Montgomery Botanical Spring/Summer 2028 NEWS Volume 31, Number 1

Collaboration with China, 30 Years Later pages 6-7

> Cycad Discovery page 3

Remote Island Palms pages 4, 5, & 8

Advancing Research, Conservation, and Education through Scientific Plant Collections

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To advance science, education & conservation of tropical plants, emphasizing palms and cycads, Montgomery Botanical Center grows living plants from around the world in population-based, documented, scientific collections in a 120-acre botanical garden exemplifying excellent landscape design.

Montgomery Botanical Center is a tax-exempt, nonprofit institution established by Eleanor "Nell" Montgomery Jennings in memory of her husband, Colonel Robert H. Montgomery, and his love of palms and cycads.

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From the Executive Director

Dear Friends,

ow does our garden grow? Soil, water and sunlight; season after season of sustained work; careful planning; & carefully following those plans. Our landscape results from vision followed over decades – just see our Palm Walk, designed by Joe Hibbard in 1992; three decades later, we <u>still</u> follow Joe's guidance on where each palm can best fit the view – as seen on pages 10 and 11.

Gardens are long term projects, and should be better understood as COMMITMENTS. We feature a great example on pages 6 and 7 – our work with China over 30 years ago. The same year we made our Master Plan, we also populated that plan with important, irreplaceable plants.

The building block of the landscape is the plant itself – the center of our work is bringing those cherished palms and cycads to the garden. Integrating plant collection with scientific research strengthens both botany and the landscape.

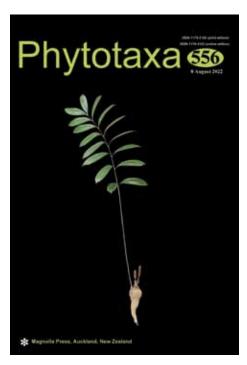
So I am indebted to Dr. Yang and Dr. Walters for finding these amazing cycads, plants which have done so much for Montgomery for so long. Their work is an inspiration for our efforts today, as shown on pages 3, 4, 5, and 8 – thirty years from now, the seeds we now sow will inspire future botanists. All of this is only possible through your generosity and encouragement; pages 10 and 11 show how amazing your support continues to be!

Now, to answer that first question directly: *by great people working together*. Nothing contrary!

Pictured: Dr. Griffith with *Chamaerops humilis* var. *argentea*, in the High Atlas Mountains of Morocco (discussed in a future issue). **On the Cover:** Dr. Si-Lin Yang (right) with a very large trunk of *Cycas hainanensis*, at the Diao-Luo-Shan Nature Reserve, 1992 (See pages 6-7).

A New Zamia species from the Orinoquía region of Colombia

Zamia muricata was described in 1806 by German botanist Carl Ludwig Wildenow based on material collected by Alexander von Humboldt in Puerto Cabello, Venezuela. It was the first South American species of Zamia to be described, and plants from Venezuela are relatively common in cultivation, as the species has been in cultivation for centuries. Other plants assigned to this species occurring in the Orinoquía region of neighboring Colombia had been rarely collected and remained enigmatic for decades due to a paucity of fertile specimen collections and a lack of targeted field research. Fortunately, the recent discovery of viable Zamia populations in the Orinoquía region in the Colombian department of Cundinamarca by researchers

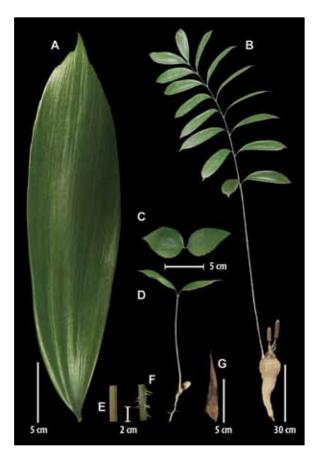


of the Universidad Nacional de Colombia allowed us to study these plants in detail and to compare them to Venezuelan populations of Z. muricata. This fieldwork. undertaken in collaboration with researchers from multiple Colombian and Venezuelan institutions (Universidad Nacional de Colombia, Sociedad Colombiana de Cycadas, Universidad de

Phytotaxa cover featuring Z. orinoquiensis.

Antioquia, and PORT herbarium), allowed us to determine these plants were morphologically distinct from *Z. muricata*. These plants are in fact a new species that we described and named *Z. orinoquiensis* in reference to the Orinoquía region of Colombia where this species exclusively occurs. The paper describing this species and clarifying the circumscription of *Z. muricata* was published in the journal PHYTOTAXA where it is freely available to download (biotaxa.org).

Michael Calonje, MBC Cycad Biologist michaelc@montgomerybotanical.org





Cristina Lopez-Gallego and Michael Calonje with *Z. orinoquiensis*.

Remote Ronier Palms

Rising on the Equator from the Gulf of Guinea, the Island of Sao Tome gives home to a remote stand of Ronier Palm, *Borassus aethiopum*. This majestic, giant palm species is widespread in Africa, but confined to a single savanna on the northern edge of this isle. Early botanists noted its occurrence on Sao Tome, but as in many cases, specimens were simply not in museums – too hard to collect a palm with such huge leaves, held so high!

To remedy this lack of information, we formed an international team, and over the course of several days, we documented these massive plants – making the first specimens of Sao Tome's Ronier for any herbaria, depositing these in Sao Tome and Geneva for future studies. Seeds from these giants have now germinated at Montgomery, and I look forward to the day they tower above us like their mothers, adding impressive stature to our landscape.

We note with alarm that the once-natural savanna fires are now too frequent and too intense – fast-growing exotic grasses heighten these blazes and refuel the next one too quickly. We saw venerable palms with narrow, charcoal bases, vulnerable to being toppled, and some unfortunates that were already brought low. Perhaps growing these palms in a local nursery, or preventing further fires would help to preserve the palm.

Background: Few remaining Ronier Palms stand on a hilly savanna overlooking the Atlantic.



I am grateful to my colleagues: Pascoual de Souza, Dilson Yordanis Madre Deus, and Maria do Ceu Madureira of Tesouros de'Obo, together with Fred Stauffer and Didier Roguet of the Conservatoire et Jardin botaniques de Genève. The Herbário Nacional de São Tomé e Príncipe and the Direcção das Florestas e da Biodiversidade graciously offered permission to conduct these studies, funded by Montgomery's PLANT EXPLORATION FUND.

M. Patrick Griffith, MBC Executive Director patrick@montgomerybotanical.org



China 1992, 1993 and 1994 Cycad Expeditions: 30 years of growing success

More than three decades ago, Montgomery developed an important partnership – Terrence Walters and Dr. Si-Lin Yang painstakingly built plans via fax and mail, in an age of slow communication.

Their diligent efforts – 13 months of correspondence across 13 time zones – finally bore results in September 1992, when Terrence arrived in the People's Republic of China for the Montgomery Foundation's research expedition.

Because of Si-Lin's negotiating skill and persistence, the team was able to access many areas long closed to foreign botanists. They returned with hundreds of seeds for our garden, numerous photographs, huge amounts of field data, and a greatly enhanced understanding of these ancient and beautiful plants.

The first of three major cycad expeditions in China, this large-scale field project brought tremendous insight to the biology, ecology, and conservation status of the diverse Cycas species, and also provided unique, irreplaceable diversity for the landscape at Montgomery Botanical Center. Subsequent projects in 1993 and 1994 built upon these successes, describing new species and adding to the beauty of gardens in Florida, China and beyond.

Only 13 cycad species were known to the entire region prior to the expeditions. Astonishingly, 12 new Cycas species were discovered in China, 21 more from Vietnam and 7 more from Thailand. At Montgomery, these irreplaceable plants have been used in numerous studies over the past three decades, informing phylogeny, conservation biology, pollination biology, and biogeography. Additionally, the plants have served in an educational role in innumerable field trips, tours, and botanical lessons. These cycads are truly LIVING TREASURES, and like any treasury their value compounds over time as they continue to grow and thrive, inspire and inform us, and beautify our garden. Dr. Si-Lin Yang and Mrs. Hong Yang (pictured at Montgomery in 2022) with a plant of *Cycas hongheensis* – an exceedingly rare species with perhaps only about 10 plants in cultivation. Dr. Yang described this new species based on his field collaboration with Montgomery three decades ago – and at that time he also noted how horticultural collecting practices had inadvertently killed many plants. The native range of this species is now within a military reservation, and thus nearly impossible to return to again.



One of the *Cycas panzhihuaensis* plants from the expedition (pictured at Montgomery in 2015), with Dr. Yang Yongqiong, Director of the Panzhihua National Cycas Nature Reserve, the place from which the seed was collected. She was very happy to see these plants thriving in our care – we see her treehugging as an endorsement of our work!



The steep, rocky terrain of Xingyi, Guizhou (Background) contributes to its remoteness and isolation. This region is home to *Cycas guizhouensis*; only four plants were found after an extensive search – the 1992 report notes that this once abundant cycad was heavily harvested during the Cultural Revolution. The species now thrives in Montgomery's landscape (photo, 2023) where it has been used in numerous studies.

Seeking palms on remote islets

Recently, I joined experts from Jardin Botanico Rafael Moscoso (JBSD, Santo Domingo), University of Gothenburg (Sweden), Royal Botanic Gardens, Kew (UK), and The New York Botanical Garden to investigate rarely-seen *Coccothrinax* palms. The photo above shows how inaccessible these palms are – requiring a boat trip and a difficult climb through thick, sharp bromeliads – and also how excited we were to spot these rare finds. These palms are now much better documented, with specimens at JBSD and elsewhere, and seedlings at Montgomery. These palms are an important addition to our landscape.

This was one of many interesting palms we sought over the course of many days. I was also glad to participate in a conference on our work at Jardin Rafael Moscoso, sharing Montgomery's work. It was great to reconnect with friends from prior palm searches, and make new connections.

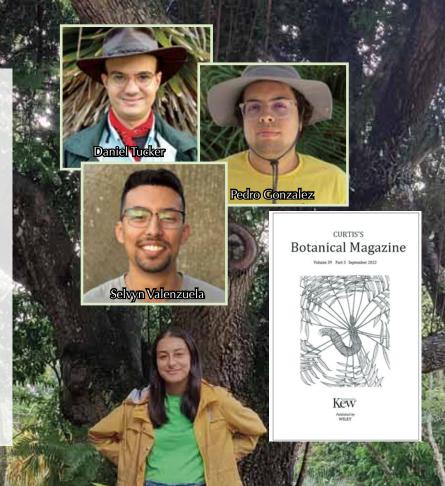
Xavier Gratacos, MBC Superintendent xavierg@montgomerybotanical.org

xavierg@montgomerybotanical.c

Theodore Clase, Christine Bacon, Pedro Nolasco Suarez Espino, and Xavier Gratacos at Jardin Botanico Rafael Moscoso

Team News

We welcome three new Conservation Horticulture Fellows for 2022-2023, all of which come highly recommended by the agroecology experts at Florida International University. Daniel Tucker, Pedro Gonzalez, and Selvyn Valenzuela bring talent, dedication, and skill to their work at Montgomery, and have already moved our soil testing, event management, and salinity monitoring to new levels. We are glad to have them on the team! Our 2021-2022 Conservation Horticulture Fellow Natalia Herrera-Blitman (pictured in the background) had her Fellowship project featured on the cover of Curtis's BOTANICAL MAGAZINE. She led an in-depth review of Zamia decumbens – a cycad species discovered by the Montgomery Team in 2009 – which included detailed history and conservation information, as well as original artwork capturing the beauty of this rare plant.



MONTGOMERY BOTANICAL CENTER 2022 COLLECTION INVENTORY

	Palms	Cycads	Other		Palms	Cycads	Other
Total Taxa	418	260	492	Total Plants	9,356	6,593	2,220
in ground	392	248	490	in ground	7,012	5,797	2,207
in nursery	85	52	6	in nursery	2,344	796	13
Total Accessions	2,290	1,828	1,869				
in ground	2,057	1,719	1,866		18,169 Plants !		
in nursery	292	178	6				
in ground in nursery	,	,			18,169 Plants !		

THANK YOU TO OUR 2022 VOLUNTEERS

Alexander Montessori School Carrollton School of the Sacred Heart Castro-Alves, Nina Coconut Grove Garden Club Danielson, Laurie Deery, Jaime Franks, Vanessa Gobaira, Lilia Gonzalez, David Griffith, Bella Griffith, Clara Griffith, Tonya Gulliver Academy Halderman, Michelle Hicks, Trish Jacobson, Kay Kraus, Mark Leverett, Lynn Levidis, Raziel

Loney, Dylan Lopez, Sarel Martin, Margaret Martin-Rami Fund Martinez, Eric Martinez, Julieta Martinez, Rafael MBC Board of Directors (page 2) Nghiem-Phu, Lan Noblick, Daniela Park, Lane Pincus, Linda Pulido, Valentina Underwood Sacher, Charles P. Street, Jansin Street, Michael UM HOPE UM Gandhi Day

Background: Zamia decumbens thrives in the shade of a Minusops caffra tree on the limestone escarpment at Montgomery, adding diversity to our landscape.

Montgomery gratefully acknowledges your unrestricted contributions in 2022

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JUDY KAY SEEDBANK AT MONTGOMERY: Planting the seeds for perpetual growth

Judy Kay (1946-2020) pioneered Montgomery's Seedbank program, recruiting many patrons, clients, volunteers, and stakeholders with her lively and engaging personality. The Seedbank at Montgomery was her passion, and she built the Seedbank from a vision into a successful and robust program.

Judy generously made a bequest to Montgomery. Investment income from Judy's generous gift now supports our Seedbank, allowing us to scout for, collect, clean, and distribute palm and cycad seeds to gardens, schools, nurseries, and researchers. Montgomery Botanical Center has now officially named its seedbank in honor of Judy's dedication, tireless efforts, amazing propagation skills, and generosity. We are deeply grateful for Judy's generous gift, and her vision.



Montgomery apologizes for any omissions or errors in accuracy

We Gratefully Acknowledge Your 2022 Support

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Background: The Lowland Palmetum at Montgomery features many palm species that thrive in the tropics. Originally included in William Lyman Phillips' 1961 General Plan for our landscape, the area was re-emphasized in Joe Hibbard's 1992 Master Plan, and continues to be refined annually with new palms according to our design process.

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FROM THE MONTGOMERY ARCHIVE

BOTANICAL COLLABORATIONS BETWEEN AMERICA AND CHINA

A fter extensive planning and preparation, Dr. Terrence Walters travelled to China to work with Dr. Si-Lin Yang for the 1992 Montgomery Foundation Research Expedition on the Cycads of China. Pictured here is Terrence with a school class in Xingyi, Guizhou, where Cycas guizhouensis is found.

The series of reports on the 1992, 1993 and 1994 Cycad Expeditions detail a very high level of serious and difficult fieldwork. In 1992, Terrence writes, *"My deepest gratitude goes to Si-Lin Yang, my official host for the expedition, my field guide, my translator, my photographer, my accountant, my sounding board, and in some instances, my bodyguard and doctor."* Here, Terrence refers to Dr. Yang's loyal care when Terrence became ill towards the end of the very full schedule. This was not an isolated event – Si-Lin describes how he and his wife Hong also fell ill one year later in November 1993 at the conclusion of the second expedition.

These reports consistently convey a rapid, whirlwind pace, exhaustive searches, and new discoveries, setting a very high bar for Plant Exploration. The projects were deeply successful at a botanical level, as shown on pages 6 and 7. But the collaboration had further impacts at a personal level, building friendships and changing the lives of the participants. Shortly after his 1992 expedition, Dr. Walters joined the Montgomery team as Executive Director, where he served until 2005. Dr. Yang, building upon his successes, joined the lab of Dr. Alan Meerow at Chapman Field Station. Dr. Yang has since gained great success in the genetic analysis industry, and now contributes his expertise to guide and foster further research and conservation of cycads.

