \$20 for  
adults, \$15.00 per child  
under 12

**ANNUAL MEETING**  
Friday, March 17  
10:00 a.m. – 4:30 p.m.  
The Adam R. Rose and  
Peter R. McQuillan  
Arts Center

**April**  
**SUNDAY SOUNDS**  
Sunday, April 2  
1:00 p.m.  
Glasshouse Café, free  
with admission

**THE 11<sup>TH</sup> ANNUAL  
FAIRCHILD ARTISTS IN  
BLOOM EXHIBITION  
AND SALE**  
Saturday and Sunday  
April 8 and 9  
9:30 a.m. – 4:30 p.m.

**SPRING GARDEN  
FESTIVAL**  
Saturday and Sunday  
April 8 and 9  
9:30 a.m. – 4:30 p.m.

**SPRING TEA GARDEN**  
Saturday and Sunday  
April 8 and 9  
Baobab Courtyard  
10:30 a.m. – 3:30 p.m.  
Tickets start at \$20 for  
adults, \$15.00 per child  
under 12

**May**  
**SUNDAY SOUNDS**  
Sunday, May 7  
1:00 p.m.  
Glasshouse Café,  
free with admission

**THE AMERICAN  
ORCHID SOCIETY ART  
EXHIBITION**  
May 12 through June 14  
Adam R. Rose and Peter R.  
McQuillan Arts Center

### Tours of the Garden

**TRAM TOURS OF  
THE GARDEN  
WEEKDAYS (M-F)**  
Every hour, on the hour  
10:00 a.m. – 3:00 p.m.

**WEEKENDS**  
Every hour on the hour  
10:00 a.m. – 4:00 p.m.

**TOURS EN ESPAÑOL**  
Sábados y Domingos,  
1:30, 2:30 y 3:30 p.m.

**DAILY WALKING TOURS**  
10:15 a.m., 11:15 a.m.,  
12:15 p.m., 1:15 p.m.  
and 2:15 p.m.

**BUTTERFLIES: WINGED  
WONDERS AND THE  
PLANTS THEY LOVE**  
Saturdays and Sundays,  
10:15 – 11:00 a.m.

**EARLY-BIRD WALKS**  
Saturdays and Sundays,  
Through May 1  
7:30 – 9:30 a.m.

Tours added daily.  
Check the information  
desk upon arrival.

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Renew now to continue to enjoy all the benefits of your Fairchild membership, like:

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T: 305.667.1651 F: 305.661.8953

Daily 9:30 a.m. – 4:30 p.m. (except December 25)

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

**Eco-Discount:** Walk, bike or ride public transportation to Fairchild. Non-members receive \$5 off an adult admission and \$2 off children's admission. Fairchild members receive a loyalty card to earn a gift admission after five visits.

**Military Discount:** We offer active military personnel and veterans free admission. Please present Military IDs.

## FAIRCHILD BLOG

Follow the Fairchild Blog at  
[www.fairchildgarden.org/blog](http://www.fairchildgarden.org/blog)

## DONATE TO FAIRCHILD

Inquiries: 305.667.1651, ext. 3351  
[donate@fairchildgarden.org](mailto:donate@fairchildgarden.org)  
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## BECOME A MEMBER OR RENEW YOUR MEMBERSHIP

Become a member and enjoy Garden benefits all year long.

Inquiries: 305.667.1651, ext. 3301 or 3362  
[membership@fairchildgarden.org](mailto:membership@fairchildgarden.org)  
[www.fairchildgarden.org/Membership](http://www.fairchildgarden.org/Membership)

## VOLUNTEER

Become a volunteer and help the Garden grow.  
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[volunteer@fairchildgarden.org](mailto:volunteer@fairchildgarden.org)  
[www.fairchildgarden.org/Volunteer](http://www.fairchildgarden.org/Volunteer)

## EVENTS AND PRIVATE RENTALS

Interested in having your event at Fairchild?  
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[specialevents@fairchildgarden.org](mailto:specialevents@fairchildgarden.org)  
[www.fairchildgarden.org/SpecialEvents](http://www.fairchildgarden.org/SpecialEvents)

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## GET IN ON THE CONSERVATION



Dr. Brett Jestrow providing a field lecture on plant systematics.

## PRINCE BERNHARD NATURE FUND SUPPORTS EXPLORATION FOR A CRITICALLY ENDANGERED HAITIAN PALM

As part of the grant awarded to Haiti's Les Cayes Botanic Garden by the Prince Bernhard Nature Fund, Fairchild's herbarium curator, Dr. Brett Jestrow, conducted fieldwork and delivered a workshop on the taxonomy of woody plants in southern Haiti between January 12 and 21. Supported by the University of South Florida, Dr. Alan Franck, USF's herbarium curator, also participated in this trip. Jestrow, Franck and William Cinea, director of Les Cayes Botanic Garden, also delivered lectures during the workshop.

Jestrow and Franck performed fieldwork with botanists from Les Cayes, focusing on the Critically Endangered palm *Attalea crassipatha*, which is the most threatened palm species endemic to Haiti. They procured DNA for conservation genetics studies, performed demographic studies, documented conservation challenges and collected seeds for ex situ conservation initiatives centered at Les Cayes.

## STEMLAB LAUNCH AND CHECK PRESENTATION

In November, the Fairchild mobile STEMLab received a \$100,000 donation check from Wells Fargo and the National Fish and Wildlife Foundation. The STEMLab, a mobile tissue culture lab, travels from school to school to give students the opportunity to participate in The Million Orchid Project conservation initiative.

## PLANT COLLECTING IN SAN SALVADOR, BAHAMAS

This past December, the island of San Salvador, Bahamas, was the focus of the last trip of 2016 for Fairchild staff. Marlon Rumble, Fairchild's nursery manager, and Jason F. Lopez, Fairchild's living collections manager, were joined by Dr. Ethan Freid, botanist for the Bahamas National Trust. Freid focused on finding Bahamian endemics (found only in one place) for cultivation and display at the Leon Levy Native Plant Preserve on the island of Eleuthera. Rumble and Lopez had more specific goals: Along with continuing to collect DNA of *Coccothrinax inaguensis*, one of the thatch palms, for an ongoing *Coccothrinax* study, they focused on finding more iguana-proof plants for display in the Michaux Bahamas Collection in the Lowlands at Fairchild.

The prize collections from the trip are offsets (small, virtually complete daughter plants that are naturally produced clones of a mother plant) of *Agave indagatorum*, one of the "century plants," which bloom once in their lifetimes. Although treks through the bush to the plant's last three known localities weren't fruitful, one large population was found on the other side of the island, highlighted by large yellow flowers standing tall above the canopy.



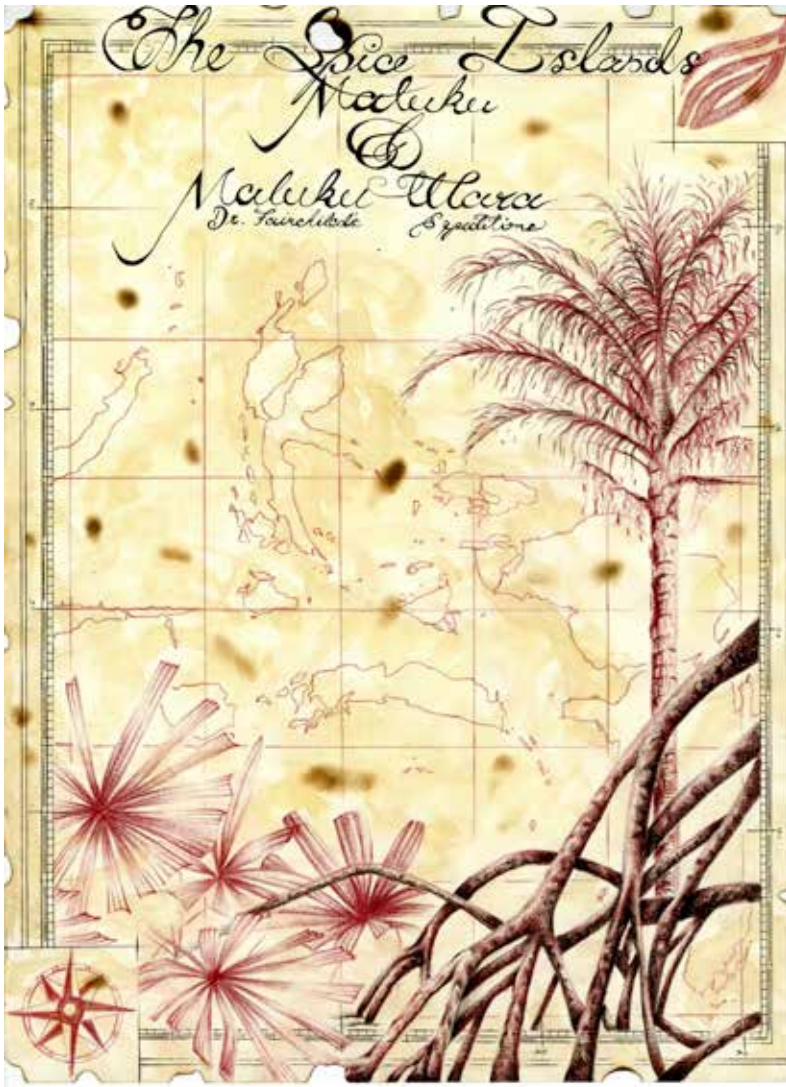
## PHIPPS CONSERVATORY AND BOTANICAL GARDENS SUPPORTS TEACHER'S WORKSHOP ON CARIBBEAN ISLAND BOTANY

Florida International University-Fairchild Ph.D. student Jonathan Flickinger led a workshop on Caribbean botany targeting teachers from Miami-Dade County Public Schools on November 5. A total of 11 teachers participated in this educational activity, which included lectures on Caribbean environments and plant systematics, hands-on work in plant identification and a tour focusing on the Garden's Caribbean Islands collections. FIU-Fairchild faculty member Dr. Javier Francisco-Ortega also participated in the workshop. It was part of an educational project funded by the Phipps Conservatory and Botanical Gardens (Pittsburgh), which supports Flickinger's graduate research with Cuban plants.



## FAIRCHILD AND FIU PLAN FURTHER GRADUATE WORK WITH PUERTO RICO HERBARIUM

Dr. Eugenio Santiago, director of the herbarium of the Botanic Garden of San Juan de Puerto Rico, visited the Garden November 7 through 21. Florida International University's International Center for Tropical Botany (FIU-ICTB) and Fairchild jointly sponsored the visit from Santiago, who is also a faculty member of the Department of Biology of the University of Puerto Rico at Río Piedras. Fairchild-FIU Ph.D. student Jonathan Flickinger worked with Santiago to plan future fieldwork in Puerto Rico that will focus on the origin, evolution and taxonomy of Critically Endangered endemic species of *Eugenia* (Myrtaceae). Flickinger's graduate research focuses on species of *Eugenia* endemic in the Caribbean Islands. Fieldwork in Puerto Rico will be supported by a graduate grant from the Botanical Society of America. During this visit, Santiago also discussed a few projects on the botanical history of Puerto Rico with Fairchild-FIU faculty member Dr. Javier Francisco-Ortega, and discussed future joint plant explorations endeavors with Fairchild Herbarium Curator Dr. Brett Jestrow.



Original artwork by Kristian Quintana  
Robert Morgan Educational Center High School

# Molucca Islands Plants as Art

By Carl E. Lewis, Ph.D.

The Fairchild Challenge, now in its 15th year, provides creative ways for local students in pre-k through 12th grade to explore botany. Each new school year is a chance to examine something new, and this year we incorporated our trip to Indonesia's Molucca Islands into the program at the high school level. We encouraged high school Challenge students to follow our expedition on social media, and asked them to represent Molucca Islands plants in a visual design.

Throughout our trip, we posted photos taken during Dr. David Fairchild's 1940 *Cheng Ho* expedition along with our own modern images. We often encountered the same plant species Dr. Fairchild photographed, providing a connection between the Spice Islands of 1940 (as the Moluccas were then known) and



Original artwork by Alanis Hernandez  
Barbara Goleman Senior High School



Original artwork by Susan Fernandez  
Miami Killian Senior High School



Original artwork by Allison Thielen  
Coral Gables Senior High School

today. In particular, we found many palms, gingers and ornamental trees growing exactly where Dr. Fairchild had found them.

Art has always been part of the Challenge, but this is the first time students have been able to interpret an ongoing expedition. Many of the teachers and students not only followed our trip, but also did additional background research on the region and its plants. We were impressed with the students' work, and thrilled to have a creative representation of the Molucca Islands' biodiversity. All entries were judged based on artistry, creativity and accuracy. Winners will be announced during an awards ceremony at the Garden on May 4.

Look back at the social media feeds from our trip on Twitter @exploreplants on and [www.flickr.com/photos/fairchildchallenge/collections/](http://www.flickr.com/photos/fairchildchallenge/collections/)



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

**Volunteer**



Fairchild volunteers serve the Garden, the South Florida community and the world through their hands-on, interactive participation in Fairchild's programs and activities, while meeting others who share their interest in plants, people and gardens. Current volunteer opportunities include hosting, guiding students on field trips and gardening on a horticulture team.

To learn more about becoming a Fairchild volunteer, please visit us at [www.fairchildgarden.org/volinfo](http://www.fairchildgarden.org/volinfo) or call 305.667.1651, ext. 3360.

 @VolunteerFTBG

@FairchildGarden



# Fairchild Volunteers in the Field

By Carl E. Lewis, Ph.D.

Fairchild volunteers are known for their generosity, enthusiasm and adaptability. I have found that many of our volunteers are deeply connected to the Garden's mission and history, and many have a strong sense of adventure.

Several longtime Fairchild volunteers agreed to join our 12-day cruise through the Moluccas, revisiting the remote islands of Indonesia explored by Dr. David Fairchild in 1940. Of the 20 cruise participants, seven were Fairchild volunteers. Traveling together for 12 days, we had many opportunities to relate our experiences halfway around the world to the work we do together at Fairchild.

Jack Hahn, a volunteer in our imaging lab, was the first to sign up for the cruise. He is an expert in optics, photography and video production, and took the opportunity to photograph the biodiversity and scenery of a new part of the world. He captured video of our entire adventure, both above and below the water.

Also an avid photographer and a seasoned traveler, Lynda LaRocca volunteers in our education department and helps with our special events. She is a leader in our local gardening community and a longtime member of the Tropical Flowering Tree Society. She brought multiple cameras and captured the natural world and life aboard the boat.

Stephanie Thorman is an unstoppable horticulture volunteer, splitting her time between hard labor in the Garden and caring for orchids in the nursery. She seemed perfectly at home in the Moluccas, enthusiastically jumping into each new adventure. Even on the challenging rainforest hikes, she was out in front of the rest of the group.



Jack Hahn



Lynda LaRocca



Adair Reeve is an intrepid horticulture volunteer. Mike Reeve, her husband, volunteers in the orchid lab and as a shuttle driver. Together, they have a great appreciation of Dr. Fairchild's history in the Moluccas and were eager to see what he experienced.

Lise Dowd and her husband Steve Forman were longtime horticulture volunteers until their recent move to Hawaii. Lise was instrumental in establishing The Million Orchid Project, while Steve focused on the conservatories. They both love plants, but were especially drawn to the Moluccas' underwater biodiversity, which they explored during our many snorkeling opportunities.

As a group, we all ended the trip with a new appreciation for the beauty of the tropics and a renewed enthusiasm for the teaching we do at Fairchild. We hope to be able to offer similar exploration opportunities to our volunteers in the years ahead.


Three of the volunteers who joined our expedition shared their own impressions of the Moluccas:

## Mike and Adair Reeve

Having read many of Dr. David Fairchild's books, including "Garden Islands of the Great East," we were immediately intrigued by the idea of participating in a re-creation of the 1940 *Cheng Ho* expedition to the Spice Islands (now the Moluccas). Sailing to a series of islands largely unchanged during the past 75 years gave us a sense of history, while we enjoyed the modern conveniences onboard the *Ombak Putih*.

The ship's crew and tour leaders were very welcoming, as were the people of the Moluccas, both young and old. We greatly enjoyed the nightly presentations from the accompanying Fairchild staff, which interwove the botanical sights to be seen with historical facets of Dr. Fairchild's original cruise. The daily mixture of scientific expeditions onshore and opportunities for cultural interactions with the people of these beautiful volcanic islands could be physically challenging at times—but that mixture made it a once-in-a-lifetime adventure.

## Jack Hahn

The enthusiasm of our 20 travelers for the botanical exploration, as well as the historical connection with Dr. David Fairchild's *Cheng Ho* expedition, was infectious and stimulating. Visiting the botanic gardens of Indonesia and Singapore, it became apparent that they all share similar objectives of research, conservation and outreach. To help achieve their objectives, they have public funding that supports hundreds of paid staff; some have been in existence for as long as 200 years. Knowing what Fairchild achieves in these same areas made me proud to be one of our many volunteers, who accomplish so much with our smaller number of talented staff and more-limited funding. 



Stephanie Thorman



Steve Forman and Lise Dowd



Adair and Mike Reeve

# of the Wings Tropics



## Thousands of spectacular butterflies await

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



**Open Daily**

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

 @WingsofTropics

@FairchildGarden






# Tasty Pad Thai

By Mary Neustein

Let's take a journey with your taste buds to the Far East (no passport needed). It's not impossible if you follow Chef Billo Jolly's recipe for Pad Thai. Her delicious dish is one of Thailand's street food vendors' most sought-after meals; in fact, it's more popular on the streets than in restaurants. The full name of the dish—Kway teow pad Thai—denotes its likely connection with Chinese origins; kway teow, in Chinese, refers to rice noodles, and stir-frying is a Chinese cooking technique.

Pad Thai was made popular in Thailand during World War II and has since become one of Thailand's national dishes. It is a staple, with rice noodles available at shops and factories all over the country.

This famous noodle dish has many recipes attached to it, but in every variation of this mouthwatering dish you'll enjoy the combination of salty, sweet and sour flavors. If you like to add a little "kick" to it, you can spice it up to the degree of heat you prefer or can tolerate. No matter which recipe you use, though, preparing the ingredients takes more time than the actual cooking of this dish. 

*Chef Billo Jolly has been conducting cuisine classes at Fairchild since 1990. Her tried and true recipes reflect her love of cooking, with mouthwatering dishes and memorable celebrations of her life's journeys combining to create unforgettable dining experiences. Jolly's use of fresh ingredients and aromatic spices will take your tastebuds on a culinary journey to India and the Far East.*

Learn more about Chef Billo Jolly's cuisine classes, and all the others offered through Classes at Fairchild, at [www.fairchildgarden.org/education/adults](http://www.fairchildgarden.org/education/adults).



There are several regional variations of Pad Thai; here is Jolly's easy-to-make and delicious basic recipe (serves two):

## Ingredients for Pad Thai Sauce

1/4 cup palm sugar  
1/4 cup fish sauce  
1 tablespoon tamarind concentrate  
1/4 cup Sriracha sauce

## Making the Pad Thai Sauce

Put tamarind concentrate into a measuring cup, add enough water to make 1/4 cup of juice and stir. In a small saucepan, combine palm sugar, fish sauce, tamarind juice and Sriracha sauce. Cook on low heat until the palm sugar dissolves, then increase heat, and bring sauce to a boil. Remove from stove and keep aside. You can make this Pad Thai sauce ahead and put in a jar in the refrigerator for up to a week

## Ingredients for Pad Thai

1 egg (lightly beaten)  
1 cup large shrimp, deveined and washed OR 1 cup of ground chicken, beef or turkey  
1 tablespoon sliced shallots  
1/4 cup firm tofu - cubed  
1 handful rice stick noodles  
1/2 cup water  
1 cup fresh bean sprouts  
1/4 cup fresh chives, cut into 1" pieces  
1 tablespoon sugar  
2 tablespoons roasted peanuts, chopped  
Vegetable oil

## Making the Pad Thai

Soak rice stick noodles in warm water for about 15 minutes. Leave in water until you are ready to use.

Heat 1 teaspoon of oil in a wok at medium-high heat. Add egg and scramble it quickly. Remove from wok and set aside. Add 2 tablespoons of oil to the same wok. Add shrimp and cook until it turns pink. Alternately, cook ground chicken, turkey or beef until it is cooked through. Transfer to a bowl and set aside. Add 1 tablespoon of oil to the wok. Add shallots and fry until they turn translucent. Add tofu and fry until aromatic.

Drain soaked noodles in a colander and add to the wok, followed by 1/2 cup of water. Stir-fry this mixture for about 3–4 minutes. When noodles start to get soft, add 1/4 cup of the Pad Thai Sauce and mix well. Add sugar, cooked egg, bean sprouts, chives and cooked shrimp, chicken, turkey or ground beef. Stir well for another 1-2 minutes until everything blends together. Turn off heat, transfer to a serving plate and serve with a wedge of fresh lime, topped with roasted peanuts and more bean sprouts, if you like.





# DR. FAIRCHILD'S ISLAND PARADISE

Retracing an exploration of Indonesia's  
Molucca Islands from the Garden's early days

By Carl E. Lewis, Ph.D.



**ABOVE**  
Ambon to Ternate, Indonesia  
Itinerary, September 29 - October 10, 2016

**LEFT**  
Small islands off the coast of Bacan Island, Indonesia  
Photo by Jason Lopez/FTBG

“What is to be the future of this island paradise, I wonder—this sparsely settled archipelago of the Great East, unrivalled in beauty, in climate, in fertility—when once the universal highway overhead has brought it closer, and the insanities of war have passed?”

Dr. David Fairchild,  
“Garden Islands of the Great East”

Dr. David Fairchild wrote “Garden Islands of the Great East” (reviewed on p. 49) upon his return from the expedition of a lifetime. From October 1939 through June 1940, he and 18 other passengers and crew had explored remote islands of southeast Asia aboard a custom-built Chinese Junk called the *Cheng Ho*. His goal was to introduce new tropical plants to what was then the newly-opened Garden. For that reason, he selected the Spice Islands, a famously plant-rich archipelago of what was then called the Dutch East Indies (today Indonesia), as the main target for exploration. He was rewarded with hundreds of new plant accessions, some of which still thrive in the Garden’s landscapes today.

Today, the Spice Islands are known as the Moluccas, or Molucca Islands. These 1,000 or so islands comprise two of Indonesia’s provinces (Maluku Utara and Maluku).



Last September and October, I traveled with a group of like-minded Garden enthusiasts to retrace a part of Dr. Fairchild’s route. We spent 12 days aboard the wooden schooner *Ombak Putih*, operated by SeaTrek Sailing Adventures. Sixteen adventurous longtime Garden supporters, members and volunteers signed on to take part in the cruise. Fairchild Trustee Lin Loughheed sponsored three of our staff members—Dr. Chad Husby, Dr. Brett Jestrow and Jason Lopez—who provided plant knowledge along the way. The *Cheng Ho* expedition had incredible historical, scientific and emotional significance during the early days of our Garden, and it was thrilling to rekindle the excitement of that remarkable time.

The Moluccas are extraordinarily rich in biodiversity, history and culture. They are home to nutmeg (*Myristica fragrans*) and cloves (*Syzygium aromaticum*), which for centuries were among the world’s most precious commercial products. Since ancient times, a succession of powerful sultans had battled for control of the islands’ regional spice trade; the Portuguese, Spanish, English and Dutch followed.

Dr. Fairchild spent the greater part of his life dreaming of the Spice Islands, hoping to one day follow in the footsteps of the great naturalist Alfred Russel Wallace. The rich biodiversity of the region had inspired Wallace to write the first draft of the theory of evolution by natural selection in 1858. Dr. Fairchild finally got to the Spice Islands at the end of April 1940, at age 71. Tragically, his arrival in the region coincided with the start of World War II, just as the Dutch were losing control of the region after more than 300 years of occupation. With the threat of invasion from Japan, Dr. Fairchild was forced to evacuate the region, and had little time for exploration.

Nonetheless, the Spice Islands were every bit as beautiful, exciting and plant-filled as Dr. Fairchild had anticipated. The team aboard the *Cheng Ho* saw and collected some spectacular plants during those days, but only managed fleeting glimpses of the islands and their people. Dr. Fairchild was deeply sad to leave the region, knowing he would never return, and wondered what the future would bring.

**TOP-BOTTOM**

Hugo Curran and Ann Archbold with an unidentified member of the *Cheng Ho* crew collecting seeds under *Hernandia nymphaeolia*, Buru Island, Indonesia, on May 1, 1940.

Photo: Archives/FTBG

The same location on Buru Island, September 30, 2016. The group from left to right: Jill Menzel, Danielle Varzaly, Jon Naviaux, Stephanie Thorman, Jason Lopez, Mike McCaffery, Lynda LaRocca, Craig Morel, Brett Jestrow, Lise Dowd, Chad Husby, Victor Fasano, Adair Reeve, Mike Reeve, Carl Lewis, Cheryl Solomon, Steve Forman and Jack Hahn, with the *Ombak Putih* anchored offshore.

Photo by Anastasia Louhenapessy/SeaTrek



**PREVIOUS PAGE (TOP LEFT)**  
The *Cheng Ho* under sail, departing the Philippines for the Spice Islands on January 9, 1940.

Photo: Archives/FTBG

**ABOVE (L-R)**  
The *Ombak Putih* off Bacan Island, Indonesia, October 1, 2016.

Photo by Carl E. Lewis/FTBG

(L-R) Carl E. Lewis, Chad Husby, Cheryl Solomon and Eva Villagrana planning the route aboard the *Ombak Putih*.

Photo by Jason Lopez/FTBG



## Following the *Cheng Ho's* Route Through the Moluccas

It is that final part of the *Cheng Ho* expedition, the rushed passage through the Spice Islands, that I find most fascinating. That became the itinerary of the *Ombak Putih* for our 12-day cruise, giving us a chance to see the exact same places Dr. Fairchild saw, along with a few islands he missed.

We were able to see what has happened during the last 76 years, comparing the Moluccas of today to our records from 1940. We brought with us digital copies of the entire *Cheng Ho* archives, stored on our laptop computers. We had photos and diaries from David and Marian Fairchild, Thomas "Ted" Kilkenny (*Cheng Ho* designer and captain), Hugo Curran (plant collector), Ned Beckwith (photographer) and Ann Archbold (philanthropist and expedition sponsor). We also brought the writings of those who came before, including Wallace and 17th-century botanist Georg Eberhard Rumphius.

Our cruise began on the island of Ambon, Indonesia, and ended on the island of Ternate, Indonesia. Those islands have direct airline connections to Jakarta, Indonesia's capital. In between, we visited remote and isolated islands that are only reachable by boat, crossing the equator midway through the trip. Life aboard the *Ombak Putih* was busy and ever-changing, as we awoke each morning with a new island to explore.

Ambon was the home of Rumphius, the all-time greatest botanist of the Spice Islands. On the hills above the city of Ambon, we hiked a beautiful path through a mixture of native forest and introduced fruit trees, a great introduction to the plant diversity of the region.

We also stopped on Buru Island, visiting the same beach explored by the *Cheng Ho* team. We saw many of the same plant species they recorded in



The waterfall on Kahatola Island in 1940 and 2016.  
Photos by Carl E. Lewis/FTBG and Archives/FTBG

1940, including the ornamental tree *Hernandia nymphaeifolia*, which Dr. Fairchild collected and introduced to the United States.

On Manipa Island, we witnessed the processing of sago, the starchy stem tissue of the massive palm *Metroxylon sagu*. Instead of rice, the people of the Spice Islands depend on sago starch as a renewable, calorie-rich food. Watching the process of extracting starch was like traveling back to 1940, when Dr. Fairchild saw and photographed the same operation, which used the same centuries-old technology.

Mandioli is a low-lying island with a coastline that reminded Dr. Fairchild of the Florida Keys. There, we visited a village and saw what might have been the inspiration for his “garden island” concept. The perfectly manicured village had a mixture of native Moluccan plants—including palms, cycads and ornamental trees—blended with more familiar cosmopolitan garden plants. With no roads, no airport and no major harbor, the people of Mandioli depend on small boats and intermittent cellular service for their connection to the outside world.

We also traveled up a river on Kasiruta island in small boats, just as Alfred Russel Wallace and, later, Dr. Fairchild had done. The river winds among limestone hills, sago swamps and little villages, all richly vegetated. We saw the same species of mangroves, ant plants and gingers that Dr. Fairchild recorded there.

Of course, we explored in Halmahera, the largest of the Moluccas, with its sprawling series of volcanic peaks and forested coastlines. A large portion of central Halmahera is earmarked for one of the world’s largest nickel mining operations, so it is likely that immense tracts of forest will be lost in the years ahead. Not far from the nickel mining zone, we had a special opportunity to see the rare bird-of-paradise, Wallace’s standardwing (*Semioptera wallacii*), in an incredibly plant-rich forest. Traveling along the perimeter of active nickel mines, we got a glimpse of the unique flora adapted to nickel-rich soils.

We also stopped in a village on the small, volcanic island of Makian. We visited the same elementary school the *Cheng Ho* team had visited, now rebuilt after a 1988 volcanic eruption. Just as in 1940, the school is vibrant and full of enthusiastic children who are eager to be photographed.

On Kahatola island, the northern limit of our travels, we saw and swam beneath a beautiful waterfall Dr. Fairchild described in “Garden Islands of the Great East.” We saw the same spectacular orchids, ferns and *Begonias* growing on the rocky cliffs surrounding the waterfall. The coast of Kahatola seemed completely undisturbed.

## Beyond the *Cheng Ho’s* Route

Along with the places the *Cheng Ho* had visited, we also stopped on a few islands Dr. Fairchild did not have time to explore. On Obi Island, we were distressed to see the decimation of forest as a result of recent illegal logging. On Bacan and Tidore islands, however, we had the opposite




Mike McCaffery, Jason Lopez, Victor Fasano and Jack Hahn at the site of recent illegal logging on Obi Island, Indonesia.

experience. On Bacan, we found an incredibly diverse, ancient forest that was especially rich in palms. Tidore is the tallest of the Molucca Islands, a perfectly symmetrical volcanic cone with fantastic forest on its upper slopes, above nutmeg and clove plantations. Ternate island was the site of an ancient, powerful sultanate that ruled the entire region for centuries. It is a small, crowded city on the edge of an active volcano. The *Cheng Ho* bypassed Ternate in 1940, as Dr. Fairchild chose to visit less-populated islands during the final days of his expedition.

After 76 years, we were all amazed to see how little the Moluccas have changed since Dr. Fairchild's visit. Although some of the islands' natural habitats are impacted by logging and mining, we still found many large tracts of undisturbed forests. The plants Dr. Fairchild collected are still there. Villages that were small and isolated in 1940 remain that way today. We all gained a much deeper appreciation of the world of David Fairchild, and are apprehensive about the future of the region and the looming threats to its diversity.

We hope our travels will encourage others to visit and explore the forests of the Moluccas. In fact, we hope to encourage young botanists-in-training to explore all of the world's remaining remote tropical regions, including those of Indonesia and surrounding countries.

Just as Dr. Fairchild had a disappointingly brief visit to the Spice Islands, we feel we barely scratched the surface during our recent trip. In the coming years, we hope to bring additional groups of Fairchild enthusiasts to the region to dig deeper into its beauty, history and diversity. 

A wooden sign with the text "EXCELSA GARDENS" is centered in the upper half of the image. The sign has a decorative arch at the top with a circular emblem. The background is a dense, vibrant display of tropical plants, including various types of bromeliads, orchids, and other colorful flowers in shades of pink, red, and orange, set against lush green foliage.

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# ‘THE VERY GARDEN OF THE EAST’ EXPLORING THE GREAT GARDENS OF JAVA AND VILLAGE GARDENS OF THE MOLUCCAS

TEXT AND PHOTOS BY CHAD HUSBY, PH.D.





Massive *Shorea* and *Ficus* trunks photographed in 1940 at Bogor Botanical Gardens (Then the Botanical Gardens of Buitenzorg) with Ann Archbold seated in the foreground.  
 Photo by David Fairchild. Archives/FTBG



(L-R) Lynda LaRocca, Carl Lewis, Adair Reeve, Jack Hahn, Mike Reeve, Brett Jestrow, Stephanie Thorman, Mike McCaffery, Chad Husby and Craig Morel with the *Shorea* and *Ficus* trees photographed by David Fairchild in 1940.  
 Photo by Eva Villagrasa/SeaTrek

During Fairchild’s recent trip to Indonesia, we followed in the footsteps of Dr. David Fairchild both at sea and on land. Among our many botanical explorations, we were able to visit two of Java’s great botanical gardens, as well as several village gardens.

### BOGOR BOTANICAL GARDENS

Our adventures in Indonesia began at the renowned Bogor Botanical Gardens, known also as Kebun Raya (Great Garden) Bogor on the island of Java. This magnificent garden was founded by the Dutch in 1817 and covers 210 acres, including large arboreta, nurseries, greenhouses, waterways, an herbarium, laboratories and administrative buildings.

Bogor Botanical Gardens was an appropriate place to start our journey. Dr. David Fairchild had great fondness for Java and its gardens and returned several times after his first voyage at the end of the 19<sup>th</sup> century. During Fairchild’s visits, what is now the nation of Indonesia was a colony of the Netherlands and known as the Dutch East Indies or, as Fairchild often called the archipelago, the Netherlands Indies. Recalling his first visit to Java, Fairchild wrote:

*“I have nowhere among my memories any pictures that are so far away and long ago in character as those of my first days in the island of Java. I was actually in a fairy land.” — “The World Grows Round My Door”*

During his visits to the Dutch East Indies, Fairchild spent a great deal of time at Bogor Botanical Gardens, which was then called the Lands Plantentuin te Buitenzorg (“National Botanic Garden of Buitenzorg”). The area today denoted by the Indonesian name Bogor was called Buitenzorg during Dutch colonial times. Fairchild used the laboratories there for his studies of plants, insects and fungi. He was especially fond of one of the garden’s most influential directors, Dr. Melchior Treub, who became a personal friend. Treub worked hard to enlarge the plant collections and to make the garden the research center that it continues to be today.



House garden with diverse croton (*Codiaeum variegatum*) cultivars, Bastiong Village, Halmahera Island.

During the *Cheng Ho* expedition, Fairchild spent about a month on Bali and Java during repairs to the *Cheng Ho* after a fire that caused considerable damage. The original plan had been to explore Java after exploring the Moluccas, also part of Indonesia, but Fairchild made the most of his unplanned visit, including a flight over Java that impressed him very much:

*"To fly over an island about the size of Cuba, which has thirty-five volcanos, seventeen of which have been active in historic times, should be exciting enough. But it meant more than this to me. It meant looking down on 'the very garden of the East.' [a phrase quoted from Alfred Russel Wallace]"*  
*—"Garden of the East from the Air," from "Garden Islands of the Great East"*

Even in the mid-1920's, Fairchild commented that Bogor was so well-planted that there seemed little room to add more plants:

*"I had a feeling as though the great garden had been left behind and was no longer the growing expanding thing it had been when Treub was at its head and expeditions were reaching out all over the world after interesting trees. But where could they plant new trees anyway? The 205 or so acres are already fully planted and the funds are needed for researches which may yield more immediate returns."—"Java at Last," from "Exploring for Plants"*

Today Bogor is still an extremely rich garden, with amazing specimen trees from all over the world. The

garden's director received us graciously, and we had the privilege of spending half a day exploring its vast arboreta with trees that are works of art unto themselves. Many have striking buttress roots, which are often quite huge. A special highlight was the pair of giant buttressed trees in front of which David and Marion Fairchild had once posed for a photograph. The trees appear to have scarcely changed in all those decades. Another highlight was seeing the only *Rafflesia*-infected *Tetrastigma* vines (lianas in the grape family) grown in any botanical garden. *Rafflesia* is a parasitic plant that produces the largest flowers in the world. Alas, no *Rafflesia* flowers were open at the time of our visit, but buds were present. The gardens are also home to a magnificent fruiting specimen of the palm that produces the world's largest seed, *Lodoicea maldivica*. We also enjoyed exploring the extensive orchid collections, propagation greenhouses and laboratories.

Our first dinner of the expedition was at the restaurant within the Bogor Botanical Gardens, overlooking a serene lawn with ponds and beautiful ornamental plantings. Much to our delight, a portion of the soup that several of us had ordered contained "fruiting" (actually coning) stalks of *Gnetum gnemon*, an unusual gymnosperm tree used in cooking in the Far East (you can read more about *Gnetum gnemon* in our Fall 2016 issue). Dr. Fairchild enjoyed this very delicacy during his time in Java on the *Cheng Ho* expedition.



Children playing in a waterfall at Cibodas Botanical Garden, Mt. Gede, Java.

## CIBODAS BOTANICAL GARDEN


The second day of our trip was a visit to the great mountain garden of Java, the Cibodas Botanical Garden (Kebun Raya Cibodas). This garden is located on the slopes of Mt. Gede (Gunung Gede), one of the many volcanoes that are an integral part of the island of Java. Dr. Fairchild spent a month studying fungi in the forests around Cibodas Botanical Garden:

*“Off the Ponjak pass on the slope of the Volcano Gedeh there lies the Mountain Garden or “Berg Tuin” of Tjibodas [Cibodas], where I once spent a month with a microscope, studying the parasitic fungi occurring in the strange vegetation of that fascinating place.” –“Into Middle Java,” from “Exploring for Plants”*

Our group spent a day exploring Cibodas, which, due to its elevation, has a much cooler climate than Bogor and allows for cultivation of a different array of plants. The road to the garden winds through extensive tea plantations and charming small towns full of plant nurseries. The garden itself is quite magnificent, with dramatic topographical features such as valleys, waterfalls and rivers that frame a wide diversity of trees, shrubs and herbaceous plants from all over the world. We saw collections of ferns, *Nepenthes* (tropical pitcher plants), palms, rhododendrons, conifers and succulents. This garden is also home to especially enormous specimens of *Amorphophallus titanum*, titan arum. The infructescence produced by the world-record-setting

*A. titanum* inflorescence that had bloomed at Cibodas during 2016 was still present during our visit; the seeds were being harvested. The inflorescence that produced it had grown to more than 12 feet high.

## THE VILLAGE GARDENS OF THE MOLUCCAS

During our voyage through the Moluccas on the *Ombak Putih*, we had the opportunity to visit several villages that Dr. Fairchild had visited during the *Cheng Ho* expedition, in addition to several others. A variety of plants were cultivated in these gardens, including many food-producing and ornamental plants. Coconuts and breadfruit trees were frequent. Interestingly, many of the villages had a single cycad in the genus *Cycas*, which is native to the area. Among ornamentals, one interesting observation was the prominence of croton cultivars (*Codiaeum variegatum*) in village gardens. These spectacularly variegated plants, exhibiting a wide range of color patterns and leaf shapes, have long been a mainstay of South Florida horticulture. As it turns out, colorful selections of this species originated in the Moluccas and Georg Eberhard Rumphius documented nine varieties already being cultivated in the 17<sup>th</sup> century. How wonderful it is to see people of such different backgrounds, on opposite sides of the globe, united in their appreciation of the beauty of plants and the joy of gardening. 

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# AFLOAT IN THE RING OF FIRE

TEXT AND PHOTOS BY JASON F. LOPEZ

In the early days of October last year, a group of Fairchild staff, volunteers and friends celebrated the Garden's heritage by embarking on a commemorative journey aboard the ship *Ombak Putih* throughout the Molucca Islands of Indonesia. We sailed along this portion of the Ring of Fire, surrounded at all times by the silhouettes of volcanoes, to some of the very same forests and harbors that Dr. David Fairchild's original *Cheng Ho* expedition visited close to 80 years ago.



**PREVIOUS PAGE**  
Looking ahead over the bow of the *Ombak Putih* on a calm day.

**TOP**  
Our first view of the harbor on the island of Ambon.

**ABOVE**  
The beautiful Blue Star of the Indonesian reefs.

**W**hen I think back on our journey aboard the *Ombak Putih*, many striking images and experiences are burned in my mind. Commuting to this ship meant a voyage halfway across the world to a place that certainly would not resemble home. Travel of great distance will always reach into your core and expose parts that haven't lived yet. And, although this trip was firmly rooted in the botanical mission we had planned, some unanticipated moments of our time afloat in the Ring of Fire have really stuck with me.

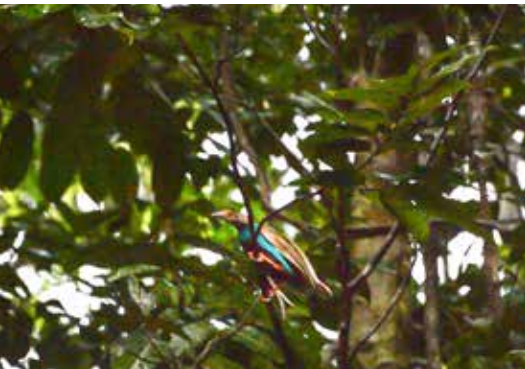
I remember slowly pulling into the marina on the small Moluccan island of Ambon, where lightweight Zodiac boats would soon carry us off to where the *Ombak Putih* waited in deeper water. There was a caravan of us. We'd spent the day botanizing in the hills above town and were now caught in harbor traffic. Trucks unloaded goods, while pedestrians, bicycles and motorbikes scooted by. On our left, as we crept forward, stands sold food to the locals. Grill smoke mixed with the smell of diesel and the scent from an open-air butcher shop on the right. Things were getting real. Stepping out of the van, my new reality formed, and all I can remember is my attention shifting away from thoughts of spices and towards the ocean

and the boats moored together. The colors, customs and systems were fascinating, and shortly we'd be floating away!

After a few days at sea, between conversations and thoughts of both historical and modern botanical and horticultural concepts, I felt only one regret. Why hadn't I gone snorkeling the first day with the rest of the group? They had jumped into the water just hours after shoving off on the *Ombak Putih*, but I wasn't mentally prepared to do so then. I stayed on deck and peered through the long lens of my camera at the plants that grew on land a few hundred yards away and at the homes scattered about as the Zodiacs sped off. When everyone came back onboard, all buzzing from what they'd just seen, I knew I'd made a mistake by not joining in.

Nature is, without doubt, our most accomplished creator in my estimate, knowing best how to arrange shapes, forms, textures, colors, layout, frequency, pattern, movement and repetition. With this in mind, I didn't miss any more chances to snorkel. Never has life and diversity been so apparent to me as it was below the waterline on that trip. The array of fishes, coral and sponges of the Indonesian reef network creates nothing short of a





**TOP (L-R)**  
Blue chromis, *Chromis viridis*, were abundant on most of the reefs we visited.

A clownfish hides in its radiant anemone home.

**ABOVE**  
A resting male Wallace's standardwing bird-of-paradise in the forest on Halmahera.

spectacle, and the movement within the reefs is truly captivating. When I read that close to one fifth of all of Earth's corals live in those oceans—around 500 described species—and that roughly 1,700 fish species live there, I am not at all surprised.

My favorite fish, it turns out, *Chromis viridis*, start off life an iridescent shade of radiant blue, and much like students in a school, they group together by age. The older and bigger they are, the farther they feel comfortable roaming from the coral they prefer, which grows flat and wide in tiers with upward protrusions to hide between. Commonly mixed with a just a few other fish species, the tight bunch slowly fades away from its coral enclave, wafting in and then further out with the currents, until spooked, when the bunch rushes back home. The continual electric blue quiver and pulse of the school's movements caught my attention every time I encountered them.

## Wallace's Standardwing Bird-of-Paradise

I broke my toe the morning we went to see Wallace's standardwing bird-of-paradise, *Semioptera wallacii*. Yes, that is an actual bird that is common in its very limited range. Waking up at half past two in the morning on a rocking boat left me a bit unsteady,

and I kicked a ladder instead of stepping on it. Refusing to let the pain ruin the chance to see the bird, I jumped in the first Zodiac and shoved off to the vans awaiting us onshore. Essentially crossing the island of Halmahera by muddy road, we made it to the forest just as first light began to creep in. I didn't know it yet, but one of the dozens of birdcalls we heard as we silently marched toward the bird-stage was Wallace's standardwing.

That morning was a good one to catch a show. Several male Wallace's standardwings had chosen visible locations in the jungle's sub-canopy in which to perform their solo theatrical courtship displays. Every few minutes, accompanied by taps of rain and the rest of the jungle ensemble, a male would fly in. It would drop to its perch above and sing a bit of blues, always bending its way out of the same note. Imagine, almost, a really fancy crow singing his paced song, flickering and waving two pairs of long white plumes above his shimmering purplish crown feathers. All the while, he is bouncing out a dance on his orange feet and flashing light-colored wingtips, while outward and from high on his chest, two triangular emerald-green breast shields glisten blue as they stretch apart and cover a greenish brown suit. All I could think was, "Encore!"



**ABOVE (L-R)**  
Steve, Craig, Linda, Stephanie, Carl and Mike leaving the *Ombak Putih* aboard one of the Zodiacs, ready to make landfall.

**TOP**  
Jill Menzel and Victor Fasano on board the *Ombak Putih*.  
Photo by Eva Villagrana/SeaTrek.

**BELOW**  
A flock of frigatebirds over a pod of dolphins near the equator.

## Shadowed by Dolphins and Frigatebirds

The day we saw what seemed to be a pod of a thousand dolphins and a flock of hundreds of frigatebirds above them was nearly too much. Not even an hour earlier, the crew had performed a song and dance, a tradition when crossing the equator, and threw a costumed crewmember overboard. First Victor, the most intrepid of the guests, followed, and then we all jumped overboard into 2,000 feet of the purest blue ocean. What a color to float in. And what a great view of the *Ombak Putih*!

“Look, dolphins!” is always a fun exclamation to hear. On that day, it took us all a few moments to really see what was beginning to happen around us. I hurried to the ship’s port side and looked over the bow. Up ahead, the grey-blue bodies of dolphins popped out of the water to breathe in what was an overcast, almost steel-blue, ocean around them. In the distance loomed silhouettes of volcanoes, and overhead flew the largest flock of frigatebirds the captain had apparently ever seen. He came down from the wheelhouse and looked on in as much wonder as the rest of us.

A good while passed while we were checked out by dozens and dozens of curious cetaceans, though it became clear that most of their excitement was around a diminishing school of fish. Some hungrier dolphins focused on the fish, drawing the soaring frigatebirds down to just above the water to grab the airborne prey as they attempted to get away from the first threat. We continued on our course, as did the scene, and as we faded away it seemed like the pod of dolphins and flock of frigates went on to the horizon, where perfect little volcano-outlined islands awaited.

I’ve worked as a horticulturist at the Garden for a dozen years now, and have collected and planted trees that grow next to trees that Dr. David Fairchild and crew collected and planted. I’ve always felt connected to him and his legacy from spending so much time amid its roots. I remember joking around with staff 10 years ago about how neat it would be to sort of re-enact the Garden’s first collecting trip, and now I have, in a way. Travelling in the wake of the *Cheng Ho* was an honor and a privilege, as is working in its trees’ shadows, and I will always revere the wonders witnessed through both. 



# THE OMBAK PUTIH: OUR HOME ON THE WATER

TEXT AND PHOTO BY JASON F. LOPEZ

**T**his beautiful ship was our home for the 11-night ocean journey through the Molucca Islands' Ring of Fire. The *Ombak Putih*, which flies an Indonesian flag, is a two-masted sailboat handmade of ironwood in the traditional methods long used by the Buginese people of Sulawesi. (The Buginese are the largest of three major ethnic groups in South Sulawesi, on Indonesia's third-largest island, and these traditional boats are known as Bugis schooners.)

Built without any drawings, the *Ombak Putih* took a year to construct. It took six months to dig the trench that would eventually fill with water and launch the 138-foot Bugi schooner from the muddy banks of a river back in 1997.


Following a traditional sacrifice and baptism in goat's blood, rigging and holding tanks in place, backup power provided by a Detroit Diesel engine and its seaworthiness confirmed by a Dutch naval architect, the *Ombak Putih* headed to Surabaya on the island of Java, where human amenities could be added.

Once it arrived, suppliers and technicians installed electricity, plumbing, a kitchen and all the required modern safety equipment and communication devices. When finished, the ship featured three levels with 12 air-conditioned cabins, crew quarters,

dining and lounge areas, as well as Zodiac tenders for making landfall. Just a year and a half after the first cuts were made, it was completed and made its way to Bali to receive its first passengers.

Onboard, interactive navigation programs available to guests make it easy to investigate current weather and maps and then suggest courses for the captain to consider. This made for a sort of choose-your-own adventure feeling as we made our journey following the *Cheng Ho's* path.

The most important thing onboard the *Ombak Putih* is the expert crew. Captain Ferry and his crew of 14 hail from all parts of the Indonesian archipelago, and some of them have been sailing aboard and abroad since the ship's first voyage. They tactfully navigated us from island to island, crossing open ocean and passing shallow reefs. A pair of cruise directors also made it easy to navigate the cultural aspects of the archipelago.

Each night onboard, the heavy chain anchors would slowly release us from the ocean floor and we would make our way to the next destination by moonlight. The sound and feeling of the chains once again would signify our arrival the next morning to a new island and a new botanical excursion. After all, this was the first time that the *Ombak Putih* was chasing plants. 

---

Learn more about the *Ombak Putih* and SeaTrek Sailing Adventures at [seatrekbalibali.com](http://seatrekbalibali.com).

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# Top 10 Shop Favorites!

By Erin Fitts [@ShopatFairchild](#)



4



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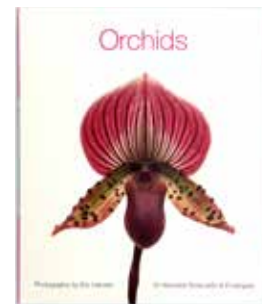
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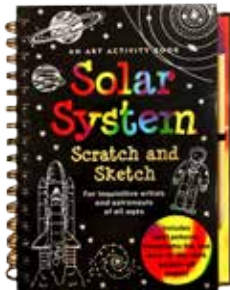
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# THE SERPENTINE FLORA OF HALMAHERA

The hearty plants that grow on  
outcrops of a rare type of rock

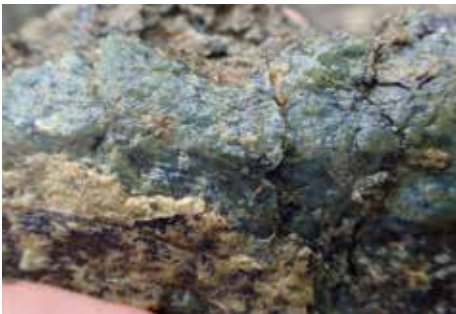
By Brett Jestrow, Ph.D.

Photos by Brett Jestrow, Ph.D. and Chad Husby, Ph.D.



A mature plant of *Nepenthes halmahera* climbing along a steep hillside of serpentine rock.

When Dr. David Fairchild described his travels across the Malay Archipelago, he often referred to the volcanoes that are so prominent in its landscape. Though imposing and dramatic, the volcanoes are just one of many geological features to be found across the vast archipelago. Less known, and certainly not as obvious, are the metamorphic massifs—sections of the Earth's crust, marked with faults, that have been transformed by heat and pressure. Of particular interest to botany is serpentinite, a metamorphic rock high in magnesium, iron and other heavier metals. Also known as ultramafic rock, a *portmanteau* for magnesium (Ma) and iron (Fe), these bedrocks and their soils have been recognized from as



early as the 16<sup>th</sup> century (in Italy) for their plant diversity and endemism. This rock type is quite rare, covering less than 1% of the land surface of the Earth.

While Dr. Fairchild did not specifically visit the archipelago’s ultramafic areas during the *Cheng Ho* voyage, the Indonesian island of Sulawesi alone has, arguably, the world’s largest single outcrop of serpentinitic, ultramafic bedrock. Yet these flora remain poorly studied in Indonesia.

During our 2016 expedition, on the island of Halmahera near Weda Bay—after a morning hike to watch Wallace’s standardwing bird-of-paradise display—we found our way to Halmahera’s largest serpentine outcrop. We did this by asking our guide if he had ever seen a tropical pitcher plant growing in the vicinity. Botanically known as *Nepenthes*, there are more than 150 species of tropical pitcher plants, including four that occur on Halmahera. A 2015 scientific publication clarified this, and included the description of a new and rare species, *Nepenthes halmahera*, found only in low elevations near Weda Bay, restricted to serpentine rock. If we could find this *Nepenthes* species, we would find the serpentine rock and its flora. Indeed, our guide had seen a pitcher plant, and was soon leading us towards it.

Driving north along the eastern side of Halmahera, we got our first view of serpentine bearing rocks, with their characteristic blue-green color and waxy luster. Here, we also found miles of metal fencing protecting the Weda Bay Nickel mining project. Because it has one of the largest deposits of nickel in the world, multinational corporations are developing extraction projects in the region. The mining focuses on the soil, rather than the underlying

**TOP - BOTTOM**  
 On Halmahera, the red lateritic (rich in iron and aluminum) soil that formed from the ultramafic bedrock is high in nickel and is actively mined.  
 A hand specimen of serpentinite near Weda Bay, showing a vein of asbestos.  
 Serpentine minerals showing their characteristic blue-green color and waxy luster are common in the areas near Weda Bay on Halmahera.





**TOP TO BOTTOM**

A glade in the serpentine scrub showing the low canopy and scrub vegetation, typical of the habitat.

Closeup of a lower pitcher, which is more squat and colorful. The uppers—hanging on the wrapping tendrils of the vining branches—are paler and elongate.

bedrock, and poses a major threat to the region’s unique flora. We drove for miles along the wire fencing, until it ended and our guide let us hike into the bush.

Before we even got out of the car, we spotted a fine mature example of *Nepenthes halmahera* growing not a stone’s throw from the road on a steep embankment, right out of the cracks of ultramafic rock. *Nepenthes*, carnivorous by nature, were first shown to digest insects by John Dalton Hooker in 1874 in the journal *Nature*, one year before his friend and confidant Charles Darwin published his seminal work on the topic, “Insectivorous Plants.” The plants begin as low rosettes hugging the ground, but as they grow and mature, they begin to climb. The tips of their leaves act as tendrils, with the pitcher hanging off the tip.

One of the most striking things about a tropical serpentine habitat is the absence of the typical weed species that are so widespread and common along roadsides. In fact, nearly every plant in these habitats will be native, if not endemic. This is due in large part to the toxicity of the ultramafic soils: They are so high in metals that most plant species, even the toughest of weeds, fail to thrive. Even the native species that evolved on these soils are usually more shrubs than trees, unlike a typical lowland rainforest with its tall, dense canopies.

Having botanized in Cuba, which has the largest serpentine flora in the neotropics, I had previously encountered plant species known for sequestering nickel. Coined “nickel hyperaccumulators,” these odd species harbor 1,000 to even 10,000 times the amount of nickel found in a typical plant. The vast majority



**TOP - BOTTOM**


*Flagellaria indica* vining through the serpentine scrub. An odd relative of the grass family, these plants have tendrils on the tips of their leaves, similar to *Nepenthes* but without the pitcher.

An unidentified species of *Ficus* growing inconspicuously among the serpentine scrub.

The leaves of the *Ficus* species react to the nickel testing paper, turning it pink—a positive response for a potentially new nickel hyperaccumulator on the island of Halmahera.

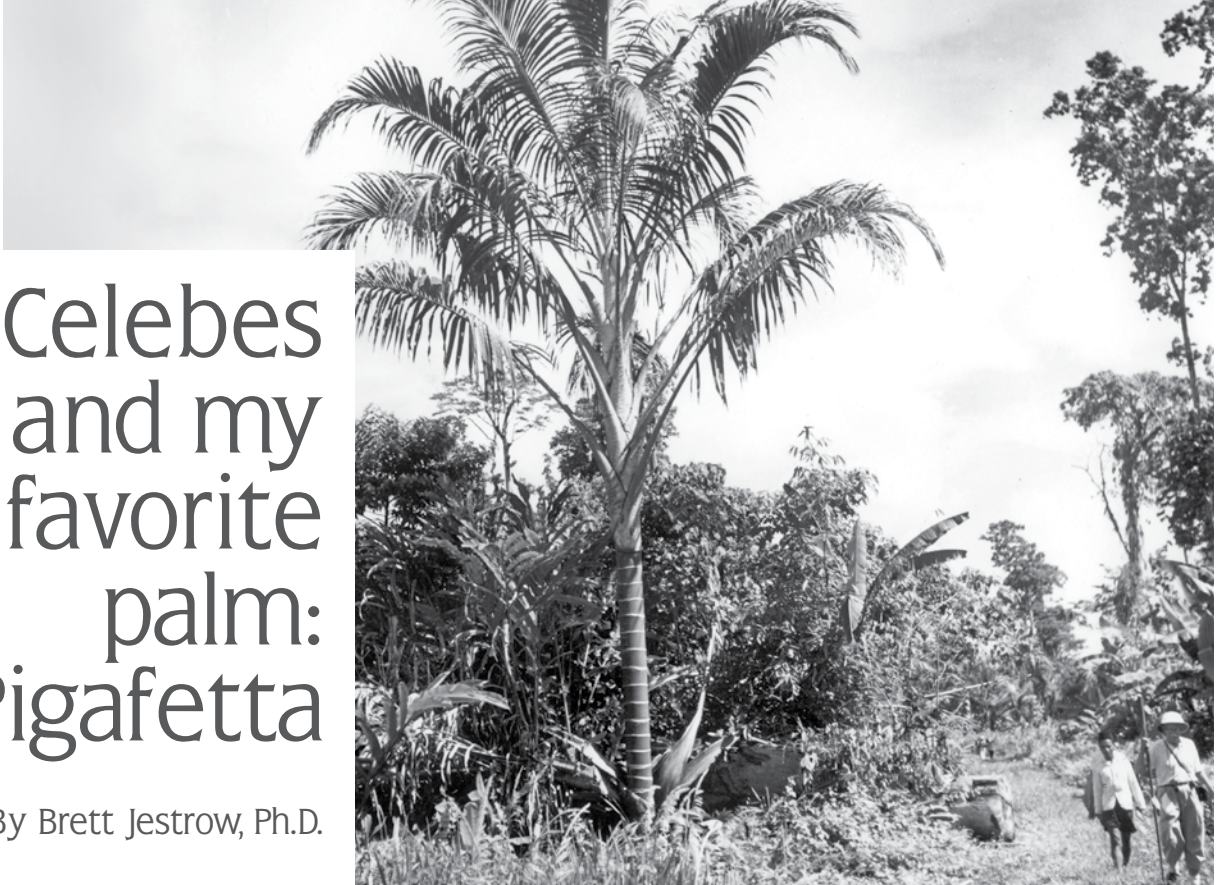
of species adapted to nickel-rich soils restrict the uptake of the metal at their roots and don't become hyperaccumulators. Only about 400 species of nickel hyperaccumulators are known to science, and they are barely known in Indonesia, a country so striking for its plant diversity. A scientific review from 2013, specific to Indonesian serpentine flora, found only 13 species documented as nickel hyperaccumulators; none of them were documented from Halmahera.

Nickel hyperaccumulators pose important topics for research, as many scientists have posited that these species could be used for actual mining, as well as for cleaning old mine tailings by removing toxic heavy metals. That's one reason why, before embarking on our trip, I prepared some nickel testing paper in the imaging lab of Fairchild's DiMare Science Village. A rub of the paper on a broken leaf will quickly show the color pink if large amounts of nickel are present. During our time in Halmahera's serpentine habitat, we had less than an hour to explore into the scrub. After testing only about a dozen plants, I was rewarded with a subtle, yet unmistakable, pink result. A rather small, non-descript species of *Ficus* responded positively, marking what I believe is the first report of a nickel hyperaccumulator in Halmahera.

Clearly, the flora of Halmahera, though long botanized, has much left to be discovered. 

# Celebes and my favorite palm: *Pigafetta*

By Brett Jestrow, Ph.D.



**TOP - BOTTOM**  
*Pigafetta filaris* at Pajahe Bay, Halmahera, Indonesia in the same location Dr. Fairchild visited in 1940.

Dr. David Fairchild and Pajahe Bay, Halmahera local near solitary *Pigafetta* palm. May 27, 1940.

Photo by Edward Beckwith. Archives/FTBG

Wood cutter with *Pigafetta* stump. May 27, 1940.

Photo by David Fairchild. Archives/FTBG

**BELOW**  
*Pigafetta* specimen collected by Dr. David Fairchild.


Photo by Jack Hahn



Early last year, while looking through the back cabinets of the Fairchild xylarium (wood collection), I found a few old, forgotten and jumbled collections. While sorting these, I noticed something special: a piece of palm wood with a curious note referring to Halmahera, including handwritten comments bearing the date of V-27-1940 with the initials “D.F.” This was quite exciting! It looked to be an artifact from Dr. David Fairchild’s original *Cheng Ho* expedition. Because the majority of Dr. Fairchild’s specimens found their way to the Harvard University Herbaria long ago, this is now one of the only confirmed specimens from Dr. Fairchild housed at the Garden.

Looking through our archives, we found images from the same date and locality—further confirming the specimen’s authenticity. On this very day in history, the *Cheng Ho* team took and documented many photos of palms. Even the woodchopper, who likely prepared this exact specimen for Dr. Fairchild, was photographed and documented.

The specimen is wood from the palm, *Pigafetta filaris*, long recognized as Dr. Fairchild’s favorite. He expounds on its beauty in a chapter titled “Celebes and My Favorite Palm,” in his book “The Garden Islands of the Great East.” In a later chapter of this book, he also describes visiting the locality of the collection in Halmahera—Pajahe Bay—and explains how the durable wood was used locally to build houses. Indeed, *P. filaris*, one of the tallest of palms at more than 120 feet tall, has dense vascular bundles or veins, giving the wood the heft of a brick.

Dr. Fairchild continued his description of the woodchopper of Pajahe Bay on a somber note: “The whole sad picture of the destruction of the forests of the world came over me.” Yet, on our Indonesian Expedition of 2016, the proud stands of *P. filaris* of Pajahe Bay still thrive, looking as healthy and numerous as in Dr. Fairchild’s day. 

# IN THE FAIRCHILD TRADITION

## New Plant Introductions from Southeast Asia

Text and photos by Chad Husby, Ph.D.



Our remarkable voyage aboard the *Ombak Putih* gave us a new appreciation of the Southeast Asian flora. We hope to return to the Moluccas soon, along with our Indonesian colleagues, for a plant collecting expedition into the region's richest habitats. In the meantime, after departing Indonesia, we visited nurseries and gardens in nearby countries to acquire new plants for introduction into South Florida. I was one of several participants who traveled on to Singapore. I spent two weeks in that nation, and also traveled to Malaysia

to find new plants and gain new horticultural insights.

Though I have visited the gardens of Singapore multiple times, each new visit yields exciting discoveries.

Singapore Botanic Gardens graciously provided housing for me in its own Ridley Hall, providing wonderful opportunities to explore the gardens' amazing collections. There, my gatherings included cuttings and divisions from the outdoor plantings as well as plants from the gardens' Plant Resource Center (an extensive nursery). In addition, the Pasir Panjang

Nurseries of Singapore's National Parks Board shared many seeds, plants and cuttings; the nurseries serve as a source of new plant material for plantings in parks and other spaces around the nation. Other sources of interesting new plant material included local nurseries and private collections. In addition, seeds and plants were obtained from the Forestry Research Institute of Malaysia.

All told, I brought back more than 110 species of plants from horticulture in Singapore and the Forestry Research Institute of Malaysia. Some of the highlights:



**1. *Baccaurea motleyana*** is a tree native to Southeast Asia, used as a wild source of fruits that are found seasonally in markets.

**2. *Carica papaya*** (dwarf, self-fertile selection) is a small-growing papaya selection originally from Thailand but grown in several collections in Singapore. It stays quite short (around 5 feet), facilitating harvest, and produces abundant golden fruits with an appealing taste. Members of our group tasted these fruits in the Pasir Panjang nursery in Singapore and were quite pleased. Seedlings are growing well in the Fairchild nursery.



**3. *Dillenia excelsa*** is an attractive tree with large yellow flowers. It begins flowering when quite small.

**4. *Dillenia philippinensis*** is a beautiful, small tree species endemic to the Philippines but grown as an ornamental in many countries of Southeast Asia. Its leaves are shiny with pronounced marginal teeth. Unlike most *Dillenia* species, which have yellow-petaled flowers, *D. philippinensis* has white petals. Dr. David Fairchild was interested in the ornamental potential of this tree during the *Cheng Ho* expedition and photographed it.



**5. *Dillenia* sp.** (red leaf) is an as-yet-unidentified species of tree or shrub with beautiful red leaves on new growth; in bright sunlight, older leaves remain dark red. It begins flowering quickly from cuttings and the specimens in the Fairchild nursery began flowering after only two months.

**6. *Dracaena cambodiana*** is a beautiful formal plant with stiffly upright narrow leaves. There are several forms in cultivation in Southeast Asia, and two forms with different leaf widths are now growing well in the Fairchild nursery.



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7. *Ficus grossularioides* is a small fig species from Southeast Asia with leaves of variable shape and bright white undersides. Several fruits were harvested in Singapore Botanic Gardens and the seeds have germinated well.

8. *Freycinetia sp.* (large purple leaf) is a very impressive large-leaved vining species with dark upper surfaces and purple undersides. The leaves surrounding the inflorescences develop a striking pinkish-orange color at the base and then abruptly change to the normal leaf color for the rest of the length of the leaf. One of the surviving original *Cheng Ho*

expedition introductions is *Freycinetia cummingiana*, so it is fitting that our commemorative expedition would include a beautiful new *Freycinetia* introduction.

9. *Gymnostoma sp.* is a distinctive tree with lacy branches and a delicate canopy. Dr. Fairchild was struck by a *Gymnostoma* tree that he spotted on

## What's in a Name By Georgia Tasker

### *Baccaurea motleyana*

*Bacca* is fruit and *aurea* is golden, according to the Flora and Fauna Web of Singapore National Parks. *Motleyana* is for James Motley, an engineer who worked in Singapore, Sumatra and Borneo. He and his family were killed in a local uprising in Borneo in 1859.

### *Carica papaya*

(dwarf Thai variety) *Carica* is Latin, based on the Greek for a kind of fig because of the fig-like leaves. *Carica* also is a district in Asia Minor where figs were cultivated. *Papaya* is from a Carib/Spanish word.

### *Dillenia excelsa*

Carl Linnaeus honored Johann Jacob Dillenius, a German botanist, by naming a genus of tropical trees for him. Dillenius, after publishing several botanical papers, moved to Oxford in 1721 to become a professor of botany. *Excelsa* means tall, as this tree can reach 25 to 35 meters.

### *Dracaena cambodiana*

*Dracaena* is the Romanized form of the Greek word for a female dragon. *Cambodiana* indicates it is from Cambodia, but it also grows in Vietnam, Thailand, Laos and southern China.



9

Wowoni Island, Indonesia, during the *Cheng Ho* expedition, though the seeds he collected from it were not viable. Fortunately, several of the seeds I collected in Singapore Botanic Gardens have already germinated and the seedlings are growing well.

**10. *Intsia palembanica***, also known as “Borneo Teak,” is a beautiful, large tree in the bean family



10



11

(Fabaceae). It is reportedly tolerant of inundation, so may grow well in the Lowlands at Fairchild.

**11. *Kopsia singapurensis*** is a lovely, small, flowering tree related to *Plumeria* (Apocynaceae family). It bears white flowers with a very pleasant scent. The flowers can appear throughout the year in cultivation.



12

**12. *Sindora coriacea*** is a large, long-lived, rainforest tree also in the bean family (Fabaceae) that does well in poor soils. Its seedling leaves go through dramatic color changes from pink to chocolate-brown to green.

***Ficus grossularioides***  
*Ficus* is Latin for edible fig; *grossularioides* means like a gooseberry.

***Freycinetia javanica***  
Louis Claude De Saulses de Freycinet was a 19th century French navigator. In 1817, he explored Australasia and the Pacific, sailing around the world for three years.

***Intsia palembanica***  
*Intsia* is from an Indian name; *palembanica* refers to Palembang, Sumatra, one place where this timber tree is found.

***Kopsia singapurensis***  
*Kopsia* is named for Jan Kops, an 18th century Dutch Mennonite minister, botanist and agronomist. He founded

the journal *Flora Batava*. *Singapurensis* means from Singapore (but also Western Malaysia).

***Poikilospermum suaveolens***  
*Suaveolens* means sweet-scented.

***Sindora coriacea***  
*Sindora* is a Malay name; *coriacea* means leathery.

***Tetrastigma rafflesiae***  
*Tetra* means four, so the genus name means four stigmas; *rafflesiae* refers to the parasitic *Rafflesia* genus that grows only within a *Tetrastigma* vine.

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# 'Garden Islands of the Great East'

Reviewed by Georgia Tasker

Reading Dr. David Fairchild's "Garden Islands of the Great East," published in 1943, is like listening to your favorite grandfather: His tone is gentle, a little world-weary, but happy to look back on a life well-lived. The sense of adventure still resonates, the complete delight in those tropical islands is undiminished, yet Fairchild worries repeatedly about what civilization will unleash going forward, especially with World War II nipping at his heels.

This written account of the *Cheng Ho* expedition takes David and Marian Fairchild from Miami to Los Angeles and then on to Japan aboard the *Laura Maersk*, a cargo boat. A typhoon struck the boat, and it was Marian who described it in a letter home: "Two or three times a wave hit the boat with such a stunning blow that she stopped and quivered all over." What a wonderful image.


After reaching Yokohama, they traveled by train to Tokyo and Kyoto, found the *Laura Maersk* again and sailed to Shanghai, then on to the Philippines, and finally to the *Cheng Ho* in Manila harbor. A laboratory amidships had been specially equipped for Dr. Fairchild, who wrote: "When I entered the laboratory, four walls seemed to shut out the sea and furnish a seclusion in which I saw at once I was going to have the time of my life."

And so he did. He knew scientists and horticulturists everywhere, it seems, and stopped to see their gardens and experiment stations and marvel at every new thing, from coconut-eating crabs to a "big black ant [that] stood on its head and when I tried to get a

near view of it with my hand lens, shot at me a stream of fluid that smelled of formic acid." Yet, Fairchild's focus remained ornamental plants for introduction into South Florida.

It is the man's genuine curiosity and gleeful astonishment at the beauty he beholds that glow throughout "Garden Islands." He is nearly rapturous over groups of *Pigafettia* palms, writing, "The sunlight gilded them and made them very beautiful indeed. ... From that moment on, I became unreasonable in my admiration for this tree and I have remained so to this day."

For plant lovers, this account is a delight. And it is doubly so if you have traveled at all among these glorious islands. For adventure seekers, there are the episodes of Calamity Sunday, when the junk's engine room caught fire, after which Fairchild fell and wounded his leg. The day after the expedition in Ambon, Indonesia (a part of the Moluccas then called Amboina), Germany invaded Holland, and "every German in the whole Dutch East Indies was ordered arrested." Detained for several days, the Fairchild entourage eventually was ordered to depart for the Philippines without stopping at the island of Batjan. As the order mentioned only one island, our plant collectors kept close to shore on the way to the Philippines, risking a few quick runs to island shores to see what they could find.

The expedition was an adventure, and this book captures it, in David Fairchild's own words. One expects no less from this great plant explorer. 



# Indebted to Indonesia: Growing Fruit from Far-off Lands

Text and photos by Kenneth Setzer

We owe quite a bit to plant explorers who have introduced new food to our tables after exploring the Indonesian Archipelago and the entire Indo-Malay Peninsula. That region, a Mecca for plant explorers and naturalists for centuries, has added much to our previously more-limited Western diets.

**PREVIOUS PAGE**

Piles of rambutan for sale in New York City's Chinatown. Fifty cents each, no picking!

**BELOW**

The mangosteen, queen of tropical fruits

While some Asian fruits have become more common here, many remain exotic and hard to find due to difficulties growing or shipping them, or because of hesitation on our part to try novel foods. But there are many Southeast Asian fruits we can grow for ourselves.

We've got longan, golden apple, Malay apple, rambutan, starfruit, durian and others to choose from. One Southeast Asian fruit in particular was beloved by Dr. David Fairchild: the mangosteen, *Garcinia mangostana*. Not closely related to mango, it's actually in a completely different plant family. Mangosteen prefers at least about 50 inches of rain annually, which South Florida can provide, along with subtropical quantities of sun.

The Ping-Pong ball-sized purple fruit contain six to eight translucent white segments similar to an orange; each may contain a seed. The taste has been described as a wild combination of tropical fruit, but I have noted it as tasting like a "buttery kiwi."

Mangosteen has the reputation of being truly tropical and very cold-sensitive. Yet, in the monumental "Five Decades with Tropical Fruit," by William F. Whitman (for whom Fairchild's William F. Whitman Tropical Fruit Pavilion is named), a grower in Taiwan—which has a climate similar to South Florida's—noted that mangosteens remained unaffected even during evening chills of 30 F, while breadfruit and durian were killed. Other reports, however, noted that even brief low temperatures eventually proved lethal to mangosteens.

Can it be our soil? Mangosteens seem to dislike limestone and prefer loam, a humusy mixture of sand and clay. This can be remedied to a degree, if you're willing to replace native soil to a good depth. Because it has a long and delicate taproot, container growing is not likely to work for long, and because of the taproot, mangosteens are difficult to transplant. This may all seem discouraging, but for the ambitious fruit lover, let it be a challenge.




Now on to easier fruit. Carambola (*Averrhoa carambola*), aka starfruit, is likely native to Indonesia and surrounding regions. This pretty, compact tree fruits prodigiously and grows throughout tropical America, the Caribbean and South Florida. It's a sun worshipper and loves plenty of rain; soil type isn't critical, but swampy conditions are best avoided. Carambola may flower and fruit throughout the year. Underripe fruit are bitter; ripe fruit are golden and taste mildly of apples. Serve slices of starfruit to your out-of-town guests to blow their minds.

A close relative of starfruit is bilimbi (*Averrhoa bilimbi*). Also tolerant of our soil, the bilimbi is not commonly cultivated. It's a bit cold-sensitive, but Fairchild's thrives outdoors near its carambola cousin. Bilimbi stays about 10 feet to 12 feet tall, and fruits cauliflorously (from the trunk) in clusters of bright green cylinder-shaped fruit. They taste intensely tart. Remember cartoons where the victim was fed alum to shrink its mouth from the bitterness? That's bilimbi, raw. In Asia it is cooked into Sayur Asem soup, among other dishes.

Rambutan (also mentioned by Whitman as thriving in Taiwan) is also likely too cold-sensitive to be grown in Florida. The fruit looks like a red, tentacled sea creature; the translucent white, delicious, mildly nutty meat is within. Rambutan is easy to find in local Asian markets.

Golden apple, or ambarella (*Spondias cytherea*) thrives as a dwarf variety tree at Fairchild. It fruits without fail and is noted as requiring little care. Its round fruit mature to a golden brown. The sample I tried was underripe and fairly bland, but in general they should mature to be a little tart to sweet. It's incorporated into all kinds of Asian and Caribbean cooking. Fairchild's grows outdoors under full sun and doesn't even flinch at limestone soil.

Malay apple and rose apple (*Syzygium malaccense* and *S. aqueum*) thrive as an espaliered tunnel outdoors at Fairchild, and I have seen them fruit. The espalier is a great strategy for growing fruit in a limited or unusual space.

Now, like a garden running out of space, I must conclude. And I haven't even gotten started on the stinky durian fruit, which my colleague tells me tastes like heaven. 

# A Plant Discussion Stretching More Than Four Centuries

By Georgia Tasker

The first tropical flora was written in the 17<sup>th</sup> century by a former soldier stationed on the island of Ambon in the Moluccas (an archipelago within Indonesia). The discovery of plants from that region continued through Dr. David Fairchild's *Cheng Ho* expedition and now stretches to the 2016 Fairchild Tropical Botanic Garden expedition that retraced part of the *Cheng Ho* journey.



Dr. E. D. Merrill

**B**efore launching the Fairchild Tropical Garden Expedition aboard the *Cheng Ho*, Dr. David Fairchild did his homework. He wrote to his friend Dr. E. D. Merrill asking for information on plants he might find in the Moluccas, a region of Indonesia, then called the Spice Islands. Merrill, who had spent 22 years as a botanist in the Philippines and was then administrator of the botanical collections at Harvard University, responded: "I'm afraid there isn't anything doing on the Moluccas. There isn't a flora or even a list published on this group. ... After all, old Rumphius on Amboina is the best bet for he has pictures, many of them distinctly good; and he illustrated most of the lowland and coastal types."

## **Rumphius' *Herbarium Amboinense***

"Old Rumphius of Amboina" was Georg Eberhard Rumphius. His *Herbarium Amboinense*, published in 1741 (after Rumphius' death), catalogued 1,200 species of plants in the Spice Islands. In his letter to Fairchild, Merrill noted that he had written an interpretation of the species that Rumphius

described in his herbal, adding, "you could probably borrow a copy from Washington. As to the coastal flora, there is very little in that Moluccas that isn't in Java and in the Philippines."

Today, that interpretation of *Herbarium Amboinense* is online, thanks to the Biodiversity Heritage Library. Merrill attempted to identify and correct the botanical names given to plants by Rumphius, as did several other taxonomists, including Carl Linnaeus.

While many corrections have been made to the *Herbarium Amboinense* over the centuries, Rumphius' endeavor to describe what he found was breathtaking in its scope. His work on the *Herbarium* covered much of his adult life, which was marked by tragedies. Born in Germany, Rumphius went to the Moluccas as a soldier in service of the VOC – the Dutch East Indies Company, which dominated the spice trade. When he landed on the island of Ambon, he became so fascinated with everything he saw that he requested to be assigned to the civilian arm of

wood  
leaf

the VOC and began describing what would become his herbal, the first tropical flora of Indonesia (including the first description of ant/plant symbiosis), as well as natural history notes in “The Amboenese Curiosity Cabinet.” Misfortune struck again and again, however. Rumphius lost his eyesight; his wife and daughter were killed in a tsunami; a fire destroyed his manuscript, but he reworked it from memory; the final version was sent to Europe but the ship sank. Fortunately, a copy had been made, but even then it was published only after Rumphius’ death.



Nonetheless, *Herbarium Amboinense* was a seminal work. Fairchild mentions in “Garden Islands of the Great East” that the herbal “took rank immediately as the most remarkable work of its time, descriptions which stand today as models of accuracy and care. I had aboard the Junk [the *Cheng Ho*] a bibliofilm of Dr. Merrill’s interpretation of Rumphius’s described plants.” While in Amboina, Fairchild posed by a monument to Rumphius, as did members of the Garden’s recent expedition to Indonesia.

Rumphius’ Amboinensis herbal, in fact, is so important to the history of botany that the late Monty Beekman, professor emeritus of Germanic languages at the University of Massachusetts, Amherst, translated the herbal from the original Old Dutch, beginning in 2000. He finished the six-volume work in 2008, just prior to his death. He received the David Fairchild Medal posthumously for his monumental work.



**TOP-BOTTOM**

Dr. David Fairchild with a marker commemorating the first Ambon naturalist, Georg Eberhard Rumphius. The marker was destroyed less than two years later during the World War II Battle of Ambon and was rebuilt after the war.

Photo by Edward Beckwith. Archives/FTBG

(L-R) Jason Lopez, Jack Hahn, Jill Menzel, Jean Stark, Craig Morel, Danielle Varzaly, Jon Naviaux, Lynda LaRocca, Anne Kilkenny, Victor Fasano, Steve Foreman, Stephanie Thorman, Lise Dowd, Mike McCaffery, Adair Reeve, Chad Husby, Cheryl Solomon, Carl Lewis and Mike Reeve with the rebuilt marker, Ambon City, Indonesia.

Photo by Eva Villagrasa/SeaTrek


**Botanical Collecting**

Merrill, who also had labored long over the Amboinensis herbal, wrote another letter to Fairchild prior to his expedition, saying, “although I know that you abhor botanical collecting ... there is no reason why young [Hugo] Curran, who I understand is with you, should not do a good job. Grab everything in flower or fruit whenever opportunity offers and who knows but what there may be a Fairchildiodendron or an Archboldiana

among the novelties, for no one can do much collecting in the Moluccas without getting at least a number of new species, and in all probability some new genera.”

Merrill also recommended that the *Cheng Ho* collect plants found on limestone foundations because they should thrive in South Florida. Additionally, in a missive several months later, Merrill noted, “The entire group of islands south of the Philippines and extending from Borneo to the western tip of New Guinea are very inadequately explored. The Dutch concentrated on Java and left the outer islands largely alone until well into the present century ... and yet they have only scratched the surface.”

Despite being cut short by World War II, the *Cheng Ho* adventure recorded more than 500 different kinds of seeds collected. Merrill, alas, was plainly unhappy about what was sent to him, calling it “fragmentary.” He wrote to Dr. Fairchild: “I shall put none of the scraps and none of the sterile material in the herbarium for it is quite worthless for study purposes; all the more to be regretted because at the time the specimens were prepared fruits were available in most cases. Manifestly conditions of the *Cheng Ho* were not conducive to the collection of botanical specimens.”

Merrill asked an important question of Fairchild: “Now, what are you going to do for the names for the several hundred seed numbers collected for which there are no vouchers?” In South Florida, the answer was to plant them. Some of the *Cheng Ho*’s collected plants still thrive at the Garden. Our horticulturist, Jason Lopez, has written about the Fairchild plants and occasionally gives a walking tour to find them. They include these nine taxa: *Capparis micrantha* var. *henryi* in plot 27; *Diospyros maritima*, plot 35, collected as seed on the island of El Templo; *Ficus subcordata*, plot 28, now referred to as Fairchild’s fig, from the Philippines; *Barringtonia racemosa*, plot 55a, collected as seed in Luzon, Philippines; *Sterculia ceramica*, plot 61, from Lembek Island—second-generation trees that were taken as cuttings before the original died; *Premna odorata*, plot 51, a shrub from the Celebes; *Pittosporum moluccanum*, plot 23; *Nauclea orientalis*, plot 28, from Luzon, Philippines; and *Arenga tremula*, a palm in plots 70 and 149. 

(See plot map on page 62)



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## IN MEMORIAM



# Bob Brennan

By Jason F. Lopez

Our Garden, and the greater community around us, lost a treasure late last year. My friend, Robert J. Brennan, known to most as simply “Bob,” was the Garden’s always good-natured arborist and noblest supporter of trees. That great and kindest of men, who was considerate of everyone and always stopped to help, no matter the trouble, leaves a legacy in our hearts and minds that few can rival. It is comforting to know he peacefully passed away at home, surrounded by family and friends.

Bob had a way of always making you feel cared for. He listened. He acknowledged individuals, yet treated everyone the same. I loved his responses to common greetings. Ask him how he was doing, and he’d say, “Better now.” Tell him it was good to see him, and he’d respond, “It’s good to be seen!”

If you talked to Bob enough you knew he was an original nut raised in Coconut Grove and that he was still buddies with some pretty colorful folks from high school. You’d hear about sailing Biscayne Bay as a kid and about the Eagle Scouts. He talked about the people he’d performed with in flash mob versions of the “Thriller” dance, and often about all things related to his career with people and their trees. Bob worked hard to constantly teach and promote the profession of arboriculture and was quite proud of founding the Tropical Arborist Guild. More than anything, though, he loved and talked most about his lovely wife and three grown kids.

Bob’s stories about the people in his life, family and old friends came alive at his memorial. It was held on a beautiful sunny day in the Arboretum under the big *Ficus*. Literally hundreds and hundreds of his admirers, including a flock of Ibis, came out to share in and celebrate Bob’s love and decency.

We miss you, buddy.



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## IN MEMORIAM



# Dr. T. Hunter Pryor

By Georgia Tasker

Dr. T. Hunter Pryor, a Garden trustee for more than a quarter of a century, passed away on November 19, 2016, leaving a legacy of devoted service.

Slender and soft-spoken, Pryor always had a warm smile and a caring demeanor. A radiologist at Baptist Hospital, he grew up in Jonesboro, Arkansas, and retained his Southern accent and charm. He graduated from Vanderbilt University and earned his medical degree from the University of Pennsylvania. Pryor then came to Miami for his residency at Jackson Memorial Hospital. Here, he met his wife of 60 years, Janice.

A love of nature and the outdoors drew Pryor to Fairchild, where he became a member of the board of trustees beginning in 1980. He served as president of the board from 1988 to 1991, and remained on the board until 2014, after which he was a trustee emeritus. He also received the Garden's highest environmental honor, the Barbour Medal.

"I would call Hunter Pryor the modern father of Fairchild," says Bruce Greer, chairman of the board. "He was the most important president of the board of trustees in the modern era. Under his leadership, the Tropical Fruit Program was initiated, as well as a new concentration on education."

Hunter and Janice Pryor moved to Snapper Creek in 1965, and together they landscaped their property, building embankments from the lake and planting fruit and flowering trees. "His twin passions were horticulture and preservation," says Beth Pryor Johnson, one of Hunter Pryor's daughters. She also remembers that her father would take her and her sisters to Tropical Audubon Society meetings so they could learn about preservation of natural resources.

"Hunter's energy and wisdom will be missed," Greer says.

Pryor is survived by his wife of 60 years, Janice Cresap Pryor; a sister, Isabel Hendrix; his three daughters, Beth (Ethan) Johnson, Melissa Pryor and Sarah (Greg) Johnson; and his beloved grandchildren: Sarah, Austin, Whit, Hunter, Alex, Pryor and Jett.

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## FALL GARDEN FESTIVAL FEATURING THE 76<sup>TH</sup> ANNUAL RAMBLE

The Fall Garden Festival featuring the 76<sup>th</sup> Annual Ramble offered delicious fall food and activities for the whole family. Antiques, collectibles and rare books were abundant, along with a range of plants at the plant sale. South Florida-based guilds presented their handcrafted and eco-friendly works, including ceramics, jewelry and furniture. Delicious fall treats were served at Nell's Tea Garden, while gourmet food trucks and vendors offered eating and buying options.



## ART AT FAIRCHILD: 'LANDSCAPE PHOTOGRAPHY' ON LOAN FROM THE MARGULIES COLLECTION

Fairchild welcomed Miami's cultural season with the start of the 2016-2017 Art at Fairchild in December. Culled from the Martin Z. Margulies Photography Collection and curated by Katherine Hinds, "Landscape Photography" showcases the work of 22 artists from around the world. Inspired by Fairchild's mission, history and landscape, Margulies and Hinds focused on symmetry to showcase photographs that reflect the Garden. The exhibit will be on view daily until March 27, 2017.

## Feedback

We are introducing an opportunity to share your comments on our work, our magazine, our Garden.

Please send your emails to [TheTropicalGarden@fairchildgarden.org](mailto:TheTropicalGarden@fairchildgarden.org), tweet @Fairchildgarden, or send letters to Georgia Tasker, 10901 Old Cutler Road Coral Gables, FL 33156.

*The Tropical Garden* was honored for its work in 2015. See page 61.



## 6<sup>TH</sup> ANNUAL SPLENDOR IN THE GARDEN

Fairchild hosted an afternoon of fashion and philanthropy at the 6<sup>th</sup> Annual Splendor in the Garden Fashion Show & Luncheon. Neiman Marcus Senior VP Ken Downing presented a lakeside runway show featuring the newest trends for spring 2017, while visitors enjoyed a champagne reception and gourmet lunch surrounded by tropical beauty. The Garden also recognized the 2017 Fairchild Philanthropy Honorees: Susan Smith Abraham, Silvia Fortun, Felicia Marie Knaul, Marile Lopez, Daysi Johansson, Marisa Toccin Lucas, Brittany Lopez Slater and Ana VeigaMilton.



## SUNDAY SOUNDS

Visitors enjoyed live tunes performed by students of the University of Miami Frost School of Music during Sunday Sounds at the Glasshouse Café. Each month, groups of young musicians played a diverse repertoire of styles and delighted audiences of all ages.



## HOLIDAY CONCERT AT FAIRCHILD

In December, renowned conductor Brett Karlin led the Fairchild Holiday Orchestra through a repertoire of winter-themed music at the Holiday Concert. The band performed a mix of new and classical favorites to usher in the winter season.



## THE 11<sup>TH</sup> ANNUAL INTERNATIONAL CHOCOLATE FESTIVAL

The community celebrated all things chocolate at Fairchild's sweetest event, the 11<sup>th</sup> Annual International Chocolate Festival. Experts from all over the globe spoke to visitors about the chocolate industry in their countries, including special guests from Ecuadorian chocolate maker Pacari. In addition to learning how sweet treats are made in the interactive Living History of Cacao and Chocolate Tent, visitors sampled delicious treats from artisan chocolatiers and took a ChocoWalk to see cacao pods growing in the Richard H. Simons Rainforest.



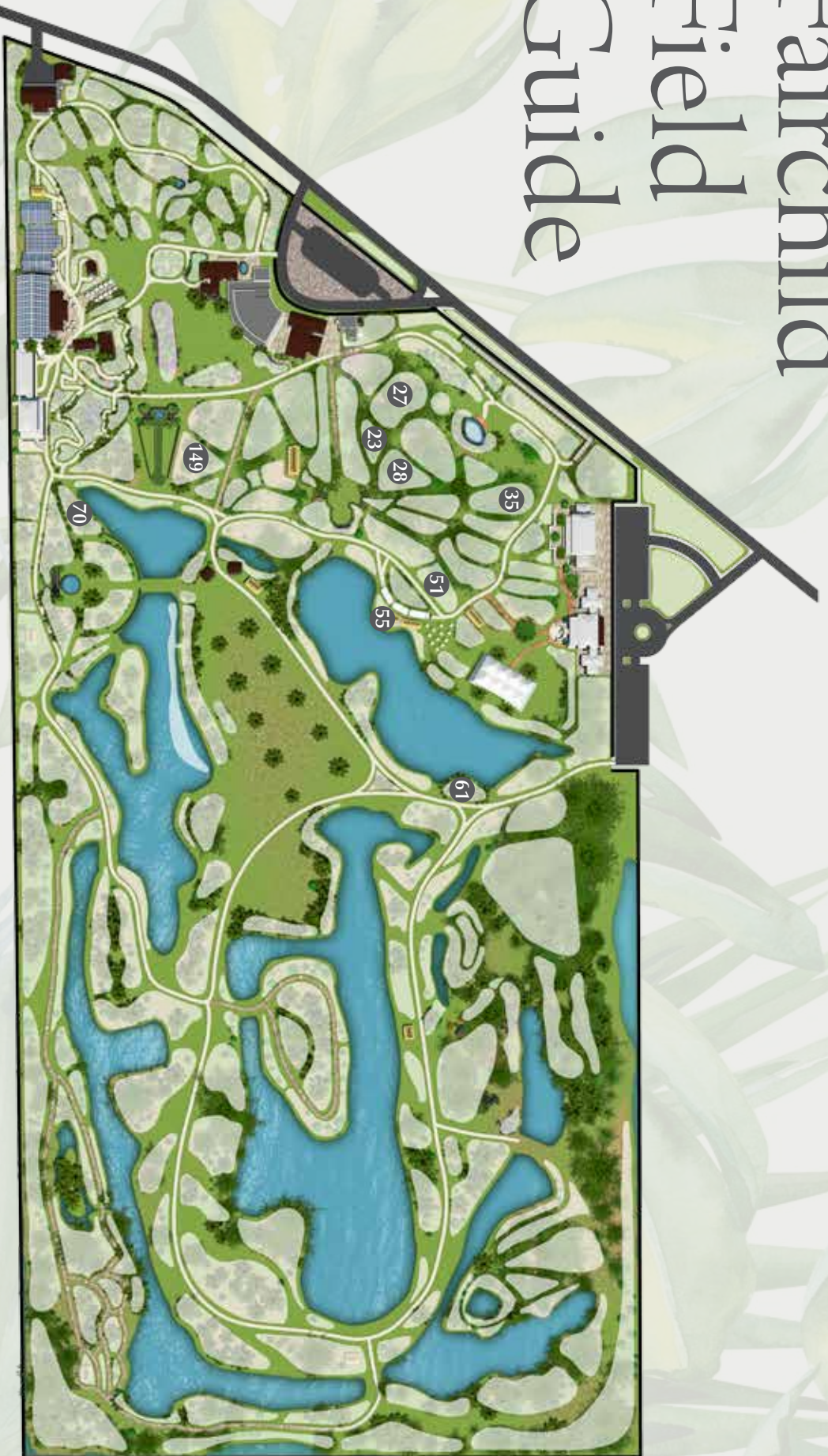
## THE TROPICAL GARDEN EARNS FLORIDA MAGAZINE ASSOCIATION AWARD

The Florida Magazine Association Inc., founded in 1953, is the largest state magazine association in the nation. It promotes excellence in the Florida publishing industry. Open to individuals and companies that produce print and digital magazines, FMA sponsors educational workshops, an annual conference and professional awards.

*The Tropical Garden* received the following awards for work in 2015:  
**Charlie Award** for design excellence, best department design, for "Begonias: Beyond the Windowsill Houseplant," published Summer 2015  
**Silver Award** for writing excellence, best feature, for "Charles Torrey Simpson," Summer 2015  
**Bronze Award** for best overall writing, Spring 2015



# Fairchild Field Guide



What is a plot map? A graphic aid showing divisions of the garden where particular plants are located. Plant families at Fairchild generally are found together. Our plots are numbered, and when specific plants are mentioned in The Tropical Garden articles, we will highlight those locations on this page should you wish to look at them personally.



15<sup>TH</sup> ANNUAL INTERNATIONAL

# Orchid Festival

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