

## Collecting the Collections

Letter from the Executive Director  
Terrence Walters, Ph.D.

*Since 1992, Montgomery has completed 32 expeditions worldwide. These expeditions have enabled us to develop well-documented, wild-collected, population-based collections of palms and cycads, which MBC is then able to offer to the scientific and educational communities. The process of obtaining the collections, however, is neither simple nor inexpensive. Planning, permitting, and conducting an expedition can take months to even years.*

*We have learned that overseas botany students and garden staff often have a difficult time getting funds for field investigations in their own countries. Consequently, we support the funding of these individuals, either to undertake collecting trips on their own or to become a partner with us on our expeditions. At the end of these forays, we typically donate about 50% of the seed collections and herbarium specimens to a botanical garden within the host country.*

*Once in the field, the first hurdle is locating and gaining access to a plant population, a process which can entail long hikes through thick vegetation in remote areas. When the plants are found, the hope is that they will have mature seeds, which often is not the case. If seeds are available, then we determine how accessible they are. After all, palm fruits can be several meters up in the top of a tree. Finally, we must decide how to sample a population so as to cover its genetic and morphological variation, while leaving enough seeds for future generations of the population.*

*For each population sample, full documentation and photographs are taken, including location, habitat description, and population structure. A herbarium voucher (a pressed plant) is made to allow other scientists to examine it in the future. Vouchering can take from 30 minutes up to 2 hours depending on the species. After fruits are collected and taken back to camp, the collector may spend the entire evening extracting the seeds and cleaning them. As an expedition continues from population to population, the pressed vouchers have to be monitored daily to ensure that the material is drying. Seeds also must be checked to see that they remain free of fungal pathogens.*

*Expeditions can be expensive, time-consuming, and strenuous, both for MBC staff and collaborators. The resulting germplasm, however, is what is needed to develop a worldclass research collection of palms and cycads. To this end, we will continue to develop cooperative and mutually beneficial relationships with botanical institutions worldwide.*

**Below:** Among our scientific visitors this year was Kimberly Johnson, M.D., a Research Associate at the National Tropical Botanic Garden in Hawaii. She stayed with us for two weeks in June while collecting cycad material for a study on neurotoxins. She is shown collecting a sample of *Cycas panzhihuaensis* from a plant grown from seed collected during MBC's & FTG's China 1992 Expedition.



**Above:** Executive Director Terrence Walters is shown speaking to members of the Central Florida Chapter of the International Palm Society (IPS) on February 6. The tour began in front of Nell's House, our administration building. Representatives of the French Chapter "Fous De Palmiers" of the IPS enjoyed our property in June, as did IPS Directors, who held their board meeting at MBC (see page 3). In the spring, Dr. Walters also gave tours and lectures to the Big Pine Key Botanical Society, the Coral Gables Historic Homeowners Association, the Miami Springs Garden Civic Association, the Kampong Overseers, and the Directors of the Dr. MacDonald Foundation.

## Visitors & Volunteers

**Right:** You won't see this at most botanical gardens—cutting down a mature plant for classroom study. In June, Harvard's Dr. Barry Tomlinson (left with chainsaw) and his students took down this coconut palm at MBC to study its structure in detail. Other classes using our collections in recent months included Florida International University's "Taxonomy of Tropical Plants," Duke University's "Angiosperm Phylogeny and Classification," University of Miami's "Field Methods in Geology," and University of Florida's "Tropical Botany." Not all of our educational outreach is to college students. On April 27, MBC's Larry Noblick described to 120 third-graders what it is like to be a botanist and to collect plants in the field. Coral Reef High School recognized Terrence Walters and Lee Anderson for their ongoing work with students.



**Left:** Master Gardeners of Dade County spend a Saturday a month helping out at MBC. Among their recent accomplishments—removing exotics from the natural area east of the Nursery Complex and planting oaks and palms west of the Nixon Smiley Meeting Room. Shown in a planting mode are (left to right) Renae Asher, Wilhemina Myerburg, Libby Mahaffee, Property Manager Lee Anderson, and Brenda Whitney. The Coral Gables Orchid Society and the South Florida Chapter of the International Palm Society volunteered their time to MBC this year also.

# Bringing Together the Palm People

A primary MBC goal is the support of the palm community—from the scientists who conduct palm research to the other experts, industries, and societies who participate in the greater “universe of palms.” To ensure that our palm collection is and remains top-notch, a Scientific Palm Council (at right, from left to right, are Dr. Barry Tomlinson, Dr. Alan Meerow, and Kurt Decker) was convened in February. After their on-site review, the council presented their recommendations for improvements and future actions to our staff and directors. We appreciate their efforts.

Over a two-day period in June, MBC hosted 25 directors of the International Palm Society (IPS) for their annual meeting. Activities included a reception, several communal meals, a tour of our palm collection by MBC’s Larry Noblick and Laurie Danielson, and lots of meetings. This event was followed by “Palm Symposium 99,” which was held nearby at Fairchild Tropical Garden.

Palm scientists continue their research at MBC. Earlier in the year, Fairchild’s Scott Zona planted a research plot of 180 plants of *Coccothrinax argentata* at MBC. His five- to ten-year study will evaluate whether populations from Dade, Broward, and Monroe Counties of Florida are morphologically different when grown under uniform conditions. Over the past year, Scott and Carl Lewis of Cornell University have collected leaf material from our palm collection for their study of the distribution of coumarins among palm species.

A new species of weevil has been found at Montgomery! Drs. Charles O’Brien and Peter Kovarik of the Florida A&M University found the weevil in the leaf-sheaths of our royal palms (*Roystonea regia*). MBC’s Austin Matheson and landscapers are collecting the leaf-sheaths as part of the ongoing investigation.

Another recent customer of our palm collection was Bob Riffle. He spent two days on the property photographing palms for a future tome tentatively entitled “A World Palm Encyclopedia.”

We are here to serve.



**Above:** Prior to an evening banquet for the IPS, the IPS Executive Committee got together in the living room of Nell’s House. From left to right are Natalie Uhl, Lynn McKamey, Phil Bergman, Horace Hobbs, Ross Wagner, Rolf Kyburz, Jim Cain, and Libby Besse. In the background are three palm-leaf arrangements created by MBC volunteer Mayna Hutchinson for the IPS events.



**Above:** Long but productive hours were spent by IPS board members in the Nixon Smiley Meeting Room. **Left:** MBC staff members (left to right) Vickie Murphy, Laurie Danielson, Judy Kay, Barbara Judd, and Terrence Walters attended “Palm Symposium 99” to hear a variety of palm-related talks, including one by MBC’s Dr. Larry Noblick. They are sporting MBC’s new staff shirts.



REACHING OUT

For decades, the most intensive research studies and conservation initiatives for cycads have taken place in southern Africa. In fact, of the eleven genera of cycads worldwide, the two genera endemic to the African continent, *Encephalartos* and *Stangeria*, are probably the best known from a biological, systematic, and conservation perspective. This scientific work has been accomplished by a diversity of individuals—from those at botanical institutions and universities in southern Africa to the local nursery growers, landscapers, and enthusiasts. Their commitment to this special group of plants stimulated the creation of the highly-regarded South Africa Cycad Society

Given their accomplishments, I wanted to revisit these individuals in South Africa (I had visited in 1993 during the Cycad Conference) to learn their secrets for success. I also wanted to share with them and their institutions the potential that Montgomery's palm and cycad collections have to offer to the African scientific community. So, in May, my wife, Deena, and I left for a month-long trip to southern Africa to exchange secrets with fellow cycad scientists, garden administrators, and other conservation-oriented folks.

Dr. John Donaldson, Research Scientist at Kirstenbosch and one of the leading cycad scientists in the world, was our host in Cape Town. Kirstenbosch (one of eight National Botanical Gardens in South Africa) is an outstanding garden set in an unusually beautiful setting—at the base of famous Table Mountain. The Kirstenbosch Cycad Collection is extensive, representing the majority of South African species. In addition to field studies of numerous species in the wild, Dr. Donaldson makes use of the garden's collection to promote the propagation, conservation, and horticultural care of these rare cycads. At my lecture to the garden's scientists and horticulturists, I focused on similar issues relevant to the scientific development of Montgomery's palm and cycad collections. Afterwards, Deena and I drove north to the quaint wine-producing town of Stellenbosch.

Dr. Piet Vorster, a botanist at the University of Stellenbosch, was our host in

this bucolic region just an hour outside of busy Cape Town. Dr. Vorster has undertaken extensive taxonomic research on many native South African cycads and continues to be a vital player in the country's extremely active cycad society. After meeting with various scientists, students, and the curator of the university's garden, I presented an hour-long talk which focused on Montgomery's developing database and mapping protocols.

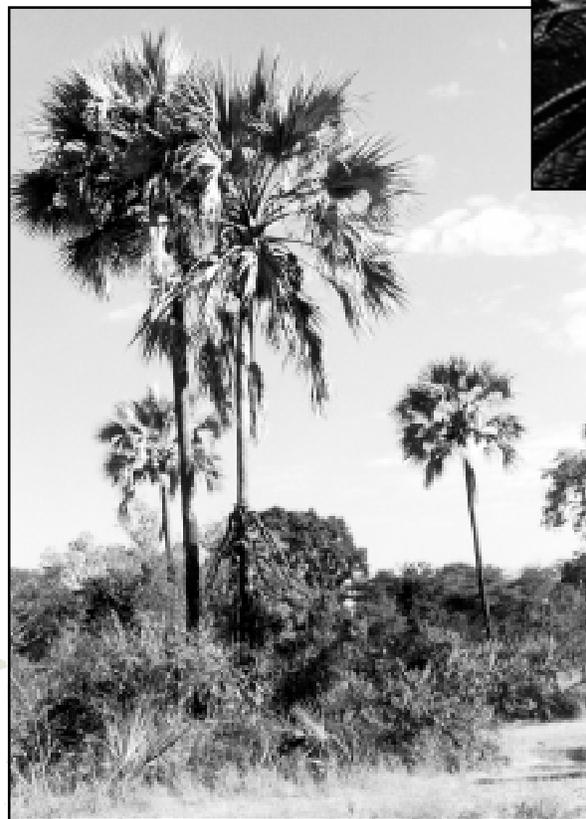
After a few educational days in Stellenbosch, we headed for Durban by way of the Garden Route along the southern coast. Durban is a vibrant resort city with beautiful beaches and tropical weather. The climate and soils of the area are outstanding for growing cycads and palms, as well as most other tropical plants. Chris Dalzell, who manages Durban Botanic Garden for the city's Parks Department, takes advantage of these resources, overseeing a remarkably healthy and diverse collection of intensively planted cycads and palms. Chris kept us busy for two days touring a number of gardens and visiting nurseries associated with the Parks Department. We talked at length about future cooperation between our institutions and how we could support each other as we both develop *ex situ* plant collections. I was excited to see the great success Chris was having with the vegetative propagation of endangered cycads. Before my visit to Durban was over, I gave a relaxing evening lecture to scientists from the local university, the garden's horticulturists, and a large number of extremely enthusiastic individuals from the local branches of the cycad and palm societies.

By way of the majestic Drakensburg Mountains, we next drove to the capitol city of Pretoria, one of my favorite South African cities. Pretoria was the venue for the 1993 International Cycad Conference which I attended when I was a cycad scientist at Fairchild Tropical Garden. At that time, Hans Heilgendorff guided me through Pretoria National Botanical Gardens. On this trip also, the Curator of the garden, along with his new cycad

## Sharing in Africa by Terrence Walters

horticulturist, treated me to a personal tour. Large new tracts of the garden had been opened up for collections, new plantings had been installed, and new areas for educational exhibits and public events had been constructed. The cycad collection was as beautiful as I had remembered it. The garden must be commended for their use of the collection in the landscape design. For my afternoon lecture at the garden, I had an outstanding turnout of palm and cycad horticulturists and enthusiasts, all with many questions and wonderful comments about Montgomery Botanical Center.

Our last stop before flying to Zimbabwe was the Lowveld National Botanical Gardens in Nelspruit. Johan Hurter, the Horticulturist at the garden, filled my entire day with tours of his extremely large and magnificent garden, the nursery, the famous seed orchards associated with the conservation collections, and various private collections in Nelspruit. In the early 1980s, Lowveld seriously began collecting



## Africa's Secrets

, Executive Director

the endangered species of *Encephalartos*. It was soon realized that a display collection was unsatisfactory for seed production and research; cones were being stolen and the equipment used in artificial pollinations distracted from the garden's aesthetic appearance. The staff also realized that more plants of a species were needed to maintain genetically viable populations and that such numbers could not be accommodated within a display area because of space



Terrence and Chris Dalzell pose in front of an *Encephalartos woodii* at Durban Botanic Garden. At left are trees of *Hyphanea petersiana* along the Zambezi River in northwestern Zimbabwe.

limitations and lack of public appeal. Thus, a completely new approach to the management of endangered plant species was adopted by Lowveld. They established seed orchards of approximately 50 to 100 individuals per species in a section of the garden that became closed to the public. Only seeds of known provenance, or produced from plants of known provenance, were used. Lowveld and Johan must be commended for their commitment to cycad education, conservation, and

propagation. Their support of both a public display area and a protected research/conservation area is rather unique in the world for a botanical garden.

Ian Turner's private botanical garden, Springs Farm, contains one of the largest cycad collections in the world. He cares for literally thousands of plants! Set on the outskirts of the Zimbabwe's capitol city of Harare, Springs Farm has also developed internationally recognized collections of orchids, bromeliads, succulents, tree ferns, and palms. The climatic conditions, soil, and topography of Springs Farm, along with Ian's love of all plants, are conducive to growing almost every cycad species in the world.

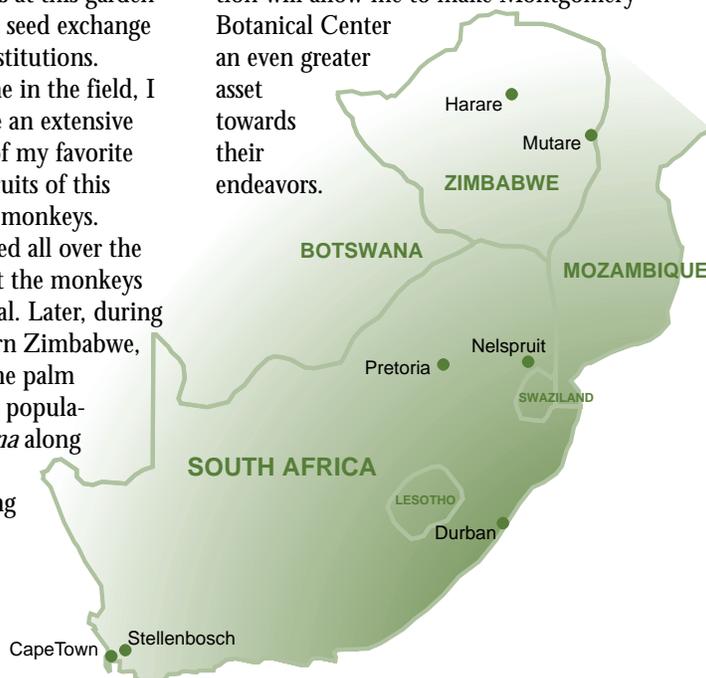
My early mornings with Ian were spent critically reviewing small portions of Ian's collection, and then we would be off to visit some of the botanically and geologically diverse areas of eastern Zimbabwe. I met with key personnel at two gardens during our travels. Vumba Botanical Garden, south of Mutare, has an extensive, but still relatively young cycad collection thanks to Ian's plant donations. The National Botanical Garden in Harare has a rich diversity of palms. I met with individuals at this garden to set up future seed exchange between our institutions.

During our time in the field, I had the opportunity to see an extensive native population of one of my favorite palms, *Raphia farinifera*. Fruits of this species are eaten by vervet monkeys. Cleaned seeds were scattered all over the valley floor, indicating that the monkeys had recently finished a meal. Later, during a short visit to northwestern Zimbabwe, I saw extensive stands of the palm *Phoenix reclinata* as well as populations of *Hyphanea petersiana* along the Zambezi River.

Ian assisted in scheduling my lecture for the Palm & Cycad Branch of the Aloe, Cactus, & Succulent Society of Zimbabwe.

Held in Harare, the lecture was attended by over 50 people from the society, the community, and the National Botanical Garden. The large comfortable auditorium was a wonderful place to talk about Montgomery's past, our Master Site Plan, and our plans for the future. Beginning at 6:00 p.m., I lectured for 45 minutes. We then paused for about an hour to eat and socialize, and of course to have tea. This intermission gave me the opportunity to interact with various officers and members of the succulent society. The enthusiasm and love of cycads and palms by the members showed me why this society is so healthy and productive. At 7:45 p.m., I continued with my lecture, which was then followed by many questions concerning Montgomery. Michael Kimberly, Honorary President of the society, presented me with a beautiful statue and a book on Zimbabwe succulents to complete what had been a most delightful evening.

The world's cycad community, including enthusiasts, students, educators, and scientists, is fortunate to have so many supporters in southern Africa. These individuals, who truly love cycads, are undertaking whatever they can to promote, protect, conserve, and propagate their native species. Fortunately, they were willing to share with me some of their secrets for success. Hopefully, this information will allow me to make Montgomery Botanical Center an even greater asset towards their endeavors.



# Revitalizing the Lakes

by Lee Anderson, Property Manager

Excavated in the late 1930s to accentuate Robert Montgomery's palm collections, the six tidal lakes and associated canals, covering 10 acres of lowlands at MBC, slowly devolved over the years. This entropic decline was greatly exacerbated by Hurricane Andrew. By 1996, shore erosion into Long Lake had turned it into a cattail swamp. Seventy-five percent of Duck Lake was covered with vegetation, and in the remaining open water, bottom silt measured 2–3 meters deep. Culverts between various lakes were clogged with oyster shells, sometimes to the point of being sealed off. It became obvious that the Lake Restoration Project, which had been incorporated into the 1992 Master Site Plan, needed to start as soon as possible.

The permitting process began in October 1997, involving an entire spectrum of regulatory agencies, including NOAA, U.S. Army Corps of Engineers, and state, regional, and local environmental agencies. A full year later, the project was allowed to begin.

During the next four months, round-the-clock, 7-day-a-week activity saw thousands of cubic yards of material scooped and sluiced out of the lakes, tons of stone and acres of erosion cloth installed to reinforce shorelines, and mountains of exotic vegetation cut down and recycled into mulch.

In January 1999, the last of the big pumps and huge excavators were hauled off the property. Almost immediately, the ibis, heron, and egret resumed their vigilant shore patrols, while tarpon and snook chased after feisty schools of mullet. Weekly monitoring of the water quality shows an improvement in dissolved oxygen and turbidity levels.

With the addition of two new culverts into the adjacent tidal waters, salinity levels now reflect increased flushing activity. Not only was the project an environmental and aesthetic success, but the removal of invasives has opened up dry areas in the lowlands as potential sites for expansion of MBC's plant collections.

Perusing the pristine lakes today, just a few months after completion of the project, the seemingly interminable months of roaring diesel pumps, viscous mud pits, and endless convoys of dump trucks are now a rapidly receding memory.



**Above:** Long Lake (to the right) and Coconut Lake (in the distance) as they looked in 1947. **Left:** This early 1990s photo was taken from the southern end of Long Lake. Notice how the northern end and western bank of the lake are clogged by cattails. Coconut Lake is in the distance.



**Above:** Large machinery was needed to clear the lakes of plant debris and years of sediment. **Left:** Terrence Walters is standing next to emptied Long Lake. Water was pumped out of each lake to inspect the lake bottoms. **Below:** Long and Coconut Lakes today.



# HAPPENINGS

## Enriching Our Minds

This spring saw a burgeoning of staff enrichment activities. Executive Director Terrence Walters participated in the workshop “New Research and Collaboration in Tropical Biology,” Vickie Murphy studied “Principles of Entomology” at Miami-Dade Community College, Juan Corona and Ansel Thomas attended the “South Florida Plant Engineering & Maintenance Show and Conference,” Sue Katz completed classes on “Advanced BG-BASE” and “Computer Networks,” and the horticulturists took University of Florida’s “Palm Production & Maintenance Short Course.” Once summer began, Hilton Rollison found himself busy with a tree pruning workshop, Ansel Thomas and Barbara Judd took a nursery irrigation course, Lee Anderson became immersed in an “Excel” software class, and Sue Katz left the country to attend the annual AABGA conference in Canada. Not to be left out of the edification frenzy, Administration Manager Evelyn Young cross-trained with Eric Shroyer in April and with Laurie Danielson in May, learning to plant cycads and palms.



**Above:** From top to bottom are new employees Randy Russ, Austin Matheson, and Willie Dye, standing on the stairway of the horticulture and facilities complex building, also known as the Gatehouse. **Right:** Collection Recorders Michael Torres (another recent addition to our staff) and Barbara Bohnsack are shown training Ethan Johnson (right), Plant Recorder at The Holden Arboretum, on the use of MBC’s survey equipment.



## Collaborations

On March 2, the Florida Nurserymen & Growers Association joined our staff for a moonlight reception at MBC to celebrate the end of the first year of the cooperative Seedbank Program. Shown above are MBC Seedbank Coordinator Judy Kay and FNGA Seedbank Liaison John DeMott. In April, FNGA provided grant monies to support personnel and supplies for the second year of the program.

One of MBC’s collaborative efforts with Fairchild Tropical Garden involves the sponsoring of summer interns. This year, Shannon Forney from California State University-Fresno and Elaine Mendez from Miami-Dade Community College spent eight weeks training at FTG and two weeks at MBC.

This year, we collaborated with several institutions—University of Brasilia, U.S. Virgin Islands Botanical Garden, and Texas A&M University—on collecting expeditions. MBC staff are also consulting with the U.S. Botanic Garden on the restoration of their tropical plant conservatory, helping them to determine which palm species will fit in their design and grow well in their facility.

## Thanks for the Support

In March, 37 friends, family, and colleagues contributed \$27,000 for the development of the “Walter Haynes Overlook” in honor of Walter’s 30 years as a Member, Director, and Officer at MBC. In the photograph below, Walter (left), his business partner Terry Beaty, his mother Marion Haynes, and his wife Gaye Haynes are standing at the future site of the Overlook.

Support for other projects includes a \$10,000 donation from Loyd and Eileen Kelly for MBC’s computer network. Gladys Frederisky bequeathed \$171,000 to MBC, which has been added to our endowment.



## Welcome

At the annual March Board of Directors and Members Meetings, we welcomed our new President, Dr. Karl Smiley, and new MBC Member, Charles S. Sacher.

## Who We Are

Terrence Walters, Ph.D.  
Executive Director

Lee Anderson  
Property Manager

Jack Bauer  
Facilities Supervisor

Barbara Bohnsack  
Collections Recorder

Mario Borroto  
Landscape

Juan F. Corona  
Systems Specialist

Laurie Danielson  
Palm Horticulturist

Willy Dye  
Landscape

Barbara Judd  
Nursery Horticulturist

Sue Katz  
Collections Supervisor

Judith Kay  
Seedbank Coordinator/  
Administrative Assistant

Marta Lagos  
Housekeeper

Austin Matheson  
Grounds Supervisor

Vickie Murphy  
Assistant Horticulturist

Larry Noblick, Ph.D.  
Collections Manager

Willie Payne  
Landscape

Jessie Pender  
Landscape

Hilton Rollison  
Assistant Horticulturist

Randy Russ  
Landscape

Juan Serrano  
Spray Technician

Eric Shroyer  
Cycad Horticulturist

Ansel Thomas  
Facilities Assistant

Hostillo Torres  
Equipment Operator

Michael Torres  
Collections Recorder

Evelyn Young  
Administration Manager

### *The Montgomery News*

Deena Decker-Walters, Ph.D.  
Publications Coordinator, Editor

*The Montgomery News* is published twice a year by the Montgomery Botanical Center, a non-profit private operating institution specializing in tropical plant research collections, emphasizing palms and cycads.

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Our normal operating hours are 7:00-3:30 Monday-Friday.



*From the Montgomery Archive comes this circa 1940 photograph of Robert and Nell Montgomery with Nell's mother, Isabel Foster (right), relaxing on the back porch of the Montgomery home.*

### **MONTGOMERY BOTANICAL CENTER**

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