The PALMATEER

Volume 19, No. 1 *Central Florida Palm & Cycad Society* *March, 1999*

DATELINES…
March 14 (Sunday) First quarter general meeting of CFPACS, East Coast area (Vero Beach) and will include garden visits to Ed Carlson, Ken Macht, and Joe Michael. Details, p. 3. Contacts: John Kennedy (561) 567-9587 and Neil Yorio (407) 773-4347.
March 27-28 weekend Annual spring sale, Leu Gardens, Orlando. Contact: Dave Witt (407) 297-8662.
June 12-13 (day to be determined) Second quarter general meeting of CFPACS, Central area, venue TBA. Contact: Eric Schmidt (407) 294-9422.
September 4-5 weekend First annual Palm & Cycad Society of Florida (PACSOF) meeting and Palmfest, West Palm Beach area, venue to be determined. Contacts: Paul Craft (561) 793-9029, Neil Yorio (407) 779-4347.
September 11-12 (day to be determined) Third quarter general meeting of CFPACS.

On the Beach at Melbourne: More than 60 Attend December Meeting

This *Borassus aethiopium* (left) in Greg & Charlene Palm's backyard reached this size from seed planted in 1994. All December visitors were impressed..
Story of the meeting on page 7.

You can see these fruiting *Pseudophoenix sargentii* at the first stop on the March 14 meeting: 10 a.m. at Casa Carlson in Vero Beach. Needless to say, there are more palms behind the house For details, directions, phone numbers, see page 3.

Deadline for June Issue

All material for the next issue of The Palmateer, to be mailed at the beginning of June, must reach the editor by May 1.

Yes, a new name. The board and the editor felt that "Palm Review" was perhaps inaccurate (we don't review palms) and a little more serious than our own enjoyment of palms warranted. The new name is reminiscent of musketeer (all for one and one for all) and Mouseketeer ("who is the leader of the band…" and fitting forr us who live in some proximity to the Mouse).

My Favorite Palm

A Thorny Experience or, Fun with Palms

By Hershell Womble

Now that is a tall order. Like, what is my favorite meal, car, socks, etc.? I looked over all of my palms, browsed through my books and still there is a dilemma. I do, however, have a palm collecting story that may be of interest.

A friend obtained permission to dig Rhapidophyllum hystrix (needle) palm in the black hammock area near Oviedo. We planned for a Saturday as we were still employed at that time. We took along another friend and proceeded on my old Chevy truck to the edge of the property which contained our quarry. We had no problem finding lots of needle palms, including some small enough to carry out on our back.

I was designated boy scout, selected to get us back out of the forest, when I realized I was heading into a bad patch of tall fern. I instructed my friends to go to their left. I thought it was only a patch of fern and proceeded on. Well, needless to say, it was no little patch but by the time I realized it, I was too committed to turn back. The tall tangled fern was fighting my every move, then I stumbled and some of the needles on my treasures stuck into my right wrist. I extracted all I could, then discarded all non-essentials, such as my water and shovel, but kept all of the palms and proceeded on.

In the meantime my friends had gone on, so I could no longer hear them. I wasn't lost, just couldn't get out of the fern. This went on for at least an hour, maybe more. My friends got concerned and came back part way, so we made verbal contact. I was completely exhausted but I finally found a way out of the fern. It turned out the ferns were only along the edge of the property, but were so thick I could not tell if I was near the edge or not. I escaped with all of the needle palms I had dug.

On the way to drop off my friends, I realized I needed help in shedding some needles, as I was unable to get them all out. My spouse was out of town, so I dropped in on another friend whose spouse was a nurse and, with a little begging, she volunteered to try extracting the needles from my right wrist. I was convinced, though, that some of those needles stayed with me for a year or more. The wrist did heal, the pain went away, and all of the palms survived and never did attack me again.

Peter Mayotte took the pictures above while visiting Brazil recently. At top, *Corypha umbraculifera*, at the Burle Marx estate near Rio, with its terminal inflorescence. Almost all the leaves are dead. The lower picture is the silhouette of *Syagrus pseudococos* near Petropolis. Look on page 16 for another of Peter's Brazilian pictures.

The Places To Visit in Vero Beach

The first stop is at the house of Ed and Joyce Carlson in a subdivision called Vero Beach Aerodrome. Yes, there's a hangar with a small plane in it just behind the house, beyond the palms, next to the grass airstrip. Along with the palm goodies, there are a number of cycads. The tour begins at 10:00 in the morning.

The CFPACS board will meet at 8:30 at the Carlsons'. Any member is welcome to attend.

The second stop is at Ken and Lyn Macht's house (about 15 minutes' drive from the Carlsons'). This small collection contains the remnants of palms planted in the 1930s: an old *Latania*, an *Attalea*, a *Hyphaene*, and more. Time at the Machts': 11:30-noon.

Lunch and travel time, 12:00-1:30.

The Michael place, on Earring Point, is among the most beautiful and favorable for palm growing in all of Central Florida. Jutting out into the Indian River, it has mature palms dating from the 1950s. We are due there at 1:30, with plant sale to follow.

Directions to March 14 Meeting

Exit I-95 at Exit 68: State Road 60,Vero Beach. Drive east on SR 60 for 1.3 miles to County Road 619 (82nd Ave.). Turn right (south) on CR 619, go 3.1 miles to 5th St., S. W. Turn right (west) on 5th St., S.W. At stop sign (about 100 yds.), turn right. This is Nieuport Dr.; the Carlsons' house is the second on the left. (485 Nieuport Drive)

Leaving the Carlsons', go back to CR 619 (82nd Ave.). Turn right (south); CR 619 deadends into CR 606 (9th St., S.W.). Turn left (east) on CR 606. Drive 4.1 miles to full stop at CR 611 (43rd Ave.). Turn left (north) on CR 611; go 3 miles to 16th St. Turn right (east) on 16th St. and drive for 0.7 miles to 3240 16th St. Ken and Lyn Macht's house is on the north side of the street. Park off the pavement on the north side of 16th St. or on Adjacent 32nd Ave. or 34th Ave.

Lunchtime: see below for suggestions.

From the intersection of U.S. #1 and SR 60 westbound, head north on U.S.#1 for 8.5 miles to CR 510. Turn right (east) on CR 510. Drive 2.1 miles—over the Wabasso Bridge—to Jungle Trail, the second unpaved road on the right, about 100 yds. after the bridge.

Turn right (south) on Jungle Trail 0.3 miles to sign "Earring Point—Dead End." This is the Michaels' driveway.

After leaving the Michaels', you may enjoy driving south (right) on Jungle Trail, a scenic, beloved "country" road. It has been much fought over, as "modern" Vero encroaches on the "old." The road is within spitting distance of the Indian River lagoon. At 3.3 miles below the Michaels', cars are turned onto a paved road that deadends in A1A. You are back in the present: manicured landscapes, gatehouses. At A1A, turn right (south) to pick up SR 60 to I-95 or turn left (north) to pick up CR 510. Follow CR 510 (you can only go left, the ocean is right) to I-95.

Phone numbers: Ed Carlson (561) 567-6678; John Kennedy (561) 567-9587.

A note about streets in Vero Beach and Indian River County. On the mainland, virtually all streets are numbered. Avenues run north-south, streets run east-west. Thus, SR 60 (almost always referred to as such) is 20th St. Below SR 60, the streets go down to 1st St. Then, to make matters more interesting, the numbers start again: 1st St., S.W., etc., though not all the hypothetical streets are cut through. U.S.#1 is 8th Ave. (though never called that); I-95 would be about 95th Ave. In the town itself, SR 60 divides into separate cross-streets, either eastbound or westbound. The eastbound is a block south of the westbound. Directions from the first to the second stop are complicated by the fact that there are very few east-west streets that go from I-95 to U.S.#1; construction also prevents more direct travel.

Restaurants are difficult on Sunday; quite a few are closed. Most fast food joints are to be found on U.S.#1 within about a mile south of its juncture with SR 60 eastbound. From the Machts', drive east on 16th St. Other possibilties are the Indian River Crab Claw (brunch buffet), the Preet Palace (Indian), Ay! Jalisco (Mexican), Mrs. B's (budget, meat & potatoes), Wayside Inn ("English"). Several more expensive possibilities are available, including Sonya's in the Disney Resort which is less than a mile from the Michaels'. Ask for directions from John Kennedy or (for the upscale) Ed Carlson.

40 CFPACSers Tour Montgomery Botanical Center

By John Kennedy

A lush, 120-acre private estate in Coral Gables, a mile or so south of Fairchild Tropical Garden, filled with thousands of palms and cycads. A dream? No, the reality of Montgomery Botanical Center (formerly the Montgomery Foundation).

Forty Central Floridians travelled to Miami on Saturday, February 6, to visit this palm-lovers' (and cycad-lovers') paradise. Dr. Terrence Walters, the executive director, took the group on a two-hour tour , with special attention paid to the plantings of cycads and palms made since our last visit two years ago. After the tour, Terrence told us to go where we liked on the property, to stay as long as we wished.

Montgomery Botanical Center is not open to the public. However, special groups like ours are made welcome. Montgomery's primary purpose is the scientific study of palms and cycads. Scientists come from all over the world to conduct research here. All plants are grown from seed that is documented, wild-collected, that is, from habitat.

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The group (left) listens to Terrence Walters, its director, tell about Montgomery's history and mission before the guided tour. Below, one of the silted over brackish lakes being restored before lowland planting of palms can begin. Removal of Brazilian peppers and other exotics was necessary. The permits required for this work took many months to obtain.

Montgomery

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Rather than a palm or two of each species, which is often the case in botanical gardens, Montgomery has numerous individuals of the same species planted together at some distance from other species. This diminishes the possibility of genetic contamination.

Each plant is examined once a month and its condition noted in a huge computer database. Since there are about 1,000 cycads and 4,000 palms (450 species of each), this is no small task. And—7,000 more palms remain to be planted. Montgomery offers a training course in computer databases for botanical gardens.

Montgomery originated as the estate of Col. Robert Montgomery, a founding partner in the accounting firm now known as Coopers & Lybrand. His collection of palms was called "Coconut Grove Palmetum." Montgomery and his wife, Nell, donated the 83 acres now occupied by Fairchild Tropical Garden and were instrumental in its founding in 1936.

Mrs. Montgomery inherited the estate on her husband's death in 1953. In 1959 she set up the Montgomery Foundation to advance the science of tropical botany. On her death in 1990, she left the foundation a $10 million endowment. The name was changed in 1998 to reflect more clearly its purpose.

Although devoted to scientific ends, Montgomery is beautiful, "science and landscape together," says Terrence Walters. Its layout is reminiscent of Fairchild, but with more open space and longer vistas.

Visitors find it hard to believe that the property was devastated by Hurricane Andrew in August, 1992, when 877 palms were destroyed. Since then, mostly from 1995 onward, thousands of palms and cycads have been planted. Miami-Dade County's thin soil, with limestone a few inches down, makes planting very difficult. All the plants seen by the visitors, whether in the ground or in the greenhouses, were vigorous, in beautiful condition.

Seed production is a by-product rather than a goal. However, much of seed has been made available, free of charge, to botanical gardens and to plant societies, including our own chapter.

A few tantalizing tidbits:

- Montgomery has a new, unnamed Syagrus that is fast-growing and does not need the usual micronutrients. With Larry Noblick as collections manager, it may be assumed that a name will be found.
- A method has been discovered to pollinate Nypa fruticans, notoriously difficult, if not impossible, outside of habitat.
- Male cycad pollen from rare species is collected and stored for application to female cones, sometimes more than a year later.

At the end of the walkabout, Neil Yorio presented a chapter donation to Montgomery. All the dazzled visitors expressed great willingness to take up housekeeping in any of the property's nine houses. Only two are lived in; the others are guesthouse and conference facilities.

Montgomery Botanical Center, 11901 Old Cutler Rd., Miami, Florida 33156
montgome@fiu.edu

Mike Dahme's campaign for a *Phoenix*-free Florida advances (above) a little more with the removal of yet another of the offending genus from his property. For a *free Phoenix* (you dig), call Mike at (407) 724-8417.

A postscript to the visit: Mike Palmseed was able to donate documented (exact site, photos) *Sabal causiarum* seed from Puerto Rico, gathered by himself, which was urgently needed by Montgomery.

If you lived in South Miami instead of chilly Central Florida, you could have a *Corypha umbraculifera* to dwarf your house. One in front, one in back. Good shade! But not for Tampa, and too hefty to leave in pots to haul in and out of the garage on cold nights.

HISTORY AND EVOLUTION OF *SABAL PALMETTO*

By Sarah Fahle, *Florida Institute of Technology*

The ecology and sediment of Florida during the Mesozoic era had many favorable characteristics to fossilize both plants and animals. Florida barely rose above the ocean and both salt and freshwater played an important role in its ecology. There are centuries old cypress swamps, mangrove swamps, freshwater and coastal salt marshes, and freshwater ponds. Hardwood hammocks rise a few feet above surrounding lowlands and are populated by pine woods, scrub oak, orchids, palms, and other plant species common to low, water saturated areas (1). The soil is thin, grainy, and sandy but also adapted to short bouts of massive amounts of rain. The soil in the swamp and marsh habitats is anaerobic and always submerged, creating a perfect environment for the preservation of soft plant parts.

The palm family, Araceae, has several distinguishing characteristics. The plicate leaves are blades folded together in longitudinal pleats which bend toward the ground (2). The folds split and separate into leaflets when the palm leaf opens, creating the two types of palm leaves. The short leaf-axis creates a fan-shaped (palmate) leaf and the elongate axis with folds symmetrically spaced along the axis creates the feather-shaped (pinnate) leaf. The leaves can be further divided into induplicate leaves which split to form gutter-shaped leaflets or reduplicate leaves which form inverted gutter-shaped leaflets. The induplicate and reduplicate feature is often used as the primary basis for grouping palm species (2).

Sabal palmetto, the cabbage palm, is the state tree of Florida and is a member of the palm family, a group of monocotyledon trees. It is recognized by palmate induplicate leaves, about 1-2m long, which are divided into many parallel-veined segments with prominent arching midribs. The petioles are 2m long and lack spines and the trunk, growing to over 20m tall, has a uniform diameter from the base to the summit (3). The trunk has "boot-jacks" which are remains of the old leaf stalks. The flowers are green-white, fragrant, numerous and found in large, highly branched, drooping clusters (4). The fruits are shiny, black and clumped together in large bunches.

The palm blade found in the Florida Tech jungle may have fossilized as early as the upper Cretaceous period, 65 million years ago, although it likely fossilized in the Paleocene or Eocene epochs. Modern palms and ancient palms grew in marshes, hammocks, and sandy soil surrounded by anaerobic mud which were favorable conditions for the fossilization of plant parts (4). This has been proven by the numerous fossil fragments of plant stems, leaves, seeds, pollen grains, and spores that have been found in peat accumulations (5). The palm blade would have fallen and sank into the swamp or would have been buried by river-soaked mud or sand sediment. It would have then rotted and undergone chemical alterations, carbonisation, and the consolidation of coal. Plant fossils in coal or shale are in the form of either impressions with outer shape and surface markings, carbonaceous films, or petrifications (5).

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December Meeting: Palms in Indian Harbour Beach, Satellite Beach

By Mike Dahme

The chapter's final event of 1998 took place on December 12th at four closely-spaced homes in the Satellite/Indian Harbor Beach area of Brevard-County. Flawlessly organized by Neil Yorio [whose home was the finalstop], the weather gods were also whipped into line as none of the predicted rain showers materialized.

Though all of the gardens were on the "young" side, attendees certainly saw how quickly certain palm species could grow given optimal conditions. For example, at the morning stop at Charlene and Greg Palm's several species of Borassoids were growing to perfection in their sandy soil: though hard [for me] to believe, their *Borassus* was datable to early '94 [as a seed!], and the *Hyphaene* cluster is only a couple of years older. These species, that germinate via an "hypocotyl", are native to areas with dry climates [or climates with pronounced dry seasons] and well-drained soils, so their success at this beachside location is understandable [Charlene even divulged that they are hardly ever fertilized], but how to explain the remarkable growth of their *Copernicia alba*, a species that in habitat grows only in deep swamp water? Or their husky Spindle Palm?

Upper right, the plant sale in the courtyard at the Yorios' house. Lower right, Charlene Palm's *Borassus aethiopium*, planted as a seed in 1994. Incredible! Lower left, behind the Parkhursts' house, Mr. & Mrs. Mac Rogers talking with Chuck Grieneisen.

Well, rather than carry on in this vein let's cross the street to the home of Gary Houck, the simultaneous stop. I didn't catch the age of his plantings but despite the impressive size and health of the silver *Bismarckia* and the Queens in the front yard I suspect that they aren't much older than those of Greg and Charlene. Regardless, the view in the front in no way prepared us for the tropical delight that is Gary's back yard. Complete with a good-sized fish pond, the cumulative effect of [up to eight] years without a freeze is a superb "pocket" garden - if there's a finer specimen of *Dypsis lutescens* anywhere on the Space Coast, lead me to it.

After a break for lunch the meetings resumed at the Parkhurst's--Maria and Jim--a few miles south. Theirs is a corner lot and thus seemed [and

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History of *Sabal palmetto*

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Vascular plants were preserved as fossils by the upper Silurian period and forests of gymnosperms ruled throughout the Triassic and Jurassic periods. The angiosperms, flowering plants, date back to the Cretaceous period about 120 million years ago (6). Fossils of palm-like trees have been dated to the Triassic period but it is difficult to label these plant as angiosperms because the defining character of this group, double fertilization, is not preserved by fossilization (7). The angiosperms radiated explosively during the Mesozoic era simultaneously due to favorable environmental conditions and an increase in adaptive features and, over a period of 55 million years, they became the dominant plant life on earth. The phylum Anthophyta includes approximately 275,000 species and is divided into the Dicotyledon class and Monocotyledon class which diverged during the upper Cretaceous (6). Dicots have two embryonic cotyledons, netlike veins in the leaf, flower parts in multiples of four or five, and a ring arrangement of primary vascular bundles in the stem. This class is highly evolved and diversified and is represented by herbs, weeds, vines, trees, and shrubs (2). Monocots have one embryonic cotyledon, parallel veins in the leaf, flower parts in multiples of three, and a scattered arrangement of primary vascular bundles in the stem. This class is represented by grasses, cattails, lilies, orchids, and palm trees (2).

The pollen and fossil data indicate the origin of the angiosperms in the upper Jurassic or lower Cretaceous and these forms were not highly diversified (8,9). There was then a large diversification and geographic differentiation during the upper Cretaceous that resulted in the establishment of modern families and genera (9). The major diversification in angiosperm leaf features resulted in the pinnate and palmate lobed leaf forms that are seen in modern palms and there was a rapid approach to modern flora during the Oligocene epoch. Three major periods of angiosperm evolution occurred in response to dry climates. During the Permian and Triassic periods there was seasonal drought in tropical uplands on Gondwanaland and during the Triassic and Jurassic periods there was evolution of taxa that are found today in warm deserts and dry areas at lower latitudes. The third evolution pattern has been continuous since the upper Cretaceous (8,9).

The most common angiosperm fossils are the impression and compression remains of leaves. One of the oldest "angiosperm" fossils is *Sanmiguela,* a genus with palmlike leaves that were dated to the Triassic period (9). These plants were about 60.0cm tall and consisted of broadly elliptical and helically arranged leaves attached to a conical stem. The leaves had a plicate lamina and parallel veins extending to the apex and lacked a midrib. The plicate character (leaf folds) and venation as cross-veins between the major veins are consistent palm characters but were not sufficient evidence to identify this plant as a palm (9).

Eocene deposits in the southeastern United States extend from the coastal plain of North Carolina southward through the Gulf States and northward to the mouth of the Ohio River (8). The Eocene sediments have yielded a variety of morphological types that can be related to modern families and subfamilies such as *Aralia, Bumelia, Cassia, Fagaceae,* and *Juglandaceae* and the deposits also contain lowland tropical species such as *Sabal* (Araceae), *Philodendron, Ficus,* and *Ocotea* (9). The southeastern United States was seasonally dry to slightly moist and warm temperate to cool subtropical during the Eocene and the fossil record indicates a time interval in this area between the upper Cretaceous and Eocene which explains the contrast between the

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December meeting

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probably was] a little larger - more room for palms? Jim had prepared a professional "lay-out" map that coded each plant's location to information about it [I'm sure that we'd all like to have something like that for our yards], and also had water, in their case a swimming pool, in the rear to accentuate the plantings.

Then, on to Karen and Neil Yorio's - and the palm sale. As Neil had promised, this was to be one of the better sales we've had recently, with six or seven sellers present and an excellent variety of species at, for the most part, very reasonable prices. [If there is any benefit to palm-growing in our part of the state it may be that our vendors are less inclined to "charge like a wounded bull".] Our Treasurer reports that sales exceeded $1500 [20% for the chapter], not bad!

A word or two should be devoted to the Yorio's palm collection, and I'm sure that many of the 60 or so visitors took the time to review the results, equally impressive as those of our other hosts, of their four years of palm-growing. Yet another who "discovered" the world of palms viaRockledge Gardens, Neil's frostproof corner [unlike the Parkhurst's Neil has planted the actual corner densely, and gone eyeball-to-eyeball with city code enforcement, explaining that the palms will, in their skyward phase, not pose a traffic hazard] lot has proven highly-suited to the requirements of many species. Those of us who live on the mainland, with our heavier, often poorly-draining, soils and cooler winter temperatures, can only regard the results of our four hosts with envy. Thanks to all for sharing these gardens with us.

Yes, there's a house in there. Below, Neil and Karen Yorio's place, from the street. Neil, are *all* the palms planted on 2-foot centers? Grass, happily, has been reduced to the minimum. Mulch, palms, and cycads prevail.

U.S.F. Sale

By Tom Broome

The University of South Florida in Tampa is having their Spring Plant Festival on April 10th and 11th this year. Our chapter has been participating at these sales for several years. This has been a time where palm and cycad people can get together, talk about plants, and buy a few. Most of our group enjoys plants in general and have collections of other types of plants like gingers or bromeliads. Here at these sales we can find just about everything we want. This is also a good time to stock up on palms and cycads for the new season. We get a lot of people who have questions about how to care for their plants. We also sign up a few new members every sale. I think we have had many good sales, but I would like to see a little more diversity in the plants we have available. Some vendors are afraid to try one of these sales. In the past, we have had a vendor bring five plants, just to get some more space in his yard. Anyone who even thinks they want to sell some palm or cycads call me and I cangive you some information. wilThe members of the garden get in at 9:30 at the back gate. In the evenings, they usually close at 3PM on both days. If there is something special you may

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History of *Sabal palmetto*

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floras of the two periods. Most of the material in the deposits is now tropical or subtropical in distribution, represented by *Ficus, Cinnamomum, Annona, Sterculia,* and *Sabalites* (related to the existing *Sabal palmetto*) (8). The great contrast between the lower Eocene and Cretaceous floras indicates that, "there was an extensive evolution of forms in lower latitudes after the initial dispersal of the flowering plants in the Cretaceous and these forms radiated northward during the cooler Oligocene" (8).

The *Philodendron* (family Aracaea) grew as a herbaceous shrub in wet areas on flood plains which is an environment quite common to palm species. Fossils of this monocot have been dated to the Eocene epoch and are almost indistinguishable from extant species on the basis of cuticle and venation patterns. This was an important find because little is known about the Araceae family and the morphological and anatomic similarities between the Eocene fossils and the extant forms indicate that this family had an early origin and evolution within the family was rapid (9). There is also a good record of Pleistocene vegetation as plant fragments from coastal and river terraces and plant pollen from bogs (8). Fossils of *P caribaea* (pines), *S serrulata, Sabal palmetto, Q virginiana* (oaks), and *A glabra* have been found in Florida and dated to the Pleistocene epoch.

There were three phases of monocot evolution and four of the twenty monocot families have a fossil record dating to the Cretaceous (9). The first phase began in the lower Cretaceous where the temperature was initially cool and gradually warmed during the upper Cretaceous. The second phase occurred from the lower Cretaceous to the Eocene and many of the modern monocotyledonous groups made their first appearance during this phase. The warm temperatures continued through the second phase and allowed several of the tropical and subtropical species to expand geographical ranges. The third phase occurred from the Oligocene to the Neogene and was characterized by climate degeneration. The monocots that were widely distributed during the Paleocene were geographically restricted and the taxa that appeared in the Eocene became more widespread due to the cooler and drier environment.

The palm family, Araceae, began in Malaysia and Amazonia in the Cretaceous period about 65 million years ago. They are as old, or older, than any other form of flowering plant and are derived from a group of herbaceous plants around the order Lilies which includes lilies, tulips, hyacinths, asparagus, and other tropical and subtropical species (2). The isolation of some genera and species, both structural and geographical, indicates that they are older than the species and genera of the more recent herbaceous monocots. The orders and families of monocots can be distinguished by palm characteristics and many palm genera have used neoteny (maturation at an early state of development) to diversify towards conditions characterized by the monocots (2). Many of the palm species inhabited swampy and sandy coastal regions where they gave rise to almost stemless kinds (*Sabal minor*). These short species are neotenic derivatives persisting in their dwarf sapling state and adapted to swampy riversides or to coastal sand dunes where there is no counterpart among palms of the old world (2).

During the mid-Cretaceous, Gondwanaland began to separate into Africa, South America, and a third land mass of Australia, Antarctica, and India. The separation of these land masses had a profound impact on the biogeography of angiosperms and particularly palms (6). The palm

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Places to See Palms

Kanapaha Botanical Gardens, Gainesville

By Marilyn Bachmann

A Visit to Kanapaha Botanical Gardens: Cold-Hardy Palms in North-Central Florida

When my husband and I first came to Gainesville, loving palms but knowing little about them, we wanted to buy two for a friend. When we asked him what kind to get, he said..." cabbage palms, of course, that's all that will grow in Gainesville"! A visit to local nurseries and garden centers told us otherwise, but two large individuals of *Sabal palmetto* soon were acquired to grace his swimming pool perimeter. This stimulated my interest in what palm species will grow in north central Florida and, as you all might guess, the desire to grow as many of these (as well as those marginal to the area) as I possibly can! Then I discovered Kanapaha Botanical Gardens, joined the International Palm Society and became acquainted with many other palm enthusiasts, including Merrill Wilcox and his hybrids. Wonderfully, I found that many palm species will grow in the Gainesville area and you can easily visit a well-established and lovely public collection at Kanapaha Botanical Gardens. It may well be, as their literature states, the most complete collection of cold-hardy palms in north Florida. The 62-acre garden is close to Lake Kanapaha, thus its name. Fittingly for us, the name comes from Timuqua Indian words meaning palmetto leaves and house and referred to their thatched dwellings.

In 1977 the North Florida Botanical Society was organized for the purpose of establishing a botanical garden for the north Florida community. Work began on the site in 1978. By October 16, 1986, when the garden was opened to the public, ten major garden areas had been developed, including the "Palm Hammock."

Many individuals, agencies, organizations and businesses worked with the Society to make this happen. New gardens (e.g. a rose garden) are still being added.

A visit to Kanapaha Botanical Gardens will give all of you palm enthusiasts a surprising variety of your favorite plants, right here in north central Florida! (Cycads are there too, though not in the diversity found in the palm collection.) At least 28 species of palms and 7 hybrids can be seen. Perhaps one of the highlights is the opportunity to see the various hybrids, especially the *X Butyagrus* nabonanndii X S. romanzoffianum and *XJubutyagrus everettii ([Butia X Jubaea] X S. romanzoffianum).* Come take a walk among the palms and cycads, then take

As you walk into the gardens from the visitor center, you will take a short, winding, shady walk toward the "Palm Hammock", established about 20 years ago and dedicated in 1991 to the memory of Charles Raulerson. He was a local palm enthusiast who was interested in the cold-hardiness of palms and well known to many

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Kanapaha Botanical Gardens, Gainesville: Right, double-headed *Sabal palmetto*; lower right, *Dioon edule* and multi-crowned *Cycas revoluta.* Lower left, the "Palm Hammock;" the juvenile individuals in front are *Sabal bermudana.*

History of *Sabal palmetto*

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family is pantropical but has subtropical extensions into California, North Carolina, Chile, Argentina, Italy, Greece, Asia Minor, and across north India and China to Korea and south Japan, New Zealand, and South Africa (2). The Coryphoid palms have flora on both sides of the equatorial Pacific but are almost nonexistent in Africa. They have developed strongly in Central and North America, extend to China, and are the only palms in Japan. The similarity between the Sino-Japanese flora and North American flora extends back into the Eocene when there was a post-glacial line of Coryphoid palms from their source in tropical America northwest into Asia and Europe. There was a second massing (indicating a site of origin) in southeast Asia extending northwards to the Sino-American contingent (2). This indicated the separation of the tropical habitats into two palm centers which occurred within the Cretaceous period.

The palm family is divided into nine subfamilies. The cabbage palm belongs to the Coryphoid subfamily, a group which includes the most primitive palms that are also extant (10). This is a fundamental group in the evolution of palms because lines of specialization may be traced from complex to simple inflorescences, from bisexuality to unisexuality, from six to many stamens, and from insect to wind pollination (10). Fossil palm leaves are usually not comparable to modern palms but the palmate and costapalmate blades of fossil palms are sufficiently distinctive to date Coryphoid palms to the lower Cretaceous period and to map their past extensive distribution in Alaska, Greenland, England, Austria, Russia, Japan, the Aleutian Islands, and Chile (2,10).

The rapid evolution of palms indicates that there has been few changes in this group from the ancestral to the modern species. Eocene palms indicate that the modern genus *Sabal* and the closely related form *Sabalites* share unique combinations of foliar features providing a basis for demonstrating evolutionary trends from the Cretaceous palms to their modern counterparts (9). *Sabal* also has an old heritage and a wide distribution demonstrated by fossilized seeds from the Cretaceous-Paleocene boundary that have been found in Greenland, seeds from the Eocene epoch that have been found in London, and pollen from the Oligocene epoch that have been found in southern England (10). *Sabal* is an excellent example of the way in which palm species have evolved by persisting in the youthful state with a short stature that is fit for particular ecological niches. Stemless savanna palms developed underground branches and deep roots to survive summer droughts and in Florida, have led to the evolution of sand-dune palms (saw palmetto) and several low-growing species of *Sabal*. Their extreme old age, their possession of both monocot and dicot characters, their rapid evolution, and their wide ancestral distribution make palms an important link in paleobotany and a key to angiosperm evolution.

References

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2 **Corner, EJH**. (1966) The Natural History of Palms. University of California Press, Berkeley, CA.

3. **Duncan, Wilbur H** and Marion B Duncan. (1988) Trees of the Southeastern United

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Kanapaha

(Continued from page 11)

And cycads, then take time to see what else the Gardens have to offer.

As you walk into the gardens from the visitor center, you will take a short, winding, shady walk toward the "Palm Hammock," established about 20 years ago and dedicated in 1991 to the memory of Charles Raulerson. He was a local palm enthusiast who was interested in the cold-hardiness of palms and well known to many of you through his hybridization efforts with *Syagrus* and *Butia*. The dedication ceremony occurred at a joint meeting of our chapter of the International Palm Society and the First Coast chapter. Those of you who were present at the dedication will enjoy seeing the

of you through his hybridization efforts with *Syagrus* and *Butia*. The dedication ceremony occurred at a joint meeting of our chapter of the Intenational Palm Society and the First Coast Chapter. Those of you who were present at the dedication will enjoy seeing the changes in the palm collection and the gardens since that time.

You will first see shade-loving and understory palms such as *Chamedorea microspadix*, *Chamedorea radicalis*, and *Rhapis excelsa* as you move toward the open area, passing a large stand of bamboo. Before you reach the main palmetum, you will pass through a small planting of cycads, including *Dioon edule*, *Zamia integrifolia*, *Ceratozamia kuesteriana* and *C. hiblae* . A large multi-headed *Cycas revoluta* stands at the edge of the group. The vista then opens and the "Palm Hammock" comes into view, dominated by two double-crowned *Sabal palmetto* and a striking blue saw palmetto (*Serenoa repens*) "hedge." Some of the hybrids, including the *XButyagrus* backcross and the *XJubutyagrus everettii* can be seen to your right. (A visit to the Water Gardens area will show you a triple-headed *Sabal palmetto*).

Your walk through the hammock will take you through clumps of plantings (e.g. *Sabal palmetto*, *Butia spp.*, *Washingtonia spp.* and *Phoenix spp.*) as well as individuals large and small. Not all plants are labeled, which is a real disadvantage, especially in identifying the hybrids. However, I have included a list of those species and hybrids present, kindly provided by Merrill Wilcox, which should aid you in the challenge of identification. I was particularly interested in seeing the *Brahea edulis* hybrids growing here, apparently successfully, and in the *Butia/Syagrus* crosses. A fairly large *Phoenix sylvestrix x P. canariensis* can be seen behind a young , *Copernicia alba* as you walk along the path. It is a pleasant surprise to come upon a well-grown Grugru palm (*Acrocomia sp.*). Coming around again to the open area, a line of *Sabal bermudana* gives a pretty picture.

Other things to see during your visit to Kanapaha include a Butterfly Garden, several ponds and Water Gardens, a *Crinum* Garden, a Bamboo Garden (the state's largest public collection of bamboo species),and a Hummingbird Garden.

Kanapaha Botanical Gardens is open every day except Thursday, from 9-5 Monday, Tuesday and Friday and 9-dusk Wednesday, Saturday and Sunday. Admission is $3.00 for adults, $2.00 for children 6 - 12 and free for those under 6.

Finding this very pretty public place to see palms is easy and convenient if you are taking I-75 past Gainesville. Take the Archer Road Exit (SR 24, Exit 75), turn west for 1 mile then turn right (north) on SW 56th St. The entrance is well marked. (Kanapaha Botanical Gardens, 4700 S.W. 58th Drive, Gainesville, FL 32608 (352) 372-4981)

Species included in the collection:
(Courtesy of Merrill Wilcox)
Acoeloerraphe wrightii
Acrocomia spp. "St. Leo"
Butia spp. (Butia spp. are well mixed in Gainesville*)*
Chamaerops humilis
Chamaedorea microspadix
Chamaedorea radicalis
Copernicia alba
Copernicia berteroana
*Copernicia prunifera**
Livistona alfredii
Livistona decipiens
Livistona mariae
Livistona muelleri
Livistona saribus
Phoenix dactylifera
Phoenix canariensis
Rhapidophyllum hystrix
Rhapis excelsa
*Sabal bermudana**
Sabal etonia
Sabal minor
Sabal palmetto; including two double-headed, one triple-headed.
Sabal uresana
Serenoa repens; blue and green
Trachycarpus fortuneii
Trithrinax acanthocoma
Washingtonia filifera
Washingtonia robusta
Hybrids:
Brahea edulis X B. armata

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History of *Sabal palmetto*

(Continued from page 12)

family is pantropical but has subtropical extensions into California, North Carolina, Chile, Argentina, Italy, Greece, Asia Minor, and across north India and China to Korea and south Japan, New Zealand, and South Africa (2). The Coryphoid palms have flora on both sides of the equatorial Pacific but are almost nonexistent in Africa. They have developed strongly in Central and North America, extend to China, and are the only palms in Japan. The similarity between the Sino-Japanese flora and North American flora extends back into the Eocene when there was a post-glacial line of Coryphoid palms from their source in tropical America northwest into Asia and Europe. There was a second massing (indicating a site of origin) in southeast Asia extending northwards to the Sino-American contingent (2). This indicated the separation of the tropical habitats into two palm centers which occurred within the Cretaceous period.

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References

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3 **Duncan, Wilbur H** and Marion B Duncan. (1988) Trees of the Southeastern United

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Kanapaha

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Brahea edulis X B. brandegeeii
(Butia X Jubaea) X Butia
((Butia X Jubaea) X Butia) X S. romanzoffianum
XButyagrus nabonanndii (Butia spp. X Syagrus romanzoffianum)
XButyagrus nabonanndii X s. romanzoffianum
Phoenix sylvestris X P. canariensis
Phoenix reclinata X P. canariensis

* Names not necessarily correct botanically, but useful to identify from a horticultural sense.

A well-grown *Acrocomia* (labeled *A. totai*) at Kanapaha Botanical Gardens.

From the Editor's Desk

I hope to be seeing many of you in Vero Beach on March 14. We begin with the garden of Ed and Joyce Carlson which some have previously visited. This is the palms-and-airplane garden, if you recall. But the palms have grown since four years ago, and there are some new and interesting additions. As an inducement to those who like to know what they are looking at, all the palms have labels and, so too, the cycads. The second stop, at Ken Macht's house, not far from Kennedy Palm and Tropical Weed Garden, contains the remnants of a very old collection, dating back perhaps as far as the 1930s. The third and last garden is that of Joe and Anne Michael, not to be missed, just north of Vero on the barrier island, on a point jutting out into the Indian River lagoon. The plant sale will be there.

The current issue has been produced on the new Gateway computer purchased by the chapter. I am feeling my way through Publisher 98 (installed, an improvement over the earlier version) and Adobe Photo Deluxe, not to mention the new scanner and the possibilities this opens up. Before I finish putting together this issue, I will also have used the new zip drive and, of course, the "old" printer. Whether I like it or not, I get to be computer-literate. What can be done with the computer is boundless, limited only by the operator's knowledge , or lack thereof, and the many programs that can be installed. While I appreciate all this, sometimes in a daze, I don't expect to wait breathlessly for the next issue of *PC World*.

The last issue was a comedy (I guess, a comedy) of errors. Produced on a classroom computer on the Vero Beach campus of Indian River Community College, I was unable to put it on floppy disk (too big), but no zip drive was available. The printer refused to print it; the message said it was too big; I tried to e-mail it to several people (in vain), except it got to my office PC where I made the mistake of opening it. The resultant mess—it seeped into other areas of my computer--required the assistance of the tech support people who told me, gently, that I can't do this kind of thing. (I was penitent.) For a time, it seemed as if the December issue would remain on computer #62 and the chapter would have to charter a bus so everyone could come look at it. Needless to say, hysteria and time (the classroom seemed to be in use for at least 12 hours a day and on weekends; I didn't have a computer at home) prevented my going back to correct all the many typos. (I was beyond such small details.) One last attempt to e-mail the issue got through (O thank you, St. Jude, patron of the impossible!) to Neil Yorio at the Kennedy Space Center, who put it on zip disk and, well, he had a few problems, but that's *his* story.

Herewith I announce a new editorial policy. After the last issue, may it rest in peace, there were rumblings from some who felt that I had wrecked their stories, robbing them of personality and individuality. So, from now on, I will put in every story exactly as I receive it, unless requested to fix mistakes. I had, misguidedly, been correcting pronoun-antecedent mistakes, making sure that subject and verb were the same number, correcting spelling and punctuation. Forgive me, those of you whom I offended: I meant well, but the English teacher in me*will out*. Quoth the Raven: "Nevermore."

History of *Sabal palmetto*

(Continued from page 14)

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Sarah Fahle, from Dayton, Ohio, is a student at Florida Institute of Technology in Melbourne. A senior, she expects to graduate in May with B.S. degrees in marine biology and ecology. This paper was written for her evolution class and was inspired by her finding a fossil fragment of a palm blade on the university campus (which, of course, is filled with beautiful palms). The paper, reprinted here in its entirety, received a grade of A and, indeed, is notable for its good writing and research—not always found in undergraduate papers.

USF Sale

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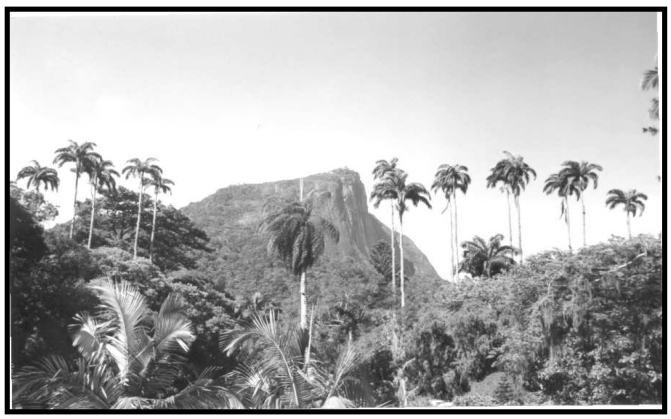
On both Saturday and Sunday morning, gates will open at 10 AM. The members of the garden get in at 9:30 at the back gate. In the evenings, they usually close at 3 PM on both days. If there is something special you may want, you should try to get there early on Saturday. The garden is near the southwest corner of the U.S. F. campus. To get there, the easiest way is to get on to Fowler Ave. from I-75 or I-275. When you reach the campus go into the main entrance, and then turn left at the first stop. You will be heading west, and if you will keep going straight you will run right into the garden. If you are coming from the west on Fowler turn left on the road that borders the campus, and then make the first right at the light. You will see the garden on your left. Look for the people that will show you where to park. Around 5000 people show up to this sale. If you have never come over for this, it makes a great way to spend part or all of your day. If you have any questions call me, Tom Broome at 942-984-2739, or e-mail me at cycadjungl@aol.com

Chamaedorea brachyclada—from the Greek word *brachy*, meaning "short" and *cladus*, meaning "shoot," in reference to the very short or nearly stemless habit.



An avenue of *Roystonea oleracea* with the Corcovado in the background, the statue of Christ on the top—visible here only to the eagle eye. Rio de Janeiro, caught by Peter Mayotte.

The Wilson Garden: Paradise at the End of a *Long* Bus Trip

By René Coativy, Roving Palm Correspondent

A sampler of palms to be seen at Wilson Botanical Garden, Las Cruces, Costa Rica. Far left, *Dypsis decipiens*. Second from left, *Licuala grandis*. Far right is *Iriartea exorrhiza*, its stilt roots an obvious feature. Second from right, *Cyrtostachys renda*. Among the many other species in the garden, René also took pictures of *Hyophorbe indica, Syagrus coronata*, and what he called the 'Viagra' cultivar of *S. coronata,* notable for the size and disposition of its peduncular bract.

Why should you visit the Wilson Botanical Garden ? Or visit Costa Rica, a Central American country lying between 9 and 11° latitude north [a good clue, isn't it]? There are many ways to look at it !! First, why not the *pronostico del tiempo* (weather forecast) for winter, what winter?

"...Most folks have never even heard of it, but probably the second largest collection of palm species on earth grows far from any major city, at the southern extremity of Costa Rica, almost on the Panamanian border. Not just a huge collection of palms, it is one of the most complete of all tropical botanical gardens. In addition to about 600 palm species it also boasts a remarkable collection of cycads, bromeliads, heliconias, treeferns, orchids, marantas and bamboos, all of them located on 342 acres of rolling land, part of which is beautifully landscaped but most of which remains as natural rainforest. It is the Wilson Botanical Garden, previously known as the Las Cruces Botanical Garden, which was established in 1963 by an American named Robert Wilson. In 1973 the property was transferred to the OTS (Organization for Tropical Studies, a consortium of universities). In 1986, due to Wilson's age and fading health, Luis Gomez took over as director. Bob Wilson died in 1989 and was buried next to his wife on the premises. Yes, the garden is out of the way but the five hour bus trip from San Jose will not be monotonous - far from it. Interspersed in the trip are several small towns, each of which has shops selling locally-made items. The road traverses forested highlands and immediately beside the road in many places are strikingly huge leaves of *Gunnera*. After the bus leaves the Panamerican Highway for the side road to San Vito, it reaches the alligator-infested Terraba River, over which a bridge has been started, but as of this writing is not completed, so the bus crosses via a ferryscow which seems precariously small and unsafe. For certain no passenger will be sleeping here!! And, starting after the river crossing are assorted exotic and native palms, which continue intermittently until the Wilson Garden, when palms become conspicuous rather than an occasional sight..."

I don't remember when I read the foregoing remarks by Jim Mintken and the late Bill Gunther [from the July '91 issue of *Principes*] and got so badly hooked that I wanted to go, but I wrote to Jim, a wonderful palm enthusiast running a two bedroom guesthouse in San Jose, and by late January '97 I was there. Costa Rica enjoys a perpetual summer, and in this respect it is ideal compared with our temperate climates. But you cannot believe what the brochures tell you about it.

I'll caution you that Costa Rica is not different from any other country in that it tends to

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Wilson

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overemphasize what it has been imagining for decades - that it is the Switzerland of Central America! Having had the chance to live in "Zug", I must rebut this claim,for there is nothing in Zug like the amazing flying cockroaches of Tamarindo, the snakes of the Sarapiqui River, the caimans of Tortuguero or, much worse, the lethal white-winged sandfleas ["papolamayo"]. I have been in the jungle to see infected people, quite impressive. Still want to go???

After a few days of fooling around in touristic spots it was time to accomplish what I had come for, the pilgrimage to the Wilson Botanic Garden. So one morning Jim and I were at the "Coca Cola" bus station, a former Coca Cola bottling plant, and today an incredibly polluted part of a polluted city, at 5:20 AM. My first [of three] lessons was never to trust what a Costa Rican "expert" says, for though we had been told by phone call that the first bus was to leave at 5:35 it in fact had left at 5:05. The next bus was to leave at 8:30, but my face did not please the "Tico" in charge behind the counter - "no seat".

Well, the second lesson for navigating Costa Rica: never get discouraged and use your brain. I handed a passer-by a bill and asked him to get me a round trip ticket for San Vito on the 8:30 bus and, surely within a minute, he came back to me with a "no seat" ticket! The third lesson? Never go to San Vito [or anywhere else in C. R.] by bus. If there was anything "good" about the trip, it was that the 16 hours that I suffered was for only $10, so the suffering costs only 62 cents per hour, bloody reasonable!!

Once at the Wilson garden I went to sleep at 6 30 pm, no kidding !!! It was still deep dark when a terrible noise made me jump up in the bed. Dinosaurs? A war [though Costa Rica has no army]?
My tax inspector? [Possibly the former, but not the latter, for the bureaucrats don't start until 9!!] What then? It was howler monkeys, and by 5: 20 they were back to sleep, the forest quiet but with me wide awake.

Well, it is time we started talking about the garden, which is heaven for the palm lover. I am not expert enough to report on all of the 600 species planted in the garden, but some of the palms particularly impressed me, starting with the *Dypsis decipiens*. Having avoided malaria in India and reluctant to catch it in Madagascar, I found no better way to see a mature *D. decipiens* than to visit the Wilson garden. So simple ! There are three groups of various sizes, the one in the picture is estimated to be 25 years from seed and it has three stems of different heights. It looks likea very sturdy palm and after having seen its beauty I could go home satisfied. The taller one has a stem of 2 meters, a crownshaft of 1.5 meters and is about 7 meters high in total with a maximum girth of 1.8 meters.

Licuala grandis from the New Hebrides, the specimen just amazing! Look at the circular leaves, a masterpiece. This one is about 3 m high. Look at the picture and dream . . . .

Bactris militaris from Central America . I had just read about it in *Principes* [or perhaps in the Palm Journal] about how rare it was. It evoked intense emotion to look at it, and bring this uncommon picture back.

Cyrtostachys renda. Even for Ticos it is a slow- growing palm! Tell me!! I shot the picture thinking of Ralph Velez' favorite palm, one we will never see growing anywhere in Europe.

Hyophorbe indica, another rare and beautiful palm, from the Mascarenes.

There has been some recent argument to what is or is not *H indica* . I don't care what it really is, this one was just great.

Parajubaea torallyi, at least that is the name on the label. I had never seen one before....

Or after ! A very striking palm, but the seeds I brought back never sprouted. Theywere smaller than the ones of *P . torallyi* I have seen since.

Corypha umbraculifera. Impressive even when not in bloom. In April 97 I saw one at the Calcutta Botanical Garden which had already completed its flowering. On the right may be an *Arenga pinnata* with the long leaves - do you agree, Ralph?

Pigafetta filaris. Maybe the tallest palm in the garden? Where will I see them again? Not on the Riviera! It is a very tender species with a nickname :"catch a cold !""

I read somewhere that they would grow in Durban?

Licuala spinosa, there are two mature stands. How old are they ?

Maybe Paul Craft, who has beautiful ones in Palm Beach, could tell us.

Could they grow on the French Riviera ?

Beccariophoenix madagascariensis. So graceful, so tall. Do they grow in southern California?

Phoenix paludosa, 5 meters tall, densely clustered, a

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Member Profile

Joe Michael, Long-time Member, March 14 Host

By Jerry Hooper

It's a rainy Tuesday morning. Tropical moisture has moved up out of the Gulf of Mexico. Rain pounds on the windshield. The sun is nowhere to be seen. Nor a rare occurrance for a day in June. But this is a rare day, a wonderful day. Richard Lundstedt and I are on our way to see Joe Michael in Wabasso (or Orchid) and to collect *Borassus* seed from his tree.

While at his place, I gather some information about his background and about his knowledge of *Borassus.*

Joe is a third generation Florida cracker who got interested in palms through Fairchild Tropical Garden. He joined the IPS (then The Palm Society) in 1956 or 1957.

There are two *Borassus flabellifer*, one staminate, one pistillate. Planted as seed obtained in 1959 from Lucita Wait when she was in charge of seed distribution, they have grown to be about 60 feet tall. The female palm has borne viable seed for five years now. The trees are 75 yards apart, with the female east of the male. The prevailing breeze is easterly. How the female is fertilized is unclear: maybe bees?

In a good year, Mama Bo produces 450 fruit which smells, Joe thinks, like mango. There are many other palms at Earring Point to be enjoyed by the CFPACS visitors on March 14. Notable are the massive *Corypha umbraculifera* which are 35 years old. Joe gives his palms good care for the first couple of years. His favorite palms are royals and coconuts. In the great Christmas freeze of 1989, the temperature dropped here to 19°F.

Familiar sights at Earring Point: owner Joe Michael holding a *Borassus flabellifer* fruit , the Mighty Bo (upper right) whose fruit he has been so generous in distributing. Lower left, with Joe for scale, his *Corypha umbraculifera.* Lower right, *Copernicia macroglossa.*

Wilson

(Continued from page 18)

thicket- forming palm
confined to coastal areas along inland sides of swamp forests near sea
level. It ranges from east India to Sumatra through Thailand. *P.paludosa* is possibly the most tender of the genus but it makes an outstanding handsome ornamental specimen.
The pictured leaflets are glaucous silver-blue. As with *P loureiri* (*humilis*), it is a slow- growing species.
Caryota sp This group of palms stands outside the garden in what used to be Bob
Wilson's retirement estate nearby. The specimen on the left is huge and 100' tall
it must be 25 years young and had not started flowering. It looks like the *Caryota maxima* I saw in southern Megalaya at the
Bangladesh border.
Bactris gasipaes. This clumping species is rather common in Costa Rica. The ringed stems
are very spiky, and the fruits edible when cooked. Are there any in California or Florida ?
Bismarckia nobilis. One of my dream palms, it grows so well over here - in the greenhouse !
There are two in the garden facing each other, one in the shade and miserable as a result,
the other the one in the picture [in full sun].
Simple Dr. Watson ! *B. nobilis* must be planted in full sun, but
don't tell me that it resents rainfall:
in 1996 god poured 45' of rain over it! Butt rot? No way.
Livistona saribus, those two are really stout they also confirm the extreme variability of
the species. The crown was so high that I still don't know whether the stalks are
purple or green. Thank you, Mike (Dahme) to open our eyes and add a hardy palm to our list
of desirables. The next four palms surprised me.

Rhapis humilis. I tell you what was written on the label. Here too I have heard
arguments as to what is or is not *R. humilis*. Frankly, I still don't know !
Iriartea exorrhiza, a Costa Rican stilt palm and tall, growing to 30 to 80 '. The stilt
roots in the picture are over 3' high. They grow on hillsides in rainforests and to me look like a foxtail on
stilt roots, and are very attractive and unique.
Palandra equatorialis. A massive palm with golfball-sized seeds. You simply need a jackhammer
to open them! Good luck, from the lowlands of Ecuador, it is ideal for city lots!
Rhapidophyllum hystrix. What a surprise! Look at this clump, 6' high and 10' wide. Now we know
it can be overwatered.
Brahea dulcis. This group of three is labelled *Brahea dulcis*, from Mexico.
The overall look is very much unlike the mature specimens we have on the
Riviera. I did not realize that the leaf tips could be drooping as much, to me
These palms are mislabelled !
Behind them stands an impressive *Scheelea* (*Attalea*) *rostrata*, the Costa
Rican royal palm.
Syagrus coronata, a painfully slow grower. Those over here are of a decent size, and
display the unique spiral arrangement of the leafsheath bases.After some search I was fortunate to find a new subspecies of *S.coronata*, "viagra" form.
Next and last let me say that the only miserable palms [along with the shade-grown *B. nobilis*]
were three *Trachycarpus fortunei* - what were they doing there ? At least we know now that
they grow from 9 to 58° latitude north, which palm can do better ?
There are so many more remarkable palms at the garden that I did not mention:
Astrocaryum standleyanum(black palm), *Roystonea elata* [= *R regia*], *Euterpe precatoria* [heart of
palm source), *Calyptrocalyx spicatus* with its 4 meter leaves, *Cryosophila guaguara* and its root spines[!],
Calamus trichocoleus, with its two specialized leaves, one for the photosynthesis the other for
climbing, *Iguanura geonoformis*, *Bactris major*,
Chamaedorea pumila maybe the smallest palm in the world, *Astrogyne martiana*, *Pinanga batanensis*,
P .kuhlii, the crownshaft of which is
wider than the stem, *Reinhardtia spp*, Geonoma interrupta [maybe a hardy species],
Acanthophoenix crinita from the Mascarenes, and in poor shape, *Arenga pinnata*, sturdy
and so useful, *Bentinckia nicobarica* one of the only two species in the genus, from the Nicobar
Islands, the bamboo- like *Areca trianda*, *Livistona rotundifolia*, *Aiphanes caryotaefolia*
[=*A.. aculeata*], spiny and decorative, *Oenocarpus mapora* which produces a better edible oil than
Elaeis and for which Costa
Rica is the northernmost habitat, *Heterospathe* spp., a *Phloga* with flame like leaflets, *Phloga gracilis*, and much more.
Thank you, Mr and Mrs Wilson, you did a tremendous job and I am grateful.
During one of the meals I was next to Luis Gomez,

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Bill B. Returns to the Scene of the Palm

By Mike Dahme

On Sunday, January 24th, 15 members of CFPACS met at the former homesite of Bill Bidlingmayer, an early IPS member. Bill, having retired, returned to the area for the day to lead the tour. He sold his 20 acres about 10 years ago, and the palms remaining now circle the Garden Grove clubhouse south of Vero Beach.

No species count has been made, but survivors range the alphabet though [sadly] the *Gastrococos* was removed in recent years—too spiny? Specimens now approaching as much as 40 years of age include:

Allagoptera arenaria
Acoelorraphe wrightii
Arenga (engleri and *caudata)*
Bismarckia nobilis
Brahea brandegeei
Copernicia alba
C. baileyana
C. hospita
C. macroglossa
Coccothrinax miraguama
"Florida mule"
Livistona australis
L. chinensis
L.decipiens
L.saribus
Latania sp.
Roystonea regia
Sabal domingensis
S. rosei

Top, in the Garden Grove parking lot before tour. Bill Bidlingmayer in white shirt, on far left.
Middle, *Copernicia macroglossa, Coccothrinax miraguama* (skinny), *Copernicia baileyana.*
Bottom, Bill B. points out palms across the pond. Fountain and bench are recent additions to the scene.

Wilson

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the garden director, and asked why they did not care more about that dying *Caryota obtusa* somewhere in the rainforest. He very simply answered, "We are not so much interested in exotic palms any longer, we want to make a Costa Rican flora conservatory out of this garden." Thank you sir, I thought, and I was glad I had come before the end. One problem he might encounter, though, is that a great deal of Costa Rican endemic flora is already gone because of mankind's stupidity and cupidity.

After reading this article you may have to decide whether to go or not to go – that is the question?

Other items of business were:

John Kennedy said that he needed input for the next issue by February 1.

Mike Dahme advised the Board of the back issues of the [then] CFPS bulletins and *Principes* available, and the Board voted 5 - 0 to offer complete sets of of Volumes 9 thru 16 [1989 - 1996] of the Chapter bulletin for $25.

Neil Yorio will advise the Board of *Principes* issues needed to make a complete set. The Board adjourned at 10:15 AM.

December Board Meeting

By Mike Dahme

The Board of Directors of the CFPACS met on December 12 at Neil and Karen Yorio's house, the meeting being called to order at 9:15 by President Tom Broome. Also present were John Kennedy, Dave Besst, Neil Yorio and MikeDahme.

In the absence of the Secretary minutes of the previous meeting, which were reported in issue 18:4 of the bulletin, were not approved.

Under old business the Treasurer handed-out financial statements for the year thru November 30 and gave a summary of the Endowment Fund status. By the vote of 5 - 0 the Board agreed to fully fund the Endowment Fund with a Schwab investment account in January '99 when the current CD matures. The Board also voted 5 - 0 to nominate the Chapter Treasuror and President as the two persons needed to be the Authorized Agents of record for the investment account.

Under new business the Board discussed the Chapter By Laws with respect to several clauses and: determined that the Chapter officers are in compliance with the requirement to be IPS members. The Board voted 5 - 0 to eliminate the Revenue & Finance Committee. [A revision to the By Laws will have to be made to reflect this change, the functions of this committee to be allocated to others.]

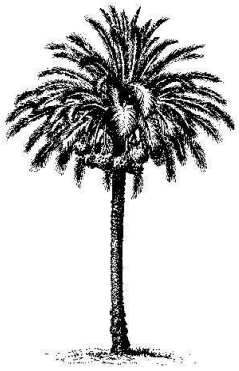
Dave Besst agreed to review the By Laws regarding the procedures for voting for the officers and to suggest changes.

Neil Yorio proposed meeting sites for the Chapter for the following year and the following schedule was approved:

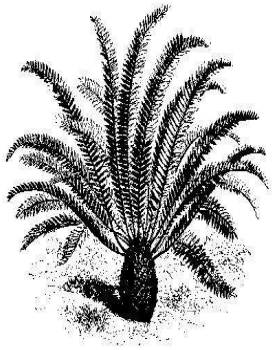
Spring [March 13 or 14]	- East Coast
Summer	- Center
Fall	- Leu Gardens Auction
Winter	- West Coast

The Board approved unanimously the purchase of a computer and scanner to facilitate the production of the chapter newsletter. Dave Besst and Neil Yorio were delegated to select the equipment, with the assistance of the editor.

Tom Broome expressed thanks for support during his tenure of office.



CHAPTER NEWS



From the President: Neil Yorio

It's hard to believe that two years have passed since the reorganization of the CFPACS. During that time, our now past president Tom Broome has done an exemplary job of maintaining this very important post. He has held together the board through its past trials and tribulations, and as any of you who have served in a volunteer organization know that it is no easy task. Many of you may suspect that the board of directors are merely some names that go with some official sounding positions with little to do, but I can assure you that it goes much beyond that. In this update, I hope to relay to you, the members of the CFPACS, some recent activities of the board.

Of the first order of business in 1999, I appointed Mike Dahme as chairperson for the nominations committee. His main duty is to provide candidates for the elected posts to the board. Mike's enthusiasm and knowledge of the membership make him perfect for this job. Please help Mike out this coming year and let him know of anyone who
you think would be a good board member. People just don't seem to come forward on their own, so if you or someone you know is interested, we would like to hear from you.

A committee meeting was held in early January to identify some pressing needs of the society and form committees to address them. The first committee was to solve the problem of the voting procedure. In the past, none of the elected posts were contested, so a formal election was not pursued. However, to uphold democracy and maintain the procedure of the by-laws, we are having an election now for 1999. You will see ballots in this issue to be filled out and returned to the nominations committee chair. The deadline for returning the ballots is tax day, April 15. Until the results are tabulated, all board members are to be considered "acting" in that capacity. In the future, the elections will be held prior to the beginning of the new year. The second committee was formed to address the condition of the by-laws. When originally written and approved, the by-laws wee to some extent obsolete. Mainly, the by-laws were not clear on the duties of the appointed officers and the revenue committee position was deemed to be unnecessary. A re-written set of by-laws was drafted and awaits board approval. Finally, a committee was formed to purchase a computer system for the editor. This CFPACS investment will undoubtedly be one of the most useful (and appreciated) tool for our editor, John Kennedy. He will be able to work out his house rather than share [antiquated] equipment he previously relied upon. So, the fruits of this committee will be seen beginning with this very edition of the bulletin.

On a personal note I would add that it is with pleasure that I fill the role as acting president of the CFPACS for 1999. We have a terrific board this year, and my goal in this capacity is to help make the CFPACS a place for palm and cycad nuts to develop our "sickness" for these wonderful plants. Our last two meetings (December meeting in Satellite and Indian Harbour Beach; February meeting at Montgomery Botanical Center) were very successful and well attended. I hope that we continue to build membership and hold meetings that everyone can

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DAVE BESST

for Treasurer

I'm Dave Besst, a candidate for the office of treasurer of CFPACS for the balance of this calendar year. I feel that I can best serve our chapter by bringing my experiences as treasurer of a small private corporation in dealing with our government's needs by maintaining the necessary records in an acceptable form, and preparation of the required reports in a timely manner.

CHUCK GRIENEISEN

for Secretary
My name is Chuck Grieneisen (Chuck G. is O.K.). My qualifications for Secretary are: I can read and write and I come to most meetings. Seriously, I'm still a beginner when it comes to palms and cycads, and enjoy the meetings in the "tropics" (Melbourne and south). I live in Oviedo (about 25 mi. N of Orlando) and look forward to being the Secretary.

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Neil Yorio

truly enjoy. Finally, I would strongly encourage members to offer feedback to their board. I consider it "our" (that's everyone in the society) job to continue on this road of growth and improvement. I personally received a tremendous amount of positive comments regarding the past several meetings and am grateful for the input. Please feel free to contact me or any other board member if you have anything to share, good or bad, with how we are doing. Consider this an open invitation to attend the next board of directors' meeting.

Below, *Sabal rosei* at Garden Grove, Bidlingmayer place, picture taken in 1995. Right, *Oraniopsis appendiculata,* Kennedy Palm & Weed Garden, Vero Beach, more than 8 years old ('98).

NEIL YORIO

for President
I first joined the CFPACS back in early 1994 (like many, a disciple of Bernie), and my first meeting was the 2-day event in March of 1994 which included (among others) the amazing palm garden of Joe Michael in Wabasso. It was this indoctrination that allowed me to become captured by the realm of the wonderful people and places that comprise the CFPACS. I have since been involved with the reorganization of the CFPACS and continue to feel strongly inclined to see this organization grow and improve. I served last year as the East Coast Vice President and am willing to serve as the President for 1999.

JIM CROUSE

for East Coast VP
My name is Jim Crouse. I've been a resident of Brevard Co. for over 22 years and an avid horticulturalist for even longer. My interest in Cycads dates to my first years in FL when I became fascinated in what I then knew as a "Coontie." I have since found great joy in propagating literally thousands of *Zamia floridana, Z. furfuracea* and *Cycas revoluta.* My association with the CFPACS has been relatively recent—since summer of 1997. (And that's an interesting story for another time). During those first gatherings my interest was really piqued (no, not in the members) but to the countless varieties of cycads to which I was introduced. I have thoroughly enjoyed my brief association. (To you palm folks, I am sorry, I know little about them; but before you judge me too harshly, I do have 5 species in my yard.)

Seeds Distributed and Available

By Mike Dahme

Seed [and seedling] distributions did not slow for the winter as seed contributions continued from our own area members as well as from those in more tropical climes. From Lou Thomas in Belize came seed of another never-before-available palm, *Chamaedorea adscendens*, donations for which totaled $160. Likewise, Cesar Diaz of Venezuela made another seed donation, this time 500 plus of *Mauritia flexuosa* [a personal favorite]. Donations to the treasury for the *Mauritia* also exceeded $100. And sales of seed of three species from Puerto Rico have thus far resulted in donations of $200 [seed of *Sabal causiarum*, the real thing, is still available, requested donation of twenty cents/$15 per 100], and I thank Francisco Bermudez for showing me the colony of Sabals at Joyuga. From Miami came more seed donations from the Montgomery Botanical Center, this time of *Zamia integrifolia* [Bahamas form], *Arenga australasica*, a *Coccothrinax sp*., and *Pseudophoenix sargentii ssp saonae* var *navassana*. [About 100 of the latter remain available for distribution, donation request is 3/$1 or $25/100.] Also from Miami came a seed donation of the "standard" form of *Pseudophoenix, P sargentii ssp sargentii*, from Neil Perello, seed of which species was again recently donated, this time by Ed Carlson of Vero. Ed's plants continue to shed fruit, the requested donation to the chapter for these is 25 cents or $20/100. And from not-so-tropical Louisiana came 150 seed of the "mule" created by a chapter member [who wishes anonymity] on a Pindo using *Syagrus* pollen. These creations remain popular despite the donation request of $1 per seed. **Central Florida** seed donors [in addition to Ed Carlson] to be thanked include Richard Lundstedt for "mule" seed he this time produced on a Queen Palm [using pollen from a *Butia*], John Bishock [*Sabal etonia*], Charlene and Greg [the couple with the name to die for] Palm [*Thrinax radiata*, seed still available, 20 cents per or $15/100, and, to be offered shortly, *Coccothrinax argentea* and *Copernicia alba*], and John Kennedy [for *Coccothrinax argentata*]. Other seed [*Arenga caudata* and *Copernicia alba*] came from the former homesite of an early IPS member in Vero, Bill Bittle in Texas [*Sabal mexicana*], and from The Droppings in Grant. Monetary donations resulting from seed distribution for the period came to $1100. **In addition** to the seed still available of species mentioned above [two subspecies of *Pseudophoenix*, *Sabal causiarum*, *Thrinax radiata*, *Coccothrinax argentea* and *Copernicia alba*], I anticipate receipt of more seed of the Puerto Rican *Prestoea acuminata* [=*P montana*]. Anyone interested please contact me at 407-724-8417 or by email at >palmyra@palmnet.net<.

Bulletin Back Issues

Are you a new member of the chapter? Complete sets of back issues of the chapter's bulletin covering the years 1989 [Stacey Peacock's first as editor] through '96 are now available [quantity is limited, fewer than 10 sets remain] for a donation of $25. With nine [attributed] articles by Bernie Peterson this offer might fairly be called "The Best of Bernie," but there are many other articles of note as well. Anyone with interest in the hybrid palm, for example, would appreciate those by Charles Bush and Kyle Brown on the history of the "Mule Palm" in Florida, Merrill Wilcox's on field production and techniques [which several members are now using], or Rich Travis' on finding natural hybrids in Uruguay. Other articles that will certainly interest central Floridians are reports of damage from the freezes of '89 [yes, there were two], historical records of the freezes for the last century, the account by Jerry Keuper on the founding of the FIT botanical garden, and D.B. Cooper's thoughts on Florida's under-appreciated native *Serenoa repens*, among much else. Sets may be obtained from Mike Dahme, phone 407-724-8417, email>palmyra@palmnet.net<

Join us!.

Membership ($10) is for the calendar year and entitles the member to all issues of the quarterly newsletter in the year of joining. Send check payable in U.S. funds made out to Central Florida Palm & Cycad Society (or to CFPACS) and send to Membership Chair, 7026 Burnway Drive, Orlando, FL 32819. Please provide information below.

Name_____

Address_____

City, State, Zip_____

Join the IPS

The International Palm Society is a world-wide organization devoted to the appreciation of palms. The CFPACS is one of the many chapters of the IPS . The IPS publishes a quarterly journal containing both hobbyist and scientific information about palms, and also maintains a website: www.palms.org
Regular membership is $35 , on a calendar year basis. Family and commercial memberships are $45. Send check made out to IPS to: The International Palm Society, P. O. Box 1897, Lawrence, Kansas 66044-8897. Phone: 785-843-1221 or fax: 785-843-1274.

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