Montgomery Botanical NEWS

Advancing Research, Conservation, and Education through Scientific Plant Collections

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Searching High and Low for Palms

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

Montgomery Botanical Center is a tax-exempt, nonprofit institution established by 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,

This has been a GREAT summer!

We made TREMENDOUS effort in fieldwork this year. On page 3, Larry explores little known palms of French Guiana and Dominica. Michael and I searched for cycads in the Cayman Islands (page 6). And, Chad and I each worked to bring new *Sabal* species to Montgomery. Please wait for the next issue to read about those *Sabal* palms – we simply do not have space in these eight pages! But you can get a feel for Montgomery's truly GLOBAL reach from Ericka's report on page 6.

All of our diligent fieldwork leads to many new plants at Montgomery. Our team works very hard to integrate these into the garden. We are thrilled to have access to two new pieces of heavy equipment this year, which greatly increased our abilities – Lee updates us on page 7. I am grateful to Kelly Tractor and AGCO for this crucial in-kind support.

Two major federal agencies have also taken great interest in our work, and awarded two important grants, just since the last newsletter. The National Science Foundation and the Institute of Museum and Library Services have each provided funding to help advance our wonderful plant collection (see back cover).

And here is the big news: Our hard work at Montgomery earned a national award (see pages 4 and 5). Perhaps that's why I feel it's been the best summer ever – but in truth, that level of recognition takes decades. In our case, eight decades, since Colonel Montgomery planted the first palm here in 1932.

Why so many nice things in only a few short months? Our cherished new supporters now know what you've known all along – that we have a uniquely relevant, beautiful and vital collection of plants, and a stellar organization to care for them.

I look forward to seeing you here again soon!

Pictured: Dr. Griffith with *Zamia integrifolia* and *Coccothrinax proctori* on Little Cayman.

Palm Pursuits: Dominica and French Guiana

Searching High and Low

Dominica is a small mountainous island created by nine coalesced volcanoes. There has not been a major eruption since Columbus visited the island 5 centuries ago. Thus, the island has some of the best preserved tropical forests, some of the most massive trees in the eastern Caribbean and some of the tallest palms (see front cover).

There are nine native palm species on Dominica. Two are especially interesting because they have alternate forms quite different from each other. The first, *Prestoea acuminata* var. *montana* is very attractive, producing a strikingly beautiful red inflorescence with short branches. The alternate form has a less attractive cream colored inflorescence with longer branches.

At first I was positive that these were two different species, but the trees are nearly identical otherwise. Arlington James first thought that they were perhaps ecological variants because he

Larry beside a small stream with *Attalea degranvillei,* a swamp loving palm.

observed the red ones growing predominately along the ridge tops, but then, together, we found the two forms growing less than 4 feet apart. So the question still remains: Is this one species or two?

The two *Aiphanes minima* forms may be ecological variants. The lowland form grows near sea level, has a thick trunk, a large inflorescence with many branches and many fruit and a short, thick peduncle. The rainforest form that grows on or near the high altitude ridge tops has a thinner trunk, a small inflorescence with few branches and few fruits, and a long, slender peduncle. After measuring many specimens collected throughout the islands, Karen Laubengayer could find no statistical support to separate out two or more species, but the doubts still remain: One species or two?

The rainforest form of *Prestoea acuminata* var. *montana* has beautiful red inflorescences

Spiny and Spineless Palms

French Guiana is about the size of Maine with 73 species of palm growing in vast, often inaccessible forests. Last April I spent three weeks collecting at the height of the rainy season, which is also the height of the fruiting season. I explored the more accessible northern portion of the country and one remote locality in central French Guiana near the village of Saül, accessible only through its unpaved airstrip.

Many of the Guiana palms are spiny (*Acrocomia*, *Astrocaryum*, and *Bactris*). My objective was to collect any fruiting palms, including many species that we do not have at MBC and research some of the less spiny palms (*Attalea*, *Syagrus*).

In 1999, Glassman described four new species of acaulescent *Attalea* based mostly on measurements of only a few specimens that had been sent to him by a palm specialist in French Guiana. Recently another palm taxonomist lumped all four into just one species, *Attalea guianensis*. After my visit, I now suspect there are more than just one species in this *Attalea* complex. Pierre-Olivier Albano (of the local palm society) and I observed that one group only grows on flood plains and depressions, but never on the adjacent slopes. There is another group of the same complex that grows only on the slopes, but never invades these low wet depressions.

Half of the mystery was solved after I revisited the locality for *Attalea degranvillei*, one of Glassman's species, and discovered that it was the species that preferred wet depressions. I am still unsure how it differs from *A. guianensis*, because *A. guianensis* is not well known. Thus, further fieldwork is still needed!

Dr. Larry Noblick, Palm Biologist
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The forests of French Guiana hold many palm species not well understood.

National Award

Montgomery received the Horticultural Landmark Award from the American Society for Horticultural Science on August 4th 2012.

The award recognizes some of Montgomery's best strengths. Quoting from the ASHS:

> ". . . general criteria for consideration include: permanence of site; proper documentation of the horticultural collection, including origins; an underlying scientific basis for collections; [and] monitoring and labeling of plants."

This is a very significant achievement for Montgomery – previous recipients of this honor are few, and include some of the most prominent botanic gardens – The New York Botanical Garden (NYBG), Missouri Botanical Garden, and the Arnold Arboretum of Harvard University, for example.

In presenting the award, Dr. George Fitzpatrick, chair of the ASHS award committee, highlighted Colonel Robert Montgomery's record of significant philanthropy in support of plants, not only here at MBC, but at NYBG's Montgomery Conifer Collection, The Montgomery Pinetum in Greenwich, Connecticut, and the Montgomery Palmetum and Montgomery Library at Fairchild Tropical Botanic Garden.

ASHS Executive Director Dr. Michael Neff spoke to the recent contributions to plant science that are facilitated by MBC and its team. Award Committee member and Texas A&M Professor Dr. Michael Arnold offered examples of MBC's work to develop early-career horticulture professionals – including his own students.

The plaque presented by the ASHS features text that refers both to Montgomery's origins, and also the ongoing contributions made possible by the plants grown here. Dr. Karl Smiley, from the MBC Board of Directors,

Few gardens have received this honor

for Montgomery

perhaps explains it best: "This is an award that we here received today, but it is really the Colonel's award. Colonel Montgomery started the work that we are carrying on today."

To close the award ceremony, MBC Executive Director Dr. Patrick Griffith made brief remarks to acknowledge Montgomery's founders, board, staff, volunteers, colleagues, and supporters – and singled out the visiting scientists from Canada, Scotland, and New York saying, "As evidence that we have an exceptional plant collection, note that they are all here in Miami, in August."

Cayman Islands Cycads

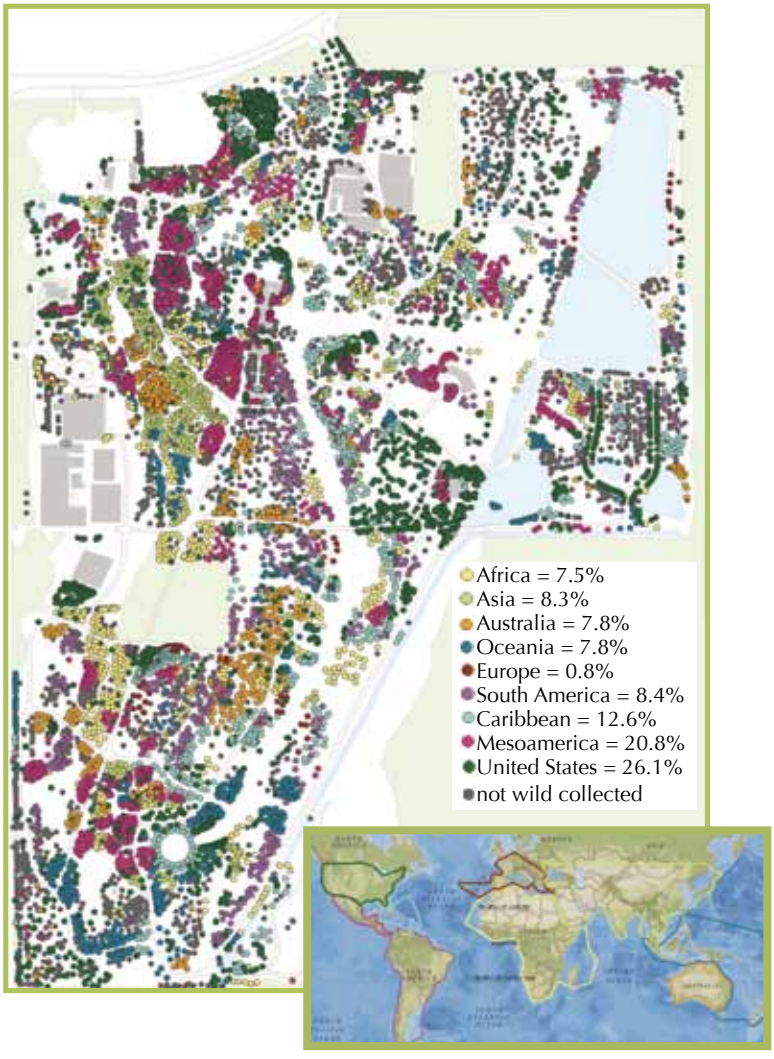
Montgomery worked with botanists in the Cayman Islands to survey, document and collect specimens of *Zamia integrifolia* this summer. As part of the Caribbean Zamia Project, leaflet samples from Grand Cayman, Little Cayman, and Cayman Brac – over 150 samples – were collected and prepared for DNA analysis.

Patrick Griffith and Michael Calonje are very grateful for the collaboration of John Lawrus from the Queen Elizabeth II Botanic Park, Fred Burton from the Blue Iguana Recovery Program, and Wallace Platts of the National Trust for the Cayman Islands, who each participated in fieldwork. With the help of these experts, the project team now has a complete sample of the genetic diversity in these island cycads, which are locally called 'bullrush.'

The Cayman Islands are biogeographically important, located south of Cuba and west of Jamaica. Many intriguing species are only found in these three remote islands, such as the Silver Thatch Palm, *Coccothrinax proctori*. Given this unique flora and geography, the bullrush from these islands is essential to understanding cycad diversity in the region.

The Caribbean Zamia Project is a collaborative effort led by FIU, USDA Chapman Field, NYBG, and Montgomery, along with collaborators throughout the Caribbean. Fieldwork in the Cayman Islands was funded by the National Science Foundation.

Michael Calonje photographing bullrush on Cayman Brac



The World at Montgomery

At Montgomery, provenance of the plant collections is of great importance, with nearly three-quarters of the plants of wild-collected origin. This represents much effort and a significant investment of resources. The map at the left gives a breakdown of the current geographic representation on the Montgomery property. Shown in this way, the global breadth of Montgomery's plant collection can be easily seen.

Where to conduct fieldwork depends on many factors: ability of the plants to grow in South Florida, permits, funding, accessibility, local expert knowledge, and number of taxa already in the collections. Once collected, material is catalogued and tracked in the nurseries until it is mature and ready to be planted. Sites are carefully chosen for the growth requirements of each species and overall landscape design. After planting, each specimen retains a unique number which corresponds to records in the database and a mapped location, which allows ongoing data to be collected over the life of the plant.

As habitats world-wide continue to be threatened, wild-collected material and the genetic depth and diversity it contains will increase in significance. Montgomery and other gardens act as lifeboats for these invaluable plants.

Ericka Witcher, Collections Supervisor
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New Machines for the Green: Kelly Tractor & AGCO help Montgomery

Developing and maintaining 120 acres with over 12,000 important plants requires significant work capacity. I am happy to report two major additions to the landscape fleet this year elevated that capacity exponentially.

First, a high-power skid loader driving a 24-inch auger made quick work of preparing planting sites for more than 900 palms, cycads and conifers in a broad spectrum of substrates ranging from solid limestone to sticky marl. Superficially, skid loaders have not changed distinctively since they first appeared in the late 1950s, but the latest model from Caterpillar was a joy to operate, especially with the air conditioned, ergonomic, noise-attenuating cab!

Hostilio Torres by Royal Lake with Massey Ferguson Tractor & the Batwing Mower.

Another welcome addition is an eleven-foot-wide "batwing" grooming mower towed by a 60 horsepower diesel Massey Ferguson tractor. MBC has about 45 acres of formal and semi-formal turfgrass features designed to enhance the presentation of the various collections as well as providing a safe and enticing venue for walking tours. For several years these areas were maintained by a speedy 33 horsepower 60-inch diesel rotary mower, once regarded as the "world's fastest mower." Perhaps it is, but the bottom line is that it took even our most skilled operator at least two days to complete the task of mowing the greens. With the new batwing mower the same tasks can be accomplished in 4 hours, with a finer final cut and the ancillary benefit of considerable less soil compaction since fewer passes with the machine are needed.

High Powered Skid Loader with Auger

High quality landscape and efficient use of staff time are always important goals at Montgomery. With the advice and assets of our supporters in construction and agriculture equipment, the Horticulture Team was able to take a quantum leap forward in efficiency and quality this year. Montgomery is very grateful to Kelly Tractor and AGCO for providing these wonderful machines.

Lee Anderson, Superintendent
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Team News

Please join us in welcoming the two newest members of our Montgomery Botanical Center Team.

Logan Barton was hired as our new Plant Health Specialist with the support of Patricia and Phillip Frost. He interned at MBC in the summer of 2006 and we are happy to welcome him back.

Christopher Chin is the new Research Fellow supported by the IMLS Museums for America Grant (see back cover) to work on *Zamia* conservation research at MBC in collaboration with the USDA-Subtropical Horticulture Research Station.

Logan Barton

Christopher Chin

Would you like to volunteer?
To volunteer to help
at Montgomery contact Tracy.
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CORAL GABLES
THE CITY BEAUTIFUL

FROM THE MONTGOMERY ARCHIVE

CORAL GABLES MUSEUM

The story of Montgomery Botanical Center will be on display at the Coral Gables Museum in January and February of 2013. Special tours and evening lectures will be given during the exhibit.

Montgomery Botanical Center has grown with Coral Gables, from a unique, out-of-the-way plant collection in 1932, to a thriving center for botany and horticulture, 80 years later. Coral Gables Museum will share the story of plant exploration by this nationally recognized living treasure.

Colonel Robert and Mrs. Nell Montgomery used the great photo on the left in their 1942 Christmas card, 70 years ago, showing the couple with their bicycles, enjoying the palm collection. Reflecting the events of the times, and their optimistic spirit, they wrote to friends and family: "Our affection and best wishes for you will never be rationed!"

This year Montgomery Botanical Center's important work is being supported by the Institute of Museum and Library Services (IMLS), and the National Science Foundation (NSF), for projects in collections management and conservation. The IMLS has awarded a grant to MBC to advance *Mission-Based Collections Planning*, in collaboration with USDA Chapman Field, and Botanic Gardens Conservation International. The NSF has awarded MBC a *Collections in Support of Biological Research* award, to support critical equipment to care for the plant collection. Please join us in thanking these two federal agencies for their commitment to botany and gardens.

INSTITUTE of Museum and Library SERVICES

NSF