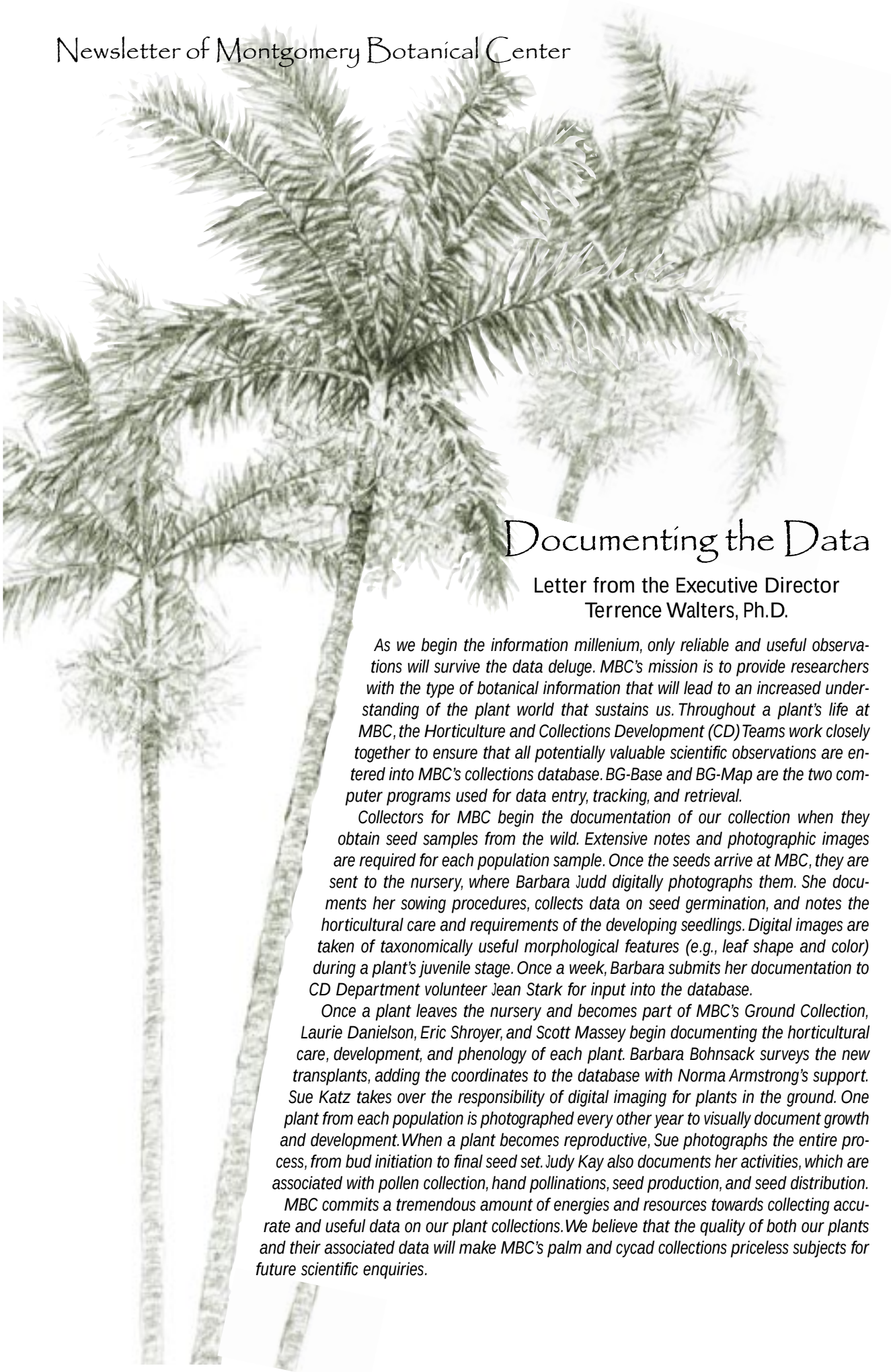
Newsletter of Montgomery Botanical Center



THE MONTGOMERY NEWS

VOL. 9 NO. 2
FALL 2001

Documenting the Data

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

As we begin the information millenium, only reliable and useful observations will survive the data deluge. MBC's mission is to provide researchers with the type of botanical information that will lead to an increased understanding of the plant world that sustains us. Throughout a plant's life at MBC, the Horticulture and Collections Development (CD) Teams work closely together to ensure that all potentially valuable scientific observations are entered into MBC's collections database. BG-Base and BG-Map are the two computer programs used for data entry, tracking, and retrieval.

Collectors for MBC begin the documentation of our collection when they obtain seed samples from the wild. Extensive notes and photographic images are required for each population sample. Once the seeds arrive at MBC, they are sent to the nursery, where Barbara Judd digitally photographs them. She documents her sowing procedures, collects data on seed germination, and notes the horticultural care and requirements of the developing seedlings. Digital images are taken of taxonomically useful morphological features (e.g., leaf shape and color) during a plant's juvenile stage. Once a week, Barbara submits her documentation to CD Department volunteer Jean Stark for input into the database.

Once a plant leaves the nursery and becomes part of MBC's Ground Collection, Laurie Danielson, Eric Shroyer, and Scott Massey begin documenting the horticultural care, development, and phenology of each plant. Barbara Bohnsack surveys the new transplants, adding the coordinates to the database with Norma Armstrong's support. Sue Katz takes over the responsibility of digital imaging for plants in the ground. One plant from each population is photographed every other year to visually document growth and development. When a plant becomes reproductive, Sue photographs the entire process, from bud initiation to final seed set. Judy Kay also documents her activities, which are associated with pollen collection, hand pollinations, seed production, and seed distribution.

MBC commits a tremendous amount of energies and resources towards collecting accurate and useful data on our plant collections. We believe that the quality of both our plants and their associated data will make MBC's palm and cycad collections priceless subjects for future scientific enquiries.

Spotlight on Our Volunteers — Nurturing Nature

by Evelyn A. Young, Volunteer Coordinator

Some of our volunteers, such as Marietta Harte, assist Nursery Horticulturist Barbara Judd with various tasks in our Nursery Complex. The complex includes two germination greenhouses, where the new kids on the block (i.e., incoming seeds) are cared for after their arrival to MBC. There is a shadehouse for juvenile palms, and another for juvenile cycads. A full-sun nursery allows the teenagers (i.e., more mature plants) to adjust to the outdoor environment prior to being planted in the ground. The head-house is where all the processing and repotting of the plants take place.

Of the hundreds of palms and cycads planted at MBC in recent years, most grew up in our nursery. In the past two years, nearly 6,000 seeds have called the complex home. Newcomers to MBC are given an accession number, which, like a social security number, is used to identify the plant throughout its life at MBC. A record of the seed accession is then created in the Plant Propagation book. The "Prop" book tracks the history of a plant while it is in the nursery, and includes information such as the accession number, plant name, number of seeds received, how the seeds were sown, when they germinated, and when they were transplanted. Transplanting takes quite a bit of time and energy as the juveniles experience their growing spurts. Some palms and cycads may be stepped up to larger pots four or five times before they are ready to plant in the ground.

Attendees to our annual Volunteer Appreciation Lunch: (back row, left to right) Jackie Biggane, Joan Brown, Sheldon Rispler, Beth Evans, Judy Griffis, Katherine Bryholdt, Joy Goldstein, Larry Aronson, Mike Kambour, Bob Hutchinson, Bob Valoppi; (front row, left to right) Julie Downum, Vivian Jordan, Patricia Hicks, Janet Copps, and Mayna Hutchinson.

Do you have a need to nurture? If so, you may enjoy caring for our botanical youngsters. Volunteer positions will soon be available in the nursery to support seed cleaning and processing, repotting, weeding, and juvenile plant data collection. If you are interested, please call me at 305-667-3800, ext. #11.

Meet the Board of Directors

On the terrace of the Walter Haynes Overlook, March 2001.

Nicholas Kelly
Loyd Kelly
Walter Haynes
Peter Manz
Karl Smiley
Charles P. Sacher

TEAM WORK

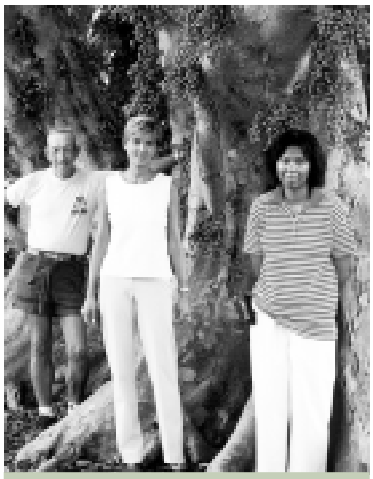
Call us the "busy bees" of MBC. With Executive Director Terrence Walters setting the pace (he's a dedicated workaholic), MBC staff stride forward with resolve. This means that, in addition to our day-to-day responsibilities, MBC employees participate in various educational and outreach activities.

Cross-training is one of these ongoing pursuits. Over the past year, Database Supervisor Sue Katz learned about cycad pollination and seed collecting techniques from Seedbank Coordinator Judy Kay. Judy Kay went from teacher to student when she cross-trained with Nursery Horticulturist Barbara Judd to learn about seed germination and seedling care.

Educational opportunities were also afforded to Vickie Murphy, who took an "Irrigation Efficiency Workshop" this spring. In April, she and Laurie Danielson attended a "Palm Stress Seminar," and Barbara Judd participated in an "Environmental Landscape Management Workshop" sponsored by the University of Florida. In support of her new responsibilities for digitally photographing incoming nursery material, Barbara also completed an "Adobe Photoshop Workshop."

Some of our busy bees have the travel bug. Over the past 3 years, 20% of MBC's employees have traveled outside of Florida on work-related projects. Recent journeys include Lee Anderson's attendance at the Annual Conference of the American Association of Botanical Gardens and Arboreta in Denver, Colorado, and Eric Shroyer's three-week visit of cycad collections in South Africa.

We also learn from our visitors, and as you'll see by checking out the Outreach notes on page 7, visitors continue to stream into MBC. One visitor came here specifically to teach. Mike O'Neal of BG-BASE gave a half-day class to the Horticulturists and Grounds Team on what our database has to offer to staff and visiting scientists.



As part of the new employee initiation, Norma Armstrong (right), Claudine Bachman, and Abbie Dasher had to pose gracefully under this banyan while blood-thirsty mosquitoes assailed them. What good sports!

With so much to do, it's not surprising that the MBC staff rolls continue to grow. Norma Armstrong joined our team in April as a Field Assistant in the Collections Development Department. We welcomed Administration Assistant Claudine Bachman in May. Abbie Dasher, who worked for us as a part-time Landscaper during 2000, was brought on as a full-time employee in January, 2001.

All of the work is paying off. Thanks to the efforts of the our tireless team, MBC was one of eight award recipients for the "2001 Environmental Business Practices Award" sponsored by the Greater Miami Chamber of Commerce. In January, MBC was accepted as a Plant Rescue Center for cycads through the Fish and Wildlife Service of the United States Department of the Interior. Our ongoing conservation work with the rare Cuban *Microcycas calocoma* was recognized by Dr. Hendon Chubb, Director of The Cycad Society, in the Volume 23, Number 2 issue of *The Cycad Society Newsletter.* The article is entitled, "Off-site preservation of *Microcycas calocoma:* current status of the work of the Montgomery Botanical Center."

How can you keep up with all that is going on at MBC? See our website: www.MontgomeryBotanical.org, where issues of *The Montgomery News* back to 1998 are available for viewing and printing.

STAFF FOCUS—The Managers of MBC

With three departments and 25 staff to direct, the MBC Management Team of Lee Anderson (left), Evelyn Young, and Larry Noblick really have little time left in a day for relaxing among our banyan trees (*Ficus racemosa* is shown here). As manager of the Horticulture & Facilities Department, Lee makes sure that the plants are happy and the property is in good shape. Evelyn, who guides Administration, watches over the finances, employee services, and our tireless volunteers. As head of Collections Development, Larry oversees the all-important databases and helps scientists and students use our plant collections. MBC couldn't operate without the assistance of these three dedicated individuals. Maybe they deserve more time to play among the banyans!

Our Evolving Cycad Collection

Eight years have passed since the MBC Team made the commitment to develop a world-class, scientifically-useful, population-based collection of cycads. MBC's first cycad collecting expedition was to southern China in 1992. Since that time, we have mounted an average of two expeditions per year. This year, collecting forays to Belize, Ecuador, Mexico, and Panama have greatly enhanced our New World collection. As a result of these expeditions, 2,426 cycads are growing on the grounds of MBC and over 2,000 seeds and seedlings in the nursery are waiting to be transplanted outdoors.

Expeditions are not the only mechanism by which we add to MBC's cycad collection. We are supporting scientists and students living in various Central and South American countries to collect seeds whenever cones in native populations become mature. One funding contribution has allowed us to support field work by Mexican botanist Miguel Angel Pérez-Farrera. In addition to collecting germplasm, Miguel will be documenting population sites throughout Mexico in anticipation of future MBC expeditions.

We strive to increase the horticultural care and scientific value of our cycad collection by interacting with horticulturists and scientists who work with similar collections. This April, Executive Director Terrence Walters met with three cycad scientists and two horticulturists at the Orto Botanico di Napoli in Italy to learn about the care of their cycads, and to encourage them to access MBC's collection for future research studies. In June, Eric Shroyer spent three weeks in South Africa, where he met with numerous cycad experts. Eric gave three lectures to the South African cycad community, promoting the Montgomery name as well as the use of our collections.

This year, we have made great strides with respect to developing the cycad collection. For example, we added six acres to the existing six-acre Cycad Walk. The main path of the Cycad Walk was re-directed from its original east to west direction to a north to south axis. This allowed us to incorporate the new six-acre addition, to take advantage of the long north-south length of our property, and to connect the southern termini of the Cycad and Palm Walks at the Palm Circle.

Above: *In January, MBC, Ganna Walska Lotusland in California, and the Clavijero Botanical Garden in Xalapa, Mexico undertook a cycad expedition to Mexico to document the location and conservation status of populations of* Ceratozamia. *An exciting moment was when Tim Gregory (left) and Jeff Chemnick located* C. hildae *in the wild. The native population contained 10% of the non-fasciculated leaf form (leaf-type held by Tim) and 90% of the normal fasciculated leaf type (leaf held by Jeff).* ***Left:*** *This spring, one of the 103 plants in MBC's* Cycas panzhihuaensis *collection coned. Here is a view of the first male cone.*

With the revised Cycad Walk design in hand, we planted a total of 332 cycads into the outdoor beds this spring. One of our plantings is what we believe to be the only wild-collected, population-based sampling of the Japanese native, *Cycas revoluta*. Although this species is the most commonly cultivated cycad in the world, the type of material required for scientific investigations has not been previously available outside of Japan.

We also began the development of our tropical zamia area this summer. To protect this rare and truly tropical group of cycads, we planted a large number of dicot trees to provide a full-shade canopy and installed an overhead irrigation system.

Many of the plants collected during the early 1990s expeditions began coning in 2000. This year, we were very excited to see the first coning event in the extremely large *Cycas panzhihuaensis* collection. Having grown vigorously from seeds collected in China in 1992, these plants are finally starting to reach reproductive maturity.

Another effort designed to improve the quality of our cycad collection is the bringing together of cycad experts. With the aid of a recent contribution from the Bressler Foundation, we have invited 17 of the world's leading cycad scientists to attend a three-day "Cycad Classification Concepts Workshop" at MBC in 2002. The workshop will concentrate on the development of a consistent, practical, and internationally accepted classification for cycad taxa. A shared vision by cycad scientists will allow the pace of cycad research to accelerate, a process in which MBC is proud to participate.

Occidente y Oriente: Collecting Palms and Cycads in Ecuador

by Amanda K. Neill and John P. Janovec

Ecuador harbors incredibly high biological diversity. This is evinced by an estimated 15,000–17,000 plant species, of which approximately 130 are palms and 5 are cycads. One factor in the diversification of life in Ecuador is the mighty Andes mountain range, which divides the country longitudinally. In the search for seeds to enhance MBC's New World collections of palms and cycads, we explored moist forests on both sides of the highlands with our Ecuadorian collaborator Wilson Quizhpe during September of 2000.

Fernando Nicoalde, a botanist at the University of Ibarra, accompanied us on the first leg of our trip to the Esmeraldas Province, on the western (occidente) side of the Andes. He took us to various sites in the lush forests along the Rio Cayapas, accessible only by canoe. Fernando's friends in several villages led the way to populations of three cycad species: *Zamia lindenii*, *Z. roezlii*, and a new unnamed species of *Zamia*. We collected seeds from all three species. The two described species were found with mature female cones, each of which had already released some seeds onto the ground beneath the mother plants. The beautiful scarlet flesh on these seeds was punishingly foul-smelling. We realized later the smell would not wash off our hands for several days!

While driving east on the road to Lita, we stopped to collect from a large population of the palm *Bactris coloradonis* that was on farmed land. Our activities attracted the attention of a group of men down the road, and one approached us and informed us that this was his farm. We explained our purpose, and paid him for the privilege. When a truck full of men drove by, he hopped in, and they disappeared down the road. A few minutes later another man walked toward us and told us that HE was the owner of this farm. We gladly paid twice for the *Bactris* on this "collectively-owned" property.

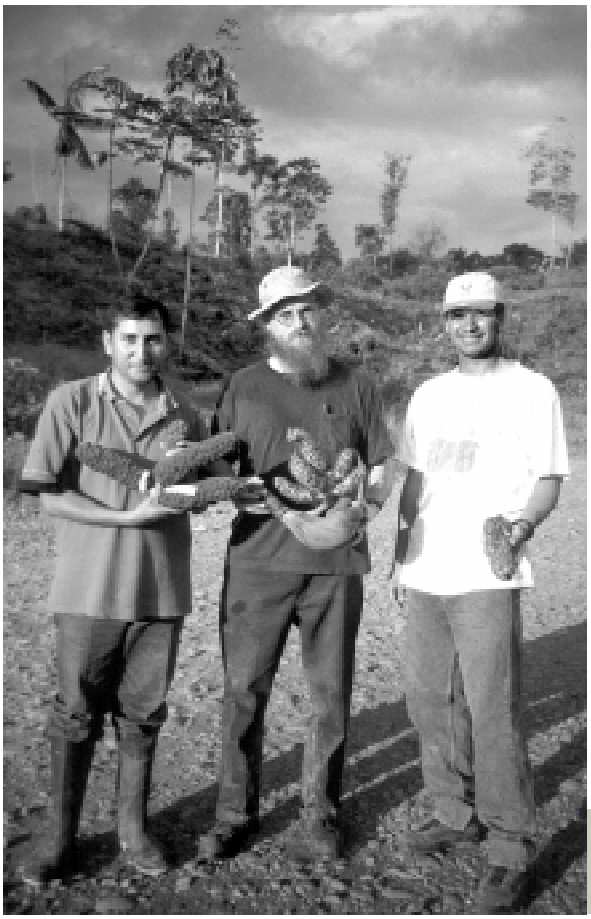
The rest of our trip was spent on the eastern (oriente) side of the Andes, where all rivers eventually flow into the great Amazon. When viewed from the lower foothills, the Amazon basin looks like a misty, green ocean, unbelievably flat and stretching to an infinite horizon. We made collecting forays from the border town of Tena in the eastern-central Napo Province.

Mauritia flexuosa is a robust palm found in villages along the Rio Napo. The sweet-tasting fruit has an unusual scaly red covering, and each scale separates and flakes off when the fruit is ripe. Villagers helped us to harvest these fruits with a bamboo pole to which was affixed a second short stick pointing back at an angle, creating a hook.

During another foray, we were looking for ripe *Chamaedorea* fruits in the forest during a downpour, when we were startled by what looked like a large pink snake moving through the detritus. On closer inspection, we realized that this was a two-foot-long earthworm as thick as a garden hose!

We logged several canoe-hours in the southeastern Zamora-Chinchipe Province to reach Shaime, an indigenous village on the Rio Nangaritza. This river cuts through sandstone hills near the Cordillera del Condor, and at times winds through narrow steep-walled canyons interrupted by occasional waterfalls. The forest in this area is pristine and beautiful, and here we made most of our palm collections, including many as-yet unidentified species of *Chamaedorea* and *Geonoma*.

With the help of various individuals along the way, we collected seeds from 26 species of palms and 3 species of cycads during our trip. Our special thanks to the staff and students at the National and Loja herbaria. Next trip, we hope to collect from the other 100^{+} species of Ecuadorian palms and cycads.



From left to right are Wilson Quizhpe, John Janovec, and Fernando Nicoalde, holding inflorescences (flower clusters) and infructescences (fruit clusters) of the palm Wettenia quinaria.

The Palm Collection: The Critical Years

by Lee Anderson, Property Manager

Extending personal care to each and every one of MBC's 5,000 palms may seem like an intimidating task, but not for the Dauntless Duo of Laurie Danielson and Vickie Murphy. These Palm Horticulturists manage the challenges of palm care with efficiency and aplomb. Their work begins when juvenile palms are ready to leave the Nursery Complex. Laurie and Vickie give special attention to the plants during the critical 3–4-year period following transplant into the ground.

Each year at MBC starts with Nursery Horticulturist Barbara Judd and Collection Manager Larry Noblick reviewing the nursery collection to determine which palms should be "shipped out." Once the year's planting list has been developed and landscape designs are in place, it is up to Laurie and Vickie to get the young plants into the ground and keep them healthy as they grow to maturity. Transplant assistance is usually plentiful. Volunteers, Palm Society members, Master Gardeners, MBC's landscape team, and even members of MBC's Board of Directors are always eager to help out with the installation of the year's palette of palms. However, once the glamour work of palm planting is over, Laurie and Vickie alone must make sure that their young charges reach a stage where they will thrive with minimal attention.

Above: *Laurie (left) and Vickie (right) are assisted by MBC President Karl Smiley in planting the final* Sabal *in the Palm Circle.* ***Left:*** *With the help of an aerial lift, Scott Massey removes weedy vines and ficus plants from palm crowns.* ***Below:*** *Barbara (left) and Larry evaluate the palms in the full-sun nursery to determine which are ready to be planted on the property during the upcoming year.*

Much is done to try to ease the plant's transition from nursery to field. To ensure a continuing supply of nutrients for the developing root system, time-release tablets are placed in the planting hole as backfill material is added. Depending on various environmental factors, especially heat and rainfall, these tablets can retain their effectiveness for up to a year. The backfill mix itself is important, requiring the right proportion of rich friable soil (to encourage development of fragile young roots) mixed with the indigenous soils that will be the long-term medium for the plant. Proper irrigation is a vital concern. Laurie and Vickie must observe new transplants vigilantly to ensure that the plants are neither water-logged nor dessicated. MBC's palm planting season starts in April, right before the rainy season. This year, however, was noted for weeks of debilitating drought before the monsoon rains suddenly descended from the heavens.

Palms can take up to 4 years to adjust to their new homes in the ground. Once they have survived this critical phase, they are incorporated into the standard maintenance regimen for the entire ground collection of palms. Laurie and Vickie continue their pro-active care with keen plant observation, real-time meteorological data, and detailed record-keeping.

Personally, I find it highly rewarding when visitors who have not been on the property for some time pass by a group of plantings last seen in the spindly juvenile stage, and are nonplussed to discover how big and healthy the specimens have become in just a few years. Quite a compliment to the efforts and energies of the Palm Horticulturists and their support groups!

Above: *Dr. Bijan Dehgan (far left) brought his University of Florida Botanical Garden Management Class to visit MBC on April 6. Executive Director Terrence Walters shared with them his experiences managing MBC.* ***Left:*** *On February 25, the Fellows of the Historical Museum of Southern Florida enjoyed a tour of our buildings and collections as well as dinner by the pool.*

OUTREACH

Right: *Members of the Dadeland Garden Club conducted a meeting, breakfast, and tour at MBC on April 12. Here, they appear dwarfed by one of the larger banyans* (Ficus altissima) *on our property.*

Above: *Eric Shroyer (center) discussed MBC's cycads with Central Florida's Palm and Cycad Society in January. The Society also learned about our palms during a tour by Dr. Larry Noblick.* ***Below:*** *The Miami Chapter of Ikebana International held their Annual Installation Luncheon in the Nixon Smiley Meeting Room on May 15.*

Above: *Judy Kay (far right) gave a tour of MBC's seedbank operations to an international group of students attending the five-day "Technical Workshop on Seed Conservation of Tropical Plant Species."*

Left: *Since 1995, MBC and Bogor Botanic Garden in Indonesia have had a very successful collaborative program. In May of 2001, three Bogor staff, Facilities Manager Enday Sudarso (left), Palm Researcher Joko Witono (center), and Collection Curator Samsu Sujahman, spent three intensive weeks of training at MBC. Joko worked in our Collections Development Department, Samsu with the Horticultural Team, while Enday worked on irrigation and facility maintenance with the Facilities Team. We enjoyed their visit and learned as much from them as they learned from us.*

Who We Are

Terrence Walters, Ph.D.
Executive Director
Lee Anderson
Property Manager
Norma Armstrong
Field Assistant
Claudine Bachman
Administration Assistant
Jack Bauer
Facilities Supervisor
Barbara Bohnsack
Field Supervisor
Mario Borroto
Landscaper
Juan Corona
Equipment Specialist
Orlando Coy
Grounds Supervisor
Stella Cuestas
Assistant Cycad Horticulturist
Laurie Danielson
Palm Horticulturist
Abbie Dasher
Landscaper
Willy Dye
Landscaper
Barbara Judd
Nursery Horticulturist
Sue Katz
Database Supervisor
Judith Kay
Seedbank Coordinator
Marta Lagos
Housekeeper
Scott Massey
Dicot Horticulturist
Vickie Murphy
Assistant Palm Horticulturist
Larry Noblick, Ph.D.
Collections Manager
Willie Payne
Landscaper
Jessie Pender
Landscaper
Randy Russ
Landscaper
Juan Serrano
Spray Technician
Eric Shroyer
Cycad Horticulturist
Ansel Thomas
Irrigation Specialist
Hostilio Torres
Equipment Operator
Marino Valcourt
Maintenance Assistant
Evelyn Young
Administration Manager/
Volunteer Coordinator

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.

We can be reached by telephone (305-667-3800), by fax (305-661-5984), and by email (montgome@fiu.edu).
Our website address is **www.MontgomeryBotanical.org.**
Our normal operating hours are 7:00-3:30 Monday-Friday.

From the Montgomery Archive come these circa 1940s . . .

. . . photographs of Nell and Colonel Robert Montgomery.

Montgomery Botanical Center
11901 Old Cutler Road
Miami, Florida 33156