Assessing Client Needs

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

The primary clients of Montgomery Botanical Center are botanists, particularly those who study palms and cycads. While we continue to grow as an institution specializing in live plant research collections, we must keep in mind the needs of our clients. As a scientist with 20 years of research experience, I understand the basic requirements for a scientifically valuable collection: genetically diverse population samples of well-documented, expertly identified plants; easy access to the plants; security and protection of the study plants over the length of a project; and the ability to manipulate plants as required by research protocols. But each group of plants has its own idiosyncrasies when it comes to studying them. I generally understand those of cycads, having worked with this plant group for almost 10 years now. Palms are a different manner.

To better appreciate the needs of ethnobotanical palm researchers, I attended the Palms and People Symposium chaired by the Society for Economic Botany at their annual meeting this summer in Aarhus, Denmark. My objectives were two-fold: to let the researchers know what the Center has to offer, and to find out what they need from an institution like ours. During the week-long conference, it became clear from the lectures and my discussions with researchers that these scientists consistently lacked and urgently needed basic biological data on the palms associated with their studies. Many indicated that the next step in their ethnobotanical research required that they understand the growth rates, phenology, and life-history of the species they were studying. Only then could they advise communities which are accessing natural palm populations as economic resources on how to develop sustainable management practices.

Montgomery Botanical Center is an excellent site for palm researchers to undertake these life-history studies. The timing is particularly good because we have recently planted over 1,000 young palms grown from seed. Although we will continue recording monthly phenology data from our palms, we look forward to visits from researchers who will collect the more specific life-history data they need.

Given the success of my trip, I plan more travels to meet with other types of researchers so that we can refine our efforts to serve them.
Volunteers continue to give their best, donating over 1,700 hours during the past six months. Mayna Hutchinson's volunteer efforts in archiving historical documents were highlighted in a Miami Herald article on June 21.

In addition to the dedicated individuals who work with us on a weekly basis, several organized groups assist us with special projects. These include the Dade County Master Gardeners, who are renovating historic Old Cutler Road, and the South Florida Chapter of the International Palm Society, whose members helped us plant over 80 palms on Saturday, May 16.

Students also help. Florida International University and Miami-Dade Community College undergraduates weeded and mulched planting beds on March 7. As a Dade Partner with Coral Reef High School, Montgomery provides learning and working opportunities for advanced students at that school. We sponsor the Montgomery Botanical Center Award of Excellence, which, this year, was awarded to Coral Reef student Jamie Lawson. We also collaborate with Fairchild Tropical Garden in bringing in summer interns to our institutions. This year's interns were Barbara Basti of the University of Florida and Clifton Jones of Tuskegee University, Alabama.

In addition to the many scientists who work with our plant collections (see page 3), several other interested groups and individuals have visited recently to tour our facilities and talk to our staff. Executive Director Terrence Walters gave a lecture and tour to the Surfside Garden Club on March 24. The North Miami Historical Society visited on March 14. Off-site, Grounds Supervisor Judith Miller gave a historical lecture about Montgomery to the Miami Beach Rotary Club on June 2.

Other visitors included the son (Peter Jennings) and grandson (David Jennings) of Alvin Jennings, who visited us on June 13. Rod Moffet, a local tropical fruit nurseryman, toured the jackfruit collection at Montgomery with Fairchild's Richard Campbell in May. Tinus Schutte of Merensky Technological Services, South Africa also toured the tropical fruit collection at the Center with Dr. Campbell, taking back to Africa many mango and canistel cuttings.

As one of the hosts of the 1998 Gifford Arboretum lecturer Dr. Paul Cox, we were pleased to accommodate the Director of the National Tropical Botanical Garden in our guest house. During his visit, Dr. Cox met with our Executive Director to discuss future collaborative projects between our institutions. We also co-hosted the Coconut Grove Orchid Show in March, providing housing to some of the major speakers. Rodney Vargas, from the Organization for Tropical Studies, stayed with us during his meetings at Fairchild to discuss collaboration between OTS and FTG. Another distinguished guest was Bernadette Cozzart, founder of the Greening of Harlem Coalition and a participant in the Greening of the White House project. We co-hosted Ms. Cozzart during her lecture series at Florida International University.

Volunteers Kept Us Afloat During the Long Hot Summer

Larry Aronson Jackie Biggane Joan Brown Katherine Bryholdt Janet Copps
Julie Downum Judy Griffis Frank Hausman Bob & Mayna Hutchinson Denise Jones
Vivian Jordan Michael Kambour Larry Kraus Brenda Majica Jan Milone Tom Reed
Sheldon Rispler Jean Stark Beth Thomas Bob Valoppi Ryan Walsh Deena Walters
Montgomery's plant collections support a growing number of research and educational projects. Drs. Charles O'Brien and Peter Kovarik of the Department of Entomology and Biocontrol, Florida A&M University spent a week in May collecting weevils for their palm pollination studies. Other palm experts who have visited recently include Dr. Andrew Henderson of New York Botanical Garden, who is working on a palm biology book, and Australian nursery owner Stan Walkley. Fijian palm expert Dylan Fuller of the National History Museum in London spent two weeks on-site, collaborating with Fairchild's Dr. Scott Zona on a monograph of the genus Veitchia and annotating our living Veitchia collection.

Cycad research is also flourishing at Montgomery. Professor Michael Wink of the University of Heidelberg, Germany is using the Center's collections to examine evolutionary relationships among African species, and to understand the defense chemistry of insects living on Asian cycads. Insect eradication research continues as Drs. Bill Howard and Dick Baronowski (University of Florida) test various treatments against the cycad scale on our property. Another study utilizing our cycads is Dr. Ken Hill's DNA analyses aimed at determining the phylogeny and biogeography of the genus Cycas. We've been sending material to Dr. Dennis Stevenson at New York Botanical Garden for his continuing research on the molecular biology and genetics of cycad neurotoxins.

Graduate student Carol Landry, from the University of Michigan, spent time with us this summer collecting material and making observations of the native Florida mangrove, Laguncularia racemosa. Our populations are providing the basis for her graduate studies on the morphology and mating system of this species.

Another plant family being studied at the Center is the Sterculiaceae. In August, we provided Dr. Mike Pollard (Michigan State University) with six fruits of Sterculia foetida every 10 days so that he could study them at different stages of maturity, thereby establishing the developmental pathway for sterculic acid production.

In addition to collecting palm roots for his research on mycorrhizal associations, Fairchild's Dr. Jack Fisher obtained leaf, cone, root, seedling, and branch material from our cycad, tropical gymnosperm, and native plant collections for teaching an undergraduate botany class at the University of Miami. Also for educational purposes, we donated live cycads from our nursery to Dr. Francisco Joe Ferrer of the University of Sagrado Corazon in Puerto Rico. He planted the cycads at his institution for use as a teaching collection. In May, we participated in the National Science Foundation's 1998 Faculty Development Program of Short Courses for College Teachers by co-hosting with Fairchild two one-week classes on tropical plants. In April, Margaret Balwick photographed the Center's flowering tree collection for a book on Caribbean Flowering Trees.

### Montgomery Seed & Plant Distribution

Between March 1 and August 15, more than 5,000 seeds and plants were donated from the Center to other institutions, scientists, and plant societies. Over 550 of these seeds were of the rare cycad Microcycas calocoma. We also donated seedlings of the extremely rare palm Nypa fruticans to Missouri Botanical Garden for the mangrove area of their Climatron. Plants of the cycad Zamia integrifolia were given to New York Botanical Garden for their Conservatory. Listed below are some of the other recent recipients of our distributions.

- **Botanischer Garten, Germany**: 20 seeds
- **Broward County Chapter of the International Palm Society**: 141 seeds
- **Central Florida Palm & Cycad Society**: 135 seeds
- **Cycad Society**: 500 seeds
- **Fairchild Tropical Garden**: 773 seeds, plants
- **Lowveld Garden, South Africa**: 20 seeds
- **Missouri Botanical Garden**: 2 seedlings
- **New York Botanical Garden**: 13 seeds, plants
- **Botanischer Garten, Germany**: 20 seeds
- **Nong Nooch Garden, Thailand**: 35 seeds
- **Palm Beach Palm & Cycad Society**: 121 seeds
- **South Florida Chapter of the International Palm Society**: 1,007 seeds, plants
- **University of Florida**: 28 cuttings
- **Universidad Sagrado Corazon, Puerto Rico**: 3 plants
- **University of Stellenbosch, South Africa**: 20 seeds
- **University of Texas**: 9 seeds
- **Wilson Botanical Garden, Costa Rica**: 20 seeds
Sharing Our Database Expertise
by Sue Katz, Collections Supervisor

It’s been a busy outreach year for me. This summer, I went to Philadelphia to attend the national meeting of the American Association of Botanical Gardens and Arboreta, and then I was off to Michigan State University for the AABGA mid-west regional meeting. These meetings allowed me to exchange ideas with record-keeping staff at other institutions. And, they were wonderful opportunities to spread the word about database management and mapping at the Center.

We are one of only about 20 institutions worldwide that use both the database management software BG-BASE and the associated mapping program BG-Map. Consequently, we play a central role in educating others about this combined technology. For example, at the AABGA meeting in Michigan, I joined Mike O’Neal of BG-BASE, Inc. and Ethan Johnson, Plant Recorder at The Holden Arboretum, in presenting the symposium “Collections Documentation Using BG-BASE and BG-Map.” Montgomery’s database and mapping programs were sent to a site on the Internet, and then downloaded at Michigan State University and set up for my presentation.

Our training role continues this fall, when a group of Hungarian scientists will visit the U.S. as a continuation of a three-year project funded by the U.S./Hungarian Joint Technology Program. The ELTE Botanic Garden in Budapest just installed BG-Map and BG-BASE; garden personnel are coming here to see how our database and mapping protocols function.

To ensure that we are using and relaying to others the most up-to-date information, each year Montgomery brings either Mike O’Neal or Mark Glicksman to Miami for further training and upgrades on BG-BASE and BG-Map. This October, I will also continue my education by attending an Advanced BG-BASE Training Class in Ohio.

Producing Quality Seeds for Distribution

The Dade Chapter of the Florida Nurserymen & Growers Association (FNGA) is currently providing financial support to Montgomery for a seedbank coordinator position and expenses related to producing and distributing seeds from our plant collections. So far, we have given over 60,000 seeds to the Dade Chapter of the FNGA as well as to local, national, and international botanic gardens and institutions. New employee Judy Kay is our Seedbank Coordinator, overseeing the production, collection, cleaning, and distribution of these seeds. She is supported by an outstanding group of hard-working volunteers including Vivian Jordan, Larry Kraus, Larry Aronson, and Beth Thomas.
Searching for Seeds from South African Cycads and Palms
by John Donaldson, Ph.D., National Botanical Institute, South Africa

The southern tip of Africa is a botanical paradise with roughly 8% of all known vascular plants in just 0.8% of the world’s land area. Amongst these extraordinary riches are a wealth of cycads and a few palms that occur along the eastern margin of South Africa as well as in the tiny Kingdom of Swaziland. As part of Montgomery Botanical Center’s Revitalizing Program, I undertook several expeditions to collect seeds from as many of the 40 cycad and 4 palm species as possible.

Most of the localities I visited have been explored before so I cannot claim any great achievement in finding them. However, the goal was to collect seeds and that presents a vast challenge to even the most experienced cycad adventurer. African cycads are notorious for their poor seed set under natural conditions. Many populations simply do not produce cones for many years, or cones occur in such low numbers that finding them is an adventure in itself. Of course, any excursion into the African bush is likely to yield some surprises.

One of my intentions was to collect seeds of *Encephalartos umbeluziensis*, which grows in the catchment of the Umbeluzi river running eastwards from the subtropical savanna of Swaziland to the coast of neighboring Mozambique. I had been given details of the locality by a missionary who had worked in that area and it all seemed quite simple: drive to the nearby village, park near the little white church, and walk down the path, taking the left fork for a few hundred meters. When I got to the area, I contacted the local nature conservation officials; they were horrified by my plan and informed me that the villages en route were run by bandits who ferried weapons and other contraband between Mozambique and South Africa. After some discussion, I was sent off to find another group of conservation officials; they were horrified by my plan and informed me that the villages en route were run by bandits who ferried weapons and other contraband between Mozambique and South Africa. After some discussion, I was sent off to find another group of conservation officials who lived closer to the *E. umbeluziensis* site. They agreed with their colleagues and insisted I would not emerge unscathed if I stuck to my original plan. Instead, they offered to guide me along the banks of the Umbeluzi river—an offer I decided to accept.

With my maps, global positioning system (GPS), and other paraphernalia, three of us set off to search for cycads. Ephraim and Simon were wonderfully knowledgeable about the plants along our route and delighted in feeding me a variety of berries and leaves, and then watching my reaction. After four hours of fast walking in the intense subtropical heat, we got to a point where Ephraim and Simon would go no further because they felt it was too dangerous. According to the GPS, we were still a kilometer away from where we wanted to be and we had seen only a few plants but no seeds. I was keen to push on, but we had already encountered a Mozambique Spitting Cobra and my first-ever Black Mamba (African’s deadliest snake) on our way, and I was loathe to risk walking on alone. Needless to say, with the additional threat of arms smugglers, we returned to the car empty-handed. Starved of the adrenaline that would have flowed had we found some seeds, the walk back seemed an interminable drudge.

I have to confess that not all my trips were quite so adventurous, but it did turn out to be a bad year for cycad seed set across southern Africa. I eventually managed to collect a reasonable number of seeds from 16 southern African cycad species.

When I was asked to collect palm seeds I was more than a little nervous. I know cycads well and have devised all manner of tricks to dislodge stubborn cones from their pedestal on top of the plant. Shimming up stems or using long cutters is not part of my cycad repertoire but, ever anxious to please, I agreed to collect palm seeds. I started with *Borassus aethiopum*, the largest and rarest species in South Africa. The tall stems towered above the surrounding bush near the little town of Leydsdorp, making me feel even more inadequate. However when I got to the site, the cupboard was bare—other collectors had gotten there earlier and taken all the seeds.

I was confident that I would find seeds of *Hyphaene coriacea*, which I had seen in great numbers in northern Zululand on the road that leads to where *Encephalartos ferox* grows. Imagine my dismay when I discovered these huge populations of palms with not a seed in sight. After close examination, I realized that all the plants were too small to set seed. The local people routinely cut back the palms to harvest leaves for basket-making and to collect the sap for palm-wine. The harvesting had been so intense that the plants could not reproduce. Fortunately, I was eventually able to find some large plants with abundant seeds and my sense of humor was restored.

All told, I spent 40 days in the field, flew 6000 km, and traveled an additional 7000 km by road, collecting seeds of 16 cycad and 2 palm species for Montgomery.

Among the more interesting cycads from which John Donaldson collected seeds were *Encephalartos aemulans* (left) and *E. cycadifolius* (above).
by Lee Anderson
Property Manager

The bumper sticker saying “Plant a Palm” is seemingly ubiquitous in South Florida. I see it on work-horse pick-ups in the Redlands, on sleek Lexuses in the Gables, and on funky VW vans in Coconut Grove. A simple, noble, and earthy sentiment, to be sure. At Montgomery, though, this sentiment has taken on an entirely new dimension over the past few years. Noble and earthy, still, but simplicity has blossomed into an efficient protocol based on planning and newly-tapped resources.

In 1996, our planting of 160 palms in hand-dug holes—brutal and time consuming work—seemed like quite a feat. In 1997, we planted 320 palms, doubling the production of the previous year. This increase was possible because of a new backhoe equipped with a rock bucket. At the end of that planting season, the Montgomery palm planting team thought, “Gee, how have we been able to get along without this piece of machinery?”

However, this year, we’ve been able to plant 1,018 palms, thanks to a new skid-steer loader equipped with an auger bit, trenching bar, and grapple bucket. Now we’re saying, “Gee, how were we able to get along without this piece of machinery?”

The skid-steer loader, donated by Loyd and Eileen Kelly, proved to be much more maneuverable and less damaging to the surroundings than the backhoe. A nine-inch auger was used for the excavation of holes. To avoid the possibility of palm roots becoming root-bound in perfectly cylindrical holes drilled into rock, our equipment operators learned to drill four adjacent holes in a clover-leaf pattern. The drill tailings were later incorporated into the backfill mix; this contemporary practice, which saves considerable time and material, provides the optimal soil ratio for the backfill mix.

Machinery hasn’t been the only factor responsible for the phenomenal increase in the staff’s ability to plant palms. Our continual evaluation of resources and procedures has allowed us to develop a protocol that is productive with respect to planting, while still maintaining our ability to nurture the existing collections. Each department in our organization plays a vital role: management personnel assist in site interpretation; Collections Development performs the actual siting, surveying, and labeling; Facilities puts in the irrigation lines; and Horticulture does the planting.

This year, our planting efforts extended the Coconut Grove Palmetum to the east and north, filled-out the northern third of the Palm Walk, and extended the central section of the Walk to the south, east, and west. As we plan for further development of the southern end of the Walk next year, transferring as many as 1,000 more palms from the nursery into the ground, we feel confident that we have the right resources and protocols to meet the challenge.

The Cycad Walk also continues to grow. So far in 1998, Eric Shroyer and Vickie Murphy have planted over 200 cycads in three beds: Asia #4, Americas #3, and Australia #1. At left, Ansel Thomas helps Judith Miller position a rock in the rock-ridge of an Americas bed, which is shown above.
**Staff Activities**

Although we were sad to see Stanley Calizaire retire on March 30, we enthusiastically welcomed several new employees to the Montgomery Team, including Landscapers Hostilio Torres, LaWayne Barthell, and Hilton Rollison, Systems Specialist Juan Corona, Seedbank Coordinator Judy Kay, and Assistant Horticulturist Renae Asher. Upward movements in the organization were experienced by Ansel Thomas, our new Facilities Assistant, Equipment Operator Mike Shea, and Assistant Horticulturist Vickie Murphy. Employees continue to enhance their skills. Administrator Evelyn Young completed the courses Advanced Microsoft Word and Beginning and Intermediate Microsoft Excel at Miami-Dade Community College. Property Manager Lee Anderson took a U.S. Environmental Laws & Regulations self-study course in April. Other studies earned him a Commercial Applicator Restricted Use Pesticide License in June and OSHA First Responder Certification in August. Laurie Danielson and Vickie Murphy took a class for a Private Applicator’s License on April 15.

Collections Manager Larry Noblick is wowing audiences with talks of his collecting expeditions. At the Annual Members Meeting in March, his slide presentation of his recent experiences in Brazil was emotionally charged as well as educational. In July, he was the guest speaker at a meeting of The Nantucket Maria Mitchell Association in Massachusetts. His lecture “Searching for Palms in Madagascar” was accompanied by striking slides of that country’s landscape. In July, Executive Director Terrence Walters lectured on Montgomery at Kew and Edinburgh Royal Botanic Gardens in the United Kingdom, and interacted with participants of a Palm Symposium in Denmark. These and future outreach activities are designed to market the Center’s resources to the scientific community and to learn from the community how we can best be of service.

---

**Synergy at Work**

M Montgomery and Fairchild are working together to produce seeds of the extremely rare cycad Cycas micholitzii. Montgomery’s volunteer cycad propagation team collected pollen from plants in our 1992 China Collection and pollinated the female plant in Fairchild’s Conservatory in March. Seeds should be mature in 1999.

Another collaborative project involves the Botanic Garden of Curitiba in Brazil. The Brazilian garden sends duplicate palm herbarium specimens to Larry Noblick in exchange for his expert annotation of the specimens. We, in turn, donate the annotated specimens to Fairchild’s herbarium.

---

**Kudos!!**

We thank the following for their recent donations to the Montgomery Botanical Center

**Monetary**
- Cycad Society Seed Bank
- Diggers Garden Club
- Florida Nurserymen & Growers Association
- Loyd & Eileen Kelly
- Jaywood & Jane Lukens
- M arguerite Mathews
- Palm & Cycad Society of Southwest Florida
- PricewaterhouseCoopers LLP
- Robert & Betsy Read
- Evelyn Smiley
- Garth Thomas
- Stan Walkley
- Richard Watt
- Lorain & Eva Whitelock (Cycad Gardens)
- Jane Wilson
- Francis Zierer

**Plants**
- Libby & By Besse
- Jeffrey Block
- Tom Broome (B&B Landscaping)
- Ellis Brown
- John DeMott (Redland Nursery)
- Fairchild Tropical Garden
- William Fritz (Washington University)
- Bill Gaynor
- Rolf Kyburz
- Nong Nooch Tropical Garden

**Goods & Services**
- Jeffrey Block
- City of Coral Gables
- Robert D’Armond
- M ayna & Bob Hutchinson
- Arthur M oontgomery
- South Florida Property Developers, Inc.
- Stan Walkley

---

**Montgomery Members**

Jeanne Bellamy
Libby Besse
Sally Brown
Liz Davis
Samuel Dennis III
Walter D. Haynes, Esq.
Marian Jennings
Beverley Johnson
Loyd G. Kelly
Nicholas Kelly
Stanley Kien
David Manz
Peter M anz
Ina Monhollen
Arthur Montgomery, Ph.D.
John Popenee, Ph.D.
Karl Smiley, M.D.
Mark Smiley
Loran Whitelock

---

Montgomery Botanical Center welcomes contributions and bequests to support our activities

Montgomery Botanical Center is tax exempt under Section 501(c)(3) of the Internal Revenue Code. Contributions to Montgomery are deductible for federal income and estate tax purposes. Montgomery is registered under the Florida Solicitation of Contributions Act. A copy of the official registration and financial information may be obtained from the Division of Consumer Services by calling toll-free within the state 800-435-7352. Registration does not imply endorsement, approval or recommendation by the state.
Who We Are

Terrence Walters, Ph.D.
   Executive Director
Lee Anderson
   Property Manager
Renae Asher
   Assistant Horticulturist
LaWayne Barthell
   Landscaper
Jack Bauer
   Facilities Supervisor
Barbara Bohnsack
   Collections Recorder
Mario Borroto
   Landscaper
Juan F. Corona
   Systems Specialist
Laurie Danielson
   Palm Horticulturist
Fabian Gomez
   Collections Recorder
Barbara Judd
   Nursery Horticulturist
Sue Katz
   Collections Supervisor
Judith Kay
   Seedbank Coordinator
Marta Lagos
   Housekeeper
Judith Miller
   Grounds Supervisor
Vickie Murphy
   Assistant Horticulturist
Larry Noblick, Ph.D.
   Collections Manager
Willie Payne
   Landscaper
Jessie Pender
   Landscaper
Hilton Rollison
   Landscaper
Mike Shea
   Equipment Operator
Eric Shroyer
   Cycad Horticulturist
Ansel Thomas
   Facilities Assistant
Hostilio Torres
   Landscaper
Evelyn Young
   Administrator

The Montgomery News
Deena Decker-Walters, Ph.D.
   Publications Coordinator, Editor
Jeanne Bellamy
   Editorial Consultant

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.

We can be reached by telephone at (305) 667-3800, by fax at (305) 661-5984, and by e-mail at montgome@fiu.edu.

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

From the Montgomery Archive comes this photograph of Nell Montgomery and her dog, Di, sitting on the running board of her mid-1930s Packard 4D Phantom.

Montgomery Botanical Center
11901 Old Cutler Road
Miami, Florida 33156