The Palmateer

Volume 23, Number 4 *Central Florida Palm & Cycad Society* *December, 2003*

FOOD! Palms! Cycads! Talk!

Cocoa Beach, Dec. 13

Diana and Mark Grabowski will host our holiday get-together at their beachfront house in Cocoa Beach. Those who attended two years ago remember what fun it was and how well they ate. Even more reason to attend will be an auction of plants donated to CFPACS by Montgomery Botanical Center.

We especially invite any of the Palm Beachers—so hospitable as they are—to join us. And, actually, all palm/cycad lovers are welcome to attend. Details and directions are provided on page 3.

Above is one of the beautiful cycads native to Colombia, Zamia montana *and its male and female cones The story begins on page 5. (Photo from Alvaro and Michael Calonje.)*

Yes, We Have a Logo (at last)

The Central Florida Palm & Cycad Society now has a distinctive and attractive logo. The logo will appear as an official symbol of the society in *The Palmateer* and, eventually, on membership brochures, stationary and—very likely—on official underwear presented to our President. In other words, the sky's the limit, boys and girls! More modestly, right now, it has been imprinted on t-shirts that will be on sale at the December meeting in Cocoa Beach.

The Board, or more properly, successive Boards, have agreed that having a logo was a good idea. But the matter, discussed occasionally for at least five years, never was taken any further. Our thanks must go to Karen Barrese, the Membership Chair, who searched

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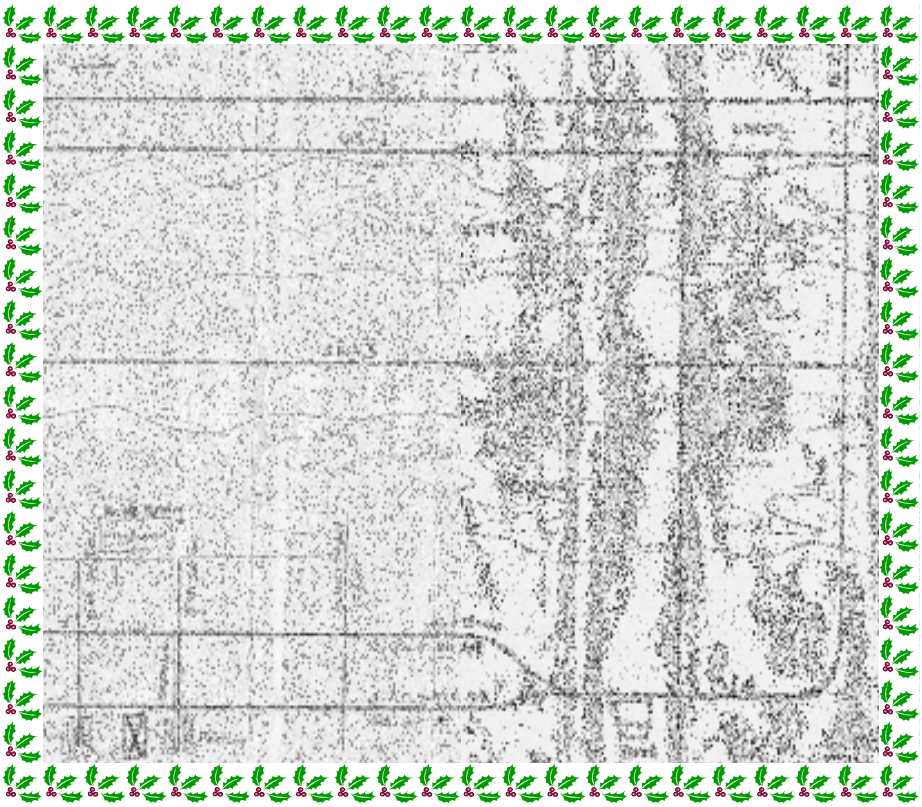
A Weekend at the End of January—Montgomery on Saturday, a Stand of *Mauritias* on Sunday. See page 3.

Right, a map of routes in Cocoa Beach for the assistance of attendees at the Dec. 13th meeting.



RENEW YOUR MEMBERSHIP FOR 2004! (see label for expiration)

Richard Hugnagel is retiring as Central VP. Please vote for his replacement.

BALLOT

For Central Vice President

- □ **Tom Broome**
- □ **Write In _____**

Mail ballot to Charlene Palm, 220 Ocean Spray Ave., Satellite Beach, FL 32937 no later than January 15, 2004.

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Fröhliche Weihnachten

Joyeux Noël

Holiday Palm Social/Quarterly Meeting: Cocoa Beach Saturday, Dec. 13th 11:00 a.m.-3:00 p.m.

Plan on celebrating the holidays "beach style" at Mark & Diana Grabowski's wind/salt tolerance proving grounds located in Cocoa Beach on the ocean.

Who? This palm social is open to all CFPACS and IPS members, and all our neighboring palm society friends.
When? Saturday, December 13, 2003
Time? 11:00-3:00 (you are welcome to stay as long as you'd like. . .but no more than three days)
Where? The Grabowskis', 541 South Atlantic Ave., Cocoa Beach (321) 783-2342. Property planted with palms and cycads suited for salty and windy conditions. . .at least that's what the literature states.
What to bring? 5 things: a covered dish of your choice; lawn chair; any beach equipment, such as fishing poles, surfboard, boogie boards; some $$ to spend during the plant auction; and quarters for the parking meters.
Mark and Diana welcome all of you to come join us for a fun and casual day at the beach, while you browse around looking at palms and cycads which will definitely be showing "signs" of the season. There will be door prizes, a plant auction from plants donated by Montgomery Botanical Center, and great food. We will provide a variety of seafood entries (fish, clam chowder, etc. . . .grilled veggies and key lime pie), your covered dishes will be greatly appreciated to accompany our dishes. Refreshments will be provided, compliments of the CFPACS.
Directions: From North: From I-95, take 528 Causeway (Beeline) east, which becomes A1A, heading south.
From South: From I-95, exit at tollroad Pineda Causeway east (SR 404): head north on A1A..
From West:: Take 528 (Beeline) to become A1A south.
From East:: SWIM. . .
Parking Info: Bring quarters for beach street parking meters. There is an empty lot about 100 yds from the property which may be available for parking (check on day of event to see if cars are parked there). Also remote parking at Surfside Playhouse (see map, opposite page).

Montgomery Tour, Jan. 31 *Mauritia flexuosa*, Feb. 1

Mark the last weekend of January. Jody Haynes will lead the CFPACS visitors around Montgomery on Saturday, January 31st. On Sunday, February 1st, we will go to Lake Worth to Richard Moyroud's Mesozoic Landscapes nursery. The attraction is a live, growing, almost-ready to fruit stand of *Mauritia flexuosa*. The details haven't been fully worked out. For directions and the latest available info, check out our website, www.cfpacs.org
Montgomery now requires that each visitor sign a witnessed waiver of liability; the forms will be given out to each person at entry.

A Christmas palm? Not the well-known Adonidia merrillii*, but a female* Phoenix rupicola *in fruit at Borassic Park.*
(Photo by Asit Ghosh)

Do NOT park on shoulder of road. Police give $25 parking tickets for doing so.
—Diana Grabowski

(This information is copied here from the December, 2001, issue of The Palmateer. *The only changes are for the date and a modification of the directions: at the time, A1A was closed at Patrick Air Force Base and it was impossible to get to A1A in Cocoa Beach via the Pineda Causeway.*
—Editor)

Enzyme Cleans Cycad (Some Palm) Seeds

By Tom Broome

One of the difficult aspects with growing *Zamia*s is the chore of cleaning the seeds. Unlike the seed coat of other cycad seeds, *Zamia*s have a very rubbery seed coat and sticks to the seed. I have seen hundreds of thousands of seeds being wasted because people did not have the time or the method to clean them.

In my early years of growing cycads I would only produce 100 seeds or less at a time. I would watch TV at night scraping the seeds one at a time with my pocket knife. I had to find a better way than this. Next, I put the seeds in an empty pot and placed that pot near a fire ant mound. Within a week the ants would pick the seeds clean. This worked pretty well but the ants wouldn't clean more than a couple of hundred seeds before they would lose interest. Dr. Bijan Dehgan, at the University of Florida, told me his favorite method was using a wire brush on a drill. He instructed me to put the seeds in a coffee can, cut a hole in the lid, and insert the wire brush into the drill through the lid so that when it was placed on the can it would keep any extra material from flying out when the drill was turned on. This worked very well but I needed something that would clean 1000s of seeds at a time. I improved on this method by taking a length of "all thread" (a metal shaft with threads all the way up

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Below, left, Zamia floridana *seeds prior to cleaning. Right, scarring seeds after three days of soaking in water.*

Left, "seed soup," ready to wash. Above, rinsing off cleaned seeds.

The Horticultural Potential of Colombian Cycads

[This article, originally published in The Cycad Society newsletter in January, 2003, is reprinted here by permission of the editor, Bart Schutzman, and of the authors.]

By Alvaro Calonje Daly & Michael Calonje Bazar
Colombia is one of the most biodiverse countries in the world, harboring close to 10% of all species in only 0.7% of total landmass. Apart from its location in the tropics, the main reason for Colombia's biodiversity is its incredibly varied topography that supports a variety of different habitats. One third of Colombia is covered by the Amazon rainforest, and in southern Colombia, the Andes mountain range splits into three separate ranges, forming massive mountains with many deep valleys. The highest species diversity in Colombia is found in the rainiest areas on the side of the Andes mountains, occurring between 600 and 1200 meters above sea level. The higher elevation ecosystems, though less diverse, are of great importance because they house the greatest number of endemic species.
The remarkable topography of Colombia has also resulted in a variety of cycad species, each uniquely adapted to its environment. They occur in elevations ranging from sea level to 2500m, in rainy places and in dry environments, and in a variety of soil types. Colombia has 18 described cycad species and at least two others awaiting description.

Horticultural Potential

The horticultural potential of cycads is generally limited by the fact that they are native to tropical and subtropical regions of the world, so most will not grow outdoors in cooler temperate zones. The cycad market is very small when compared with the palm tree market or the bedding plant market and it is also highly specialized. Most cycads are collector's items due to their rarity, and individuals will go to great lengths to buy and grow that rare *Encephalartos* or the latest *Dioon* that was found in a remote Mexican canyon. The appeal for these plants is best exemplified by the recent wave of cycad thefts from private gardens and botanical institutions across the U.S.A. For a cycad to be popular at a larger scale and appeal to the general public, it must satisfy a few conditions.

First, it must be physically attractive or odd enough to physically appeal to the buyer. Second, it must be easy enough to grow. It must be tolerant of a wide range of environmental conditions such as drought, extreme temperatures, and general neglect. If it is able to survive outdoors in the region where it is marketed it will have a greater chance to succeed, as it will appeal to the general public, not only those with the luxury of greenhouses. If the plant is fast-growing and resistant to pests, it may also be more successful. For example, the sales of *Cycas revoluta* in Florida have decreased significantly since the Asian cycas scale was introduced.

Above, Zamia encephalartoides. *Easy to grow, say the authors, but exceptionally S-L-O-W.*

Most importantly, the horticultural potential of a plant is based on the availability of propagating material. Many of the plants that have been successful in the horticultural trade would have not made it if seed

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Colombian Cycads

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Zamia manicata

or cuttings were not available in large quantities.

For instance, the two most popular cycads in horticulture, *Zamia furfuracea*, and *Cycas revoluta* owe a great part of their success mainly to the availability ready availability of seed. The availability of seeds has especially been a problem in Colombia, where the ongoing civil war has made most cycad habitats too dangerous to travel to. Even in a country with such an amazing cycad diversity as Colombia, the two most common cycads seen in landscapes are *Zamia furfuracea* and *Cycas revoluta*.

Over the past 20 years, the Dolmetsch arboretum near Cali has established a collection of Colombian cycad populations for offsite preservation and to introduce many of these remarkable species into horticulture. A three-hectare area has been set aside for this purpose, making it the largest ex-situ preservation collection of South American cycads. The purpose of this article is to share some of the experiences in growing some of the Colombian species and evaluate their horticultural potential.

Colombian Cycads -horticultural history, potential

Colombian cycads are not very well known since they have not been available in any quantities in the past. The first Colombian *Zamia* to become widely available was *Zamia roezlii*, a seaside dwelling giant able to grow to 8 meters tall. Some small amounts of seed of *Zamia encephalartoides*, *Zamia muricata* and *Zamia lecointei* were also available at one point a number of years ago.

Zamia amplifolia – A wide leafed giant
Zamia amplifolia is a strong plant with beautiful yellow flushes. It is both a lowland and cloudforest species. It is also very easy to grow and requires very well drained media that is acid in nature and rich in tannins and organic matter. Its leaflets will sometimes fork out like a trident.

Zamia wallisii – A *Zamia* with huge leaflets
Zamia wallisii is a very striking plant with the largest leaflets of any cycad. The leaflets of a mature plant can measure up to 50 cm long and 20 cm. wide. The problem with *Zamia wallisii* is that it is a very tricky plant to grow and holds few leaves at a time so it is often de-

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Zamia wallisii*, below, is notable for having the largest leaflets of any cycad. But before you run out to order one—should ordering even be possible—it's not all that easy to grow.*

ciduous. It will grow one leaf and before it puts a new one it will lose it. It cones infrequently and produces few seeds at a time. For these reasons, *Z. wallisii* will probably remain a collector's item for many years.

Zamia montana – The high elevation *Zamia*
Zamia montana grows at elevations of up to 2500m above sea level where frosts are not uncommon, so it should be relatively cold tolerant. A plant grown in California survived a 30F night unscathed. It flushes beautifully in oranges and yellows and can grow to be 2 meters tall with a crown of 6 to 7 leaves. *Zamia montana* is fairly easy to grow but like many other cool growing plants, it is a slow grower.

Zamia encephalartoides - The lone desert *Zamia*
One *Zamia* that stands apart from the rest of the Colombian zamias is *Z encephalartoides* because it comes from a bioregion that is high in the Andes and it is quite dry. The lower montane bioregion of Chicamocha is located in eastern Colombia and it is a vast Chaparral like area with deep ravines and rocky hillsides. There, among *Prosopis* trees, Agaves and cactaceae grows the beautiful arborescent *Z. encephalartoides*. The rainfall does not exceed 500 mms and there are prolonged periods of drought.. It is an easy plant to grow that can be a stunning addition to any landscape, but it requires a lot of patience, as it has a very slow growth rate.

Zamia chigua - The fern like *Zamia*
Zamia chigua from the Choco lowlands reminds us of the ancient links between ferns and Cycads. This handsome, rugged *Zamia* has a smooth white trunk and numerous leaflets per leaf, giving the plant a very light and airy feeling. *Zamia chigua* is very easy to grow and grows relatively fast compared to the other local *Zamias*. It requires lots of water and a very well drained media that is strongly acidic in nature. Seed has rarely been found in habitat, but hopefully the supply of seeds from cultivated will soon make this plant more common. *[The picture at right is not* Z. chigua*, but a new, unnamed species described on the next page. —Editor]*

Zamia disodon - The emerald *Zamia*
From the banana growing regions of Colombia where once pristine forests dominated the landscape comes *Zamia disodon*. Loran Whitelock justifiably calls it the most beautiful of all *Zamias* in his book *The Cycads*. In Colombia where it has just about disappeared from the forests it is known as the Emerald *Zamia*. It has very dainty leaflets with raised veins that are a deep forest

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Zamia obliqua

Zamia sp. (Choco)

Colombian Cycads

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green in color and when it flushes it does it in fiery autumn colors, blends of oranges and yellows. It is easy to grow although it is somewhat susceptible to rot. Being a rainforest *Zamia* it requires plenty of water and a well-drained soil that is high in organic matter.

Zamia ulei – A *Zamia* with shiny leaves
Zamia ulei grows in two separate parts of the country that are hundreds of miles apart. It flushes in pink that eventually turns to a deep shiny green. It has long leaves with large shiny leaflets It is easy to grow and it grows fast, will take droughts and is not particular about water. It also cones readily, making this is a plant with a tremendous horticultural potential.

Zamia obliqua - The palm like *Zamia*
Zamia obliqua is a beautiful plant from the seedling stage to maturity. It is an excellent subject for interiorscape because it has a palm-like appearance with shiny apple green leaves that have a very soft texture. The Colombian *Z. obliqua* can grow to a height of eight meters and often branches out as it grows taller. It can take a lot of abuse, can tolerate hard water and is not particular about the media where it grows. It must become fairly large before it cones, but can produce a large amount of seeds per cone.

A new *Zamia* from Choco with a fiery flush

A new species from the bioregion of the Choco, which has emergent orange and yellow leaves is without a doubt one of the most striking of all Colombian zamias. It is a very easy to grow plant and it is extremely vigorous. It has iron red cones and sometimes the new leaves can be burgundy red.

Colombian cycads are as varied as Colombia's topography, they come in a wide variety of shapes and sizes and are suited to many different growing conditions, and there is probably a Colombian cycad suitable for every taste and horticultural requirement. Hopefully through active pollination in private collections and botanical institutions such as the Dolmetsch arboretum, Colombian cycads will soon beautify gardens and greenhouses all over the world.

Seed-cleaning Enzyme

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and down), and placing three large wire brushes on the shaft with nuts in between each brush. I would fill an entire five-gallon bucket full of seeds, add water and a little sand, and scrape the seeds for almost an hour. I would then use a pressure hose to clean off most of the residue, but not all seeds were perfectly clean. I have seen other nurserymen over the years use rock tumblers, cement mixers, and potato peelers to clean their seeds but they found that many of the seeds would be damaged. One nurseryman used to nick the seed coat, place his seeds on a bed of clean sand, cover with a screen, and pile oak leaves on everything. After a month or so the bugs and natural enzymes would clean the seeds. Even though it sounded bizarre, this was the only natural way I had ever heard of.
In 1992 an old groves man told me a story about a product he had used in the 1950's to separate the seeds from oranges so that they could be used to plant rootstock material for grafting citrus. He told me how they would throw massive amounts of oranges in a large cow trough and then cover the oranges with water. He would next pour a cup full of a liquid into the trough. In approximately a week the oranges would break down into pulp, and the seeds would sink down to the bottom of the trough. The most important aspect of this method was that the seeds were still viable. I wondered if something like this would work with cycad seeds. The man didn't even know how to read and could not give me any clues as to what this product may have been.

After months of searching (most people didn't even know what I was asking about) I discovered that product was a pectinase enzyme. From what I was told, the enzyme breaks down the cellular structure of fruit but wouldn't harm other materials such as seeds or plant material. In Florida this enzyme is still used to separate the orange seeds from the fruit in mass quantities. In North Carolina it has been used to make apple juice. By using the enzyme, more juice can be produced from each apple because there is no wasted material, except for the seeds, to throw away. I thought I would check all this for myself so I procured some enzyme and conducted a few experiments. I put some *Zamia floridana* seeds in three different cups, and put three different strengths of enzyme solution to test for speed of cleaning. I used ½, 1, and 1½teaspoons of enzyme per pint of water for the three different cups. After a week, there was what appeared to be a liquid wax float-

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THE 10 *PERFECT* PALMS FOR INLAND CENTRAL FLORIDA

By Dave Witt

I think everyone that grows unusual palms in their gardens should try and make room for some of these. That way you will have something still green & growing after the next "big freeze" hits … These palms were selected based on their ability to grow "problem free" in our region of Florida. If I planted one small specimen in an appropriate spot and left it to fend for itself would it survive? The answer would have to be a resounding yes in order for the palm to be included here. Conceivably one could plant a few specimens of each palm listed here, then just walk away and a perfect palm garden would form, with nothing to do but watch it grow. Also considered were potential nutritional problems and pest hazards. Native palms were excluded from this as nearly all but one or two can qualify. The ten palms are listed in alphabetical order.

1 - *Acrocomia totai*

The *totai* surname while maybe not formally recognized is indeed "technically valid" and is the moniker applied to all *Acrocomia* grown in Florida that essentially survive our coldest winters, even temps as low as 20F. For many that is the most important difference in ID'ing a *totai* from any other; *totai* palms have lived through temps as low as 18F while *aculeata* will fry at temps in the mid 20's and be killed off at anything below that. But aside from cold tolerance there are several differences in appearance and growth habit that can easily distinguish *totai* from the more common *A.aculeata*, or any other of the genus. The basic characteristic is that *totai* palms are smaller in all parts when compared to aculeata. The fruit & seeds are noticeably smaller in diameter, the overall height of the palm as well as frond length is again much smaller on *totai* than *aculeata*. The fronds of *totai* palms are stiff without much of a bend in them at all and are a gray/green color on both sides. All *Acrocomia* are covered in large black spines from the stem on through the leaf blade. Only the leaflets and fruit are unarmed. These spines can help differentiate *Acrocomia* palms from *Syagrus* palms, a genus they closely resemble from a slight distance.

***Acrocomia* palms** are renowned for their difficulty in germination, taking at least 2 to as many as 4 or 5 years to sprout. Many methods have been employed in an effort to expedite this process from cracking or drilling the endocarp, incubation, hydration with hot water, etc. To my knowledge there is only one fool-proof way to sprout these: bury cleaned seed in a sandy, dry and hottest spot in the ground and wait … and wait, and wait some more. Seeds from my *totai* palm have began to sprout after 24 months in the ground. *[The Editor can vouch for 36 months and 48 months in the ground, but the latter was soon eaten to the ground, spines and all, by (presumably) a rabbit.]* No other methods including baggies or community pots in full sun has ever worked for me. As if to make up for the difficult germination *Acrocomia* palms grow extremely quick as juveniles, taking only 6 to 8 yrs from seed to reach fruiting size; *totai* will max out around 15 ft overall, *aculeata* around 25 ft growing in increments of 3 to 4 ft per year once established in the ground. Once this height has been attained they slow down to only a foot or so per year and begin the reproductive process. The flowers are very aromatic and a musky smell can be easily detected upon their opening.

***Acrocomia* palms** grow without care in our region, in fact they have previously naturalized in several small areas. They seem impervious to nearly anything as adults, as juveniles the biggest problem most have growing them is they baby them too much; before any stem has formed the palm's growth bud is buried below ground and is easily damaged by fertilizer being applied near the base of the palm. Also overly wet or poor draining soils can cause the bud to rot. Other than occasional scale insects they have demonstrated no problems once left to their own devices. They are best used away from walks or areas when children play (due to the sharp thorns) and can be planted in odd numbered groups to form a canopy or singly as a focal point. Once mature the leaflets on older palms are thin and tend to become weather worn and ratty if the canopy is left untrimmed. These palms make a bold statement in the landscape and can be enjoyed for many decades in our region.

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2 - *Allagoptera arenaria*

This is probably my favorite "small palm". They grow much faster/better in the ground or in very large containers that will accommodate their extensive root system. These palms are dichotomous but are so underground and will form multiple stems around 3 or 4 yrs from a 1-gal. sized plant. Most palms never reach much past 6 ft in overall height but they easily reach a 6 ft spread around 7 yrs from seed. Nearly all mature palms are acaulescent but there are exceptions (notably the tall specimen growing at USF in Tampa). It has several ft of clear stem! They are best when situated in full sun, there the fronds can show off their unusual grouped leaflets which are very plumose and an attractive silver color abaxially. In their native habitat they can be found growing in close proximity of ocean front sand dunes and other coastal vegetation, making them a perfect choice for areas in need of salt-spray tolerant palms. They are extremely drought tolerant and can handle cold down into the low 20's, even as small palms. Heavy frost can cause some spotting on the leaflets but it is very minimal. Mine has been undamaged as low as 23F.

A youthful Allagoptera arenaria*, only a single stem as yet, grows in Pasco County. (Photo by Tom Barrese)*

They also mature or flower early at a small size. Mine did this before it split into different stems. The infructescence is very unusual - the flowers/fruit are packed tightly together in small bunch held at the end of a long peduncle. The fruit is edible when ripe but only for a short while; it has an apricot or peachy kind of taste. The seed germinates erratically (I usually get around 50%) and has short viability as well. Seedlings can be grown in 1-gal. pots for the first 2 or 3 yrs, then stepped up. Feather leaves begin to appear during the 3rd or 4th yr.

I have yet to notice any particular problems in cultivating these here, they seem immune to most fungus or insect pests (other than scale) which can infest the folds of the leaflets. They can be damaged or killed during high winds from hurricanes/storms, though. Apparently the winds twist the crown back and forth, damaging the meristem. These palms can be planted singly as a focal point or in odd numbered groups around a large tree. They can be used in rows to form borders on larger areas as well. They are a real eye-catcher due to the strange leaflet arrangement and should be used and made more available in the future.

3 - *Arenga engleri*

This is an extremely cold hardy and shade tolerant palm suitable for growing as a single specimen or planted in rows to form a living barrier. Its spread is equal to its overall height, often exceeding it. There are no thorns or sharp edges so it can be used around walkways or other areas with high foot traffic. Stems mature and begin to flower around 12 to 15 ft. overall. The palm is hapaxanthic and once the individual stem has set seed it dies. For a solitary species like *A. pinnata* this would mean the death of the palm itself but since *engleri* clusters at a significant rate there are always plenty of new stems to continue growth.

The flowers are a bright orange and very fragrant. Ripe fruit is an attractive reddish maroon and cannot be handled by bare hands due to the presence of calcium oxalate crystals that will burn the skin. Once soaked in water for several days the crystals are dissipated and the fruit is easily removed from the seed. I get best germination results (around 75%) by planting the seed in a community pot placed in full sun under shadecloth. The seed takes 4 to 6 months to sprout. Overall growth is slow for this palm, it develops but 1 or 2 fronds per stem each year. But each successive frond is markedly larger than its predecessor so it gains some character even when very small. They can stay in 1-gal. containers for 3 or 4 years, then they are ready to cluster and should be moved into 3-gal. sizes or larger.

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10 *Perfect* Palms

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I like to use these palms underneath large oak trees that let in filtered sun. This way the palms can show off the back sides of the wedge-shaped fronds which are colored silver on the leaflets and covered in tomentum on the stems. They can be grown in full sun provided they are supplied with extra water. I have yet to see any *engleri* develop any type of nutritional deficiencies or pest problems. This palm is vastly underused in our region and really should be planted more, especially in public areas or places where poor lighting make it difficult to grow palms. Their ability to withstand low light levels has me thinking they have the potential to make a great interiorscape subject as well.

4 - *Bismarckia nobilis*

A magnificent Bismarckia*: not much trunk yet but obviously this is going to be a very big palm. The species has been offered in garden centers in the last couple of years and is starting to appear in routine landscaping projects. (Photo by Tom Barrese)*

This might be my favorite palm of them all, a large, imposing grandeur of a plant that cannot be mistaken for anything but what it is and cannot be ignored no matter where it resides. The notion that these palms are too large for average lots or small homes is complete rubbish - they can grow healthy and care free if left to hold 5 fronds at a time or 25 fronds. It all depends on your personal preferences and how you trim it to fit where it is placed. I have been growing many of these for about 10 years now, most of them from seed originating from various locales. The silver-blue color is variable, as is the cold tolerance. The only way to find out is to grow some for yourself and see. For best color the palms have to be grown in full sun, the more the better. Shaded palms can lose some of the glaucous hue but will not turn green. There are green leafed forms, these are attractive in their own way but are not nearly as cold hardy as the silver-blue palms. The green palms defoliate at temps in high 20's, some but certainly not all silver-blue palms can go undamaged down to 23F. I leave all of mine out, from newly germinated one-leaf seedlings on up to 15-gal. sized palms, unprotected each winter to try and weed out the weak sisters. It seems to be a genetic thing, some from the same batch are more cold hardy than others. I have yet to figure out a pattern in them for this.

The walnut sized seeds germinate at a high rate for me in full sun liners (1-gal. pots are too small, they inhibit the 1st leaf's normal growth). Once a 2nd or 3rd leaf has formed demonstrating some root branching, they are moved into 3-gal. pots. For such a strong palm the roots are extremely brittle and if damaged usually result in a quick death for the seedling. They stay in those through the end of their 2nd yr., until several fan leafs have formed and the roots are busting out through the drain holes. Then they are stepped up into larger pots each year after. I like to wait on several fan leaves to form, this way I can test out the cold hardiness as well as pick out the most colorful palms. When grown in full sun many palms at this size develop an intense purple-red color to the leaves; these usually turn out to be the most silver-blue palms as adults. These palms are root monsters and would much prefer being planted in the ground instead of held back in pots. Containerized palms can grow around 4 to 6 leaves per year but once in the ground and anchored these palms really blast off in overall growth. The 1st year I normally get 4 to 6 leaves as the large palm has to anchor itself through massive root development. The 2nd year I get anywhere from 7 to 9 leaves, the 3rd year I get 12. They all open from the end of June through December as well. Each frond is easily 10 ft across and palms can attain a 20 ft spread around 7 or 8 yrs of age. Bismarckia palms are dioecious (separate male & female plants) so I have planted several in my collection. The largest is a female, it flowered around its 10th year and has done so for 3 years now. The 2nd largest is about 3 yrs younger so hopefully it will flower in Spring of 2004 and will be a male. If not there will be younger, smaller palms coming behind it.

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10 *Perfect* Palms

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Juveniles and adults are very drought tolerant but prefer lots of water during the summer; it seems to speed up growth somewhat. Overly wet soils can cause some potassium deficiency in older palms and possible bud rot in younger palms. The growth bud on these is buried around 3 ft below soil level and once planted the palm should not be moved until it has about 3 or 4 foot of above ground stem formed. I have moved smaller palms, but fatalities always occur, the success rate is 50% at best. Even those are setback for a year or more. On young palms (without any stem) fertilizer should be applied lightly, and away from the growing point so not to cause salt-burn to the roots. I have yet to notice any insect or fungal problems with *Bismarckia* palms. Their popularity appears to be growing with each passing year and they can be found in various chain store garden centers, unfortunately at ridiculously high prices. These palms should be used as focal points in gardens or in groups to form canopies or line roadsides. Because of the large size of the eye-catching fronds they can be placed in front of large dark colored backgrounds to create a memorable impression, even on people that normally do not care for palms in general.

5 - *Chamaedorea microspadix*

There are at least a dozen of the hundred or so Chams in cultivation that perform well in central Florida but this is my favorite for several reasons. The first and perhaps foremost is its incredible cold tolerance; mature palms have recovered from temps down into the low teens, as far north as Gainesville. The 2nd is the very attractive growth habit, a great many stems growing up spaced well apart to reveal a palm that is remarkably similar to a smallish thin bamboo planting. The leaves are also unique, a bluish green color with a thick leathery texture to them. The preceding is how a true *microspadix* appears, which is completely different from look-a-likes *C. seifrizii* or *C. costaricana*. It takes but 4 or 5 years to grow from seed into a mature specimen with several stems. They prefer mostly shade but can handle full sun for several hours if necessary.

Just below the crown of leaves are held small clusters of attractive orange-red fruit (the look-a-likes have dark black or purple fruit); these do contain calcium oxalate crystals, a major skin irritant. But the fruit comes off easily after a slight rubbing (use thin plastic gloves for this). All Chams are dioecious so males & females would be needed for seed production. Stems can be divided but with limited success. Any divisions will need their own roots to survive. Seed germinates at a high rate (90% or better) in under 6 months. It takes about one year to get feather leaves, and another full year for them to begin forming multiple stems. Typical mature height is around 8 ft overall, the spread can reach that size as well but only after many years.

These palms can be used for indoor plants but will develop mites if not taken outside and hosed down periodically. They are best used as a living screen in shaded areas, as a border hedge-type planting or in pool decks where they cannot outgrow the area. There are reports of them succumbing to nematodes in our soils but I have yet to witness this myself. One way to combat this if suspected is to place pieces of concrete in the soil near the palm's roots or periodically add in some dolomite lime to raise the soil pH above neutral (7).

In habitat these palms grow in pine oak forests with underlying limestone so alkaline soils shouldn't be a problem. As with most members of this genus they are very resistant to insect or fungal problems and need only a slight amount of fertilizer to grow well; older specimens under oaks or other vegetation grow just fine without any additives at all. They also make terrific container palms for many years and have no thorns or sharp edges so can be used around walkways or other high traffic areas.

6 - *Copernicia alba*

This palm's habitat is mainly in seasonally inundated areas of Brazil where it is subject to lengthy droughts as well as periodic flooding. So once established it adapts quickly to our region's weather tendencies of either too much or never enough rainfall. Adult palms are extremely cold hardy, undamaged by temps into the low 20's. One adult develops hundreds and hundreds of seeds by itself. Seeds are easy to sprout, usually in under 2-3 months, and at a high rate. Presoaking the seeds helps increase germination rates. Growth is moderate until some fan leaves are formed, seedlings will usually form around 6-8 strap leaves before splitting into fans. Seedlings also have small teeth along the edges of the leaves, a trait that disappears as the palm ages. Full sun/high heat encourages new growth and small palms can take this right from the start. They do have a large root system and will quickly fill up small containers before much top growth begins.

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10 *Perfect* Palms

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Copernicia alba*, in another photo taken by Tom Barrese.*

These palms should be grown in full sun and after a few years will develop a waxy coating to both sides of the fronds; the amount of wax is variable, some are much more blue/silver than others, this appears to be a genetic trait. Once the palm develops some stem the frond production accelerates dramatically. The crown takes on a strange appearance as all of the older fronds begin to lay out flat and all of the newer fronds are held somewhat erect and tightly together. During the summer they can average over a frond per week! However, gains in overall height are slower - lots of leaves but maybe just one foot gained per year.

The leaves themselves are not large, around 3 ft. in diameter held at the end of 2-3 ft. petioles. The tight crown allows it to be grown in more constricted areas where many fan palms cannot be used. However, the petioles are covered with many black, curved thorns that can easily tear the skin or anything close to them; so they are best planted away from high traffic spots.

The canopies of older palms should be trimmed up to remove the oldest fronds, the palm can take on a ragged appearance if left alone for 6 months or more. The stem has an attractive pattern of old leaf bases when pruned tightly. I like to use these palms out in the open, in odd numbered groups as a focal point; group plantings can also create a canopy, one palm's spread is too small for this. I also like to plant them around other plants with dark green foliage to help set off the waxy fronds as an accent.

7 - Hybrid - *Syagrus X Butia*

Including this palm might be cheating a bit but there are so many of them in central Florida, more than any other place in the USA, possibly the world. It just suits our area so well I had to list it. Palm "snobbery" has led to a somewhat inexplicable contempt for the beautiful parents of this palm, male *Syagrus romanzoffiana* and female *Butia capitata* (the opposite mixture does not work for some unknown reason); hence here the *Butia* comes after the "X" as this means from. But most people use *Butia* first to describe it, often calling them *Butiagrus* palms; perhaps more appropriate would be *Syagrutia*??? Another common name is Mule Palm. This comical term is used as the palm cannot reproduce on its own, an admirable trait as far as I'm concerned; this keeps the populations low and helps to preserve the original parents' lineage, especially considering how ubiquitous both species are in our region. Seeds have been produced but none grew into actual plants (probably lacking a viable embryo to begin with). Flowering palms may be back crossed with pollen from *Syagrus* or *Butia*, and possibly close relative *Jubaea* to produce viable seeds - though rare are the number of actual palms produced in this manner.

XButiagrus *combines the toughness of* Butia *with the grace and flexibility of* Syagrus. *(Photo by Tom Barrese)*

This palm is the perfect example of the phenomenon

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10 *Perfect* Palms

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known as hybrid vigor. It takes the best attributes of both parents and blends them seamlessly together to create a palm unique on its own terms. When taking into account how variable both parents are the hybrid palms are naturally a mix-matched lot; some with stiff recurving foliage á la *Butia*, others with the lax, graceful droopiness of *Syagrus*. Often you can look at dozens and never see the same palm! The only characteristic I have noticed that is not intermediate on these is foliage color - it is always green, no matter how silvery blue the *Butia* is. If well cared for these palms will develop a thick stem à la *Butia*, much larger in diameter than normal *Syagrus*. Seedling growth is quick and robust, not quite as tall or in length as *Syagrus* but more than *Butia* would produce. Feather leaves appear during towards

Livistona decipiens *with those unmistakable drooping leaves. Photo from Borassic Park, Brevard County.*

the end of the 2nd or beginning of the 3rd year. Growth rate for juvenile palms is in between the parents rate - I would classify it as moderate, around 2 ft. per yr., whereas *Butia* is 1 ft. and *Syagrus* is 3 ft. Cold tolerance is also in between the parents; there is some variability (as with all palms with a wide distribution or habitat, as it were). But most adults can handle temps down into the mid-teens before damage occurs.

I like to use these palms in many different ways: planted singly as an accent palm, or to frame driveways or other entrances; also planted in groups to form a canopy for shade loving plants. Other than occasional scale insects they have no nutritional problems associated with *Syagrus* in alkaline soils or *Butia* in wet heavy soils. Young juvenile palms can develop potassium deficiency in wet conditions or fungal spots along the frond stems if shade grown (à la *Butia*). But as the palm grows larger they seem to grow out of this on their own.

8 - *Livistona decipiens*

There are a great many members of the genus *Livistona* that will grow "problem-free" in our region; species *chinensis*, *australis*, *saribus* and *rigida* come to mind the quickest (there are several more) but if I had to pick one out of the entire genus it would be *decipiens*. Most all other "Liv's" have some resemblance to another palm species but *decipiens* can differentiate itself from nearly any other palm I have seen by virtue of its deeply and finely divided leaflets. These leaflets will twist around and swirl during windy conditions; at night during a breeze they make an eerie shimmering noise as they rustle together. Another unusual aspect of this palm is that it will hold its entire crown of leaves for a great many years, much longer than most other palms. The fronds remain in complete health from top to bottom, and on some specimens I have seen fronds at ten years old in fine condition. The overall effect is remarkable as the palm takes on the appearance of a living wall or mound of fronds well in excess of 15 ft or more! If trimmed away the leaf bases remain for a great many years as well.

L.decipiens is a fast grower, the key being once established. If not they can linger and grow a horribly slow death for several years. The most important part of getting a *decipiens* (or most any other Liv) to grow well is to literally drown the root zone in water for the first month in the ground. Almost daily soakings until puddles form will usually suffice. They prefer swampy soils that rarely if ever dry out but are very tolerant of drier sandy soils once some initial growth has begun. Pre-flowering juveniles can grow 40-50 fronds per year (much slower in containers) and about 2 to 3 ft of overall height per year as well. They will continue to grow all year long, rarely slowing down in the colder months. Once they have flowered, the overall growth

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10 *Perfect* Palms

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does slow down some. Flowering adults can take 15 to 20 years from seed. Even very small palms prefer a consistently wet soil or potting medium. I have yet to see this palm develop any nutritional deficiencies here but have heard of (and witnessed) the growing point of older palms twist and bend in a corkscrew fashion. This was attributed to boron or some other micro nutrient problem, to my knowledge the palms that suffered from this did recover.

L. decipiens grown in full sun appear to be more robust growers but there are many fine specimens of this palm growing in shady conditions as well. This is true for juveniles as well as adults. Very young palms will have a hint of red or maroon to the leaf veins and edges; this fades away by the time the palms are head high. The edges of the fronds are also armed with tiny thorns when young. The petioles are heavily armed with small thorns from juvenile through adult.

Newly removed leaf bases reveal an attractive, albeit temporary, ring pattern on the stem. The black seeds germinate quickly (one to two months) and at a high percentage. Initial growth is quick, then they slow a bit until fan leaves are formed, usually late in the 2nd or 3rd year. Young palms will develop a substantial root system before pushing out a lot of top growth, especially when containerized. I've yet to notice any insect or pest problem with this palm and adults can take cold down to 18-20F before any damage occurs.

These palms are best used in odd-numbered groups to form a focal point or a small canopy for other plants that prefer some half-sun filtered light. The divided leaflets allow a decent amount of sunlight through their canopies even when mass planted. They also look nice planted in a row to line streets or entrances.

9 - *Phoenix sylvestris*

Just like having to list a *Livistona* is a virtual requirement for any serious palm garden, there was no way this article would be written without including one member of the *Phoenix* genus. The *sylvestris* palm is without question the best Date Palm for all inland areas of central Florida. While the milder coastal sections might be able to get away with growing *P. rupicola* or *P. roebelenii*, those two species are almost always cold damaged by inland winters. The other commonly grown Date Palms, *P. canariensis* and *P. dactylifera* are extremely frost resistant but are not so happy with our region's combination of constant heat 'n' humidity.

At right is Dave's pick of the Date Palms, the handsome Phoenix sylvestris. *(Photo by Tom Barrese)*

While both of the aforementioned Dates are prone to various fungal diseases, the *sylvestris* palm thrives and looks its best in these conditions. And it is extremely tolerant of even our worst winters, suffering no damage down into the teens in most areas.

***Phoenix* palms** have one of the most unusual leaf forms in the palm kingdom: induplicate pinnate. This alone can distinguish them from any other palm genus. The foliage of sylvestris is a waxy bluish gray color, very much resembling *dactylifera* fronds. Young specimens of each can be difficult to tell apart, especially when very young. As they age, *sylvestris* palms develop an orange tinge to the leaf bases. And the foliage is more relaxed and less upright. Large specimens can hold healthy fronds that droop below horizontal level while *dactylifera* cannot, at least not in Florida.

On large juveniles and adults *sylvestris* leaves are much shorter in length than *dactylifera*, but overall the crown of *sylvestris* is larger; there's just a lot more fronds in a *sylvestris* crown. Lastly, *sylvestris* palms are solitary, no exceptions; *dactylifera* palms sucker, often profusely. There are a great many hybrid specimens throughout Florida., and with various amounts of back-crossing in them some specimens are virtually unidentifiable, having traits of two or even three species in them. *Phoenix* palms are dioecious and all species will freely hybridize within the genus. Often it is difficult to obtain a "pure" strain of *sylvestris* or most any other *Phoenix*. Your best bet is to start them from a reliable seed source.

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MY 'HOT HOUSE': A Low-Tech Solution

Photo 1: Mike's 'hot house.' Low-tech ingenuity.

By Mike Merritt

In January 1999, I was concerned about my relative lack of success at germinating palm seeds, and began to consider various possible causal factors that might arise from my choice of soil mix, the water used for irrigation, and the ambient temperature. My early efforts at germination had taken place in the fall and winter months, in seed pots set on the ground in a plastic-wrapped but otherwise unheated shadehouse. Various sources indicated that I might have greater success if I could somehow apply tropical heat.

I am certainly not the first to have dealt with this problem, and many palm growers have a variety of heating pads, heated closets, and higher-tech devices. But I became intrigued with the idea of using a non-powered, very low-tech system that would act as a passive heat collector, with the sun as a source. My term for it is "heat chamber"; some of my palm colleagues have called it a "hothouse". The "hothouse" was to be located on a bench in my new greenhouse, which was positioned to have an unobstructed southerly exposure to make maximum use of available sunlight.

Construction

Construction began with the purchase of a 4 ft x 8 ft x 4 in slab of Styrofoam (for a thermally insulated bottom). Then, two 12-ft long and 30-in wide sections of 1-in wire fencing were bent into a U-shape of three sides 4-ft long and attached to the outer sections of the Styrofoam block. Two 4 ft x 4 ft sections of fencing were attached with bits of wire to close in the ends of the structure.

Then another section of fencing, roughly 6 ft long and 36 ft wide was bent in a U shape with the center of the U 4 ft long. This piece was placed over the center and attached to the end U-sections, leaving center side openings on both sides nearly 2 ft high and 3 ft wide for access. The entire structure was attached by pieces of wire to the greenhouse bench. The resulting structure, four years later, is shown as photo 1.

Completion of the structure was accomplished by cutting a 50-ft length of 10-ft wide 4-mil clear plastic

Photo 2: The wrap job on Mike's 'hot house'.

sheeting and wrapping it laterally around the structure (resulting in two layers on the sides). Most of the excess was draped across the top in a somewhat messy pile that was, nevertheless, effective as a top layer. The plastic was held in place by lengths of wire attached laterally to the ends of the center section.

Access was provided by cutting overlapping plastic doors about the center side openings in the wire structure. These were 80-90 in wide in the outer layer, and 36 in wide in the inner layer. This effectively confined air within the chamber, though actually sealing the chamber was not the objective. The wide outer plastic flap was held down by two rocks on either side.

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My 'Hot House'

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Around the remainder of the perimeter, a spatula from my kitchen was used to force the excess plastic on the bottom underneath the structure. The wrapped structure is shown as photo 2.

It was found that, during periods of heavy rainfall (remember, this is Florida), pools of water would collect on the upper surface of the structure, causing it to bend in and collect even more water in later rainfall events. This is the reason for the vertical pieces of wood shown in photo 1, which were used to keep the upper surface convex. **Wrapping of** the structure is a messy affair usually accompanied by numerous expletives, but always is accomplished in less than an hour, and is rewarded afterward by a bottle of (er) Kool-Aid. The wrapping needs to be repeated every 6-12 months because solar radiation degrades the plastic sheeting with time.

Irrigation

To facilitate irrigation of seed pots within the structure, an irrigation line was run into the structure and attached to sprinkler heads underneath the upper surface, as shown in photo 3. The irrigation line originated at a valve operated by a digital timer. The low-volume sprinkler heads were typical commercial products that spread water laterally, the water falling vertically only several yards from the lateral point of origin. **However, the** water impacted the plastic sheeting on the side of the structure, and was converted into a mist that spread throughout the interior of the structure, creating, in effect, a mist system that seemed to be ideal in keeping the soil surface of the seed pots moist without becoming saturated.

Photo 3: Below, seedling irrigation in Mike's 'hot house.'

Photo 4: Above, inefficient space heater in Mike's 'hot house.' The mechanical-minded will think of improvements.

Temperature Performance

Barely visible in photo 3 is a vertical wire leading to a temperature sensor probe. The line originated from a digital temperature readout device that was placed on the greenhouse floor underneath the structure to prevent it from being damaged by rainfall or greenhouse irrigation. Such devices are readily available from Radio Shack or Target stores for around $10.

Temperatures inside the structure ranged to 110 or even 120 deg F on hot, cloudless summer days. Throughout the year, sunlight kept the temperature within the structure above 95 deg F, even when the ambient temperature might have been in the 70-80 deg F range. Clouds diminished the temperature in the structure to the extent that they blocked thermal radiation. At night, the plastic-wrapped structure quickly lost heat and returned to ambient temperature. In winter (can be cold in central Florida) the entire greenhouse was plastic-wrapped and heated with a propane heater on cold nights.

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My 'Hot House'

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To obtain more heat on cold winter nights, a small electrical space heater was place in one end (photo 4), protected by a plastic baffle from damage by water from the irrigation system. Still working after four years, this heater is not very effective and may raise the temperature in the plastic-wrapped structure by, at most, 3-4 deg F when in use.

Effects on Seed Germination

The scientific way to assess the effect of the heat chamber on seed germination is by comparing samples, i. e., a group of seeds would be divided into two or more samples, some of which would be germinated under heat chamber conditions and others germinated "on the bench" (subjected to ambient temperatures). Although I have worked with seeds of many species in the last four years, this procedure was not used in most cases, because the numbers of seeds I acquired were small, the price was high, and I chose the treatment that seemed best for the species in order to maximize germination.

In most cases, the seeds went into the heat chamber. In other cases (*Rhapidophyllum hystrix*, *Prestoea acuminata*), I knew that ambient temperature conditions were closer to those in which the species germinated in nature. But there were several tropical species for which I had a large number of seeds that I could subdivide to make comparative tests. These were *Livistona benthamii*, *Areca triandra*, *Dypsis onilahensis*, *Caryota maxima*, *Latania loddigesii*, *Latania verschaffeltii* (probably an F2 hybrid), and *Licuala grandis*.

Although quantitative measurements were made, exact quantitative data were not recorded, so only general qualitative results are cited here. A very clear relation was the one between use of the heat chamber and the time required for germination. Seeds germinated far more quickly in the heat chamber.

It was also clear that seedlings developed more quickly in the hot, humid conditions of the heat chamber. *L. benthamii* seedlings from the heat chamber were potted up in August, and developed during the winter. Other seedlings of the species germinated on the bench were potted in November. Many of the latter did not survive the winter nor did they develop during the cold weather if they did survive, and I had two size classes of these plants for some time afterward.

On the other hand, it did not seem that use of the heat chamber increased the rate of germination. In fact, the opposite was true for *Dypsis onilahensis*, *Caryota maxima*, and *Licuala grandis*, where pots on the bench produced 10-15 percent more sprouts, although the sprouts were retarded in development compared to the ones produced in the heat chamber. *Areca triandra* numbers using the two methods were comparable.

I had no germination of *Latania* seeds on the bench. Transfer of these seed pots to the seed chamber resulted in substantial germination. I will never know if germination would have occurred if they had been left on the bench. This experiment was terminated because I didn't want to lose potential *Latania* seedlings.

Other Uses for the Heat Chamber

During the summer I germinated two sprouts of *Cyrtostachys renda* ("red sealing wax palm", or "lipstick palm") in the seed chamber and three more on the bench. One was left in the seed chamber during the winter, while the other four were moved to my kitchen table. The latter four all damped off and died, while the one in the seed chamber grew in size. Other highly tropical seedlings (*Lemurophoenix*, *Dypsis lanceolata*, etc.) also thrived in the heat chamber, while only five out of fifteen *Pritchardia pacifica* seedlings survived in the kitchen.

In the heat chamber, humidity was high, winter daytime temperatures approached 100 deg F in the sun, and nighttime temperatures dropped to nearly 40 deg F on several occasions. In the kitchen, the humidity was low and the temperature was nearly uniform at 70-80 deg F.

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Barbara Judd's Potting Mix

[The Plant Person at Montgomery Botanical Center uses this recipe, obtained at the request of Mike Dahme.]

PALM SOIL:
40% Canadian peat
30% composted pine bark
20% sand
10% Perlite
with dolomite, minors and water conditioner added
(I get this from Atlas Peat and Soil in Palm Beach)

CYCAD SOIL:
¼ Canadian peat
¼ Aliflor or pumice (pea sized)
¼ composted pine bark (soil conditioner from Faffard)
¼chicken grits or very coarse sand
(I make this)

An Exciting New Specimen for a Collector's Palate

Carpoxylon macrospermum

By Rick Leitner

I had recently finished reading about the mysterious pinnate palm from the Vanuatu islands. I found it fascinating that a palm endemic to such a small island archipelago was thought to be extinct. How difficult is it to explore an ***island*** looking for a particular palm species?

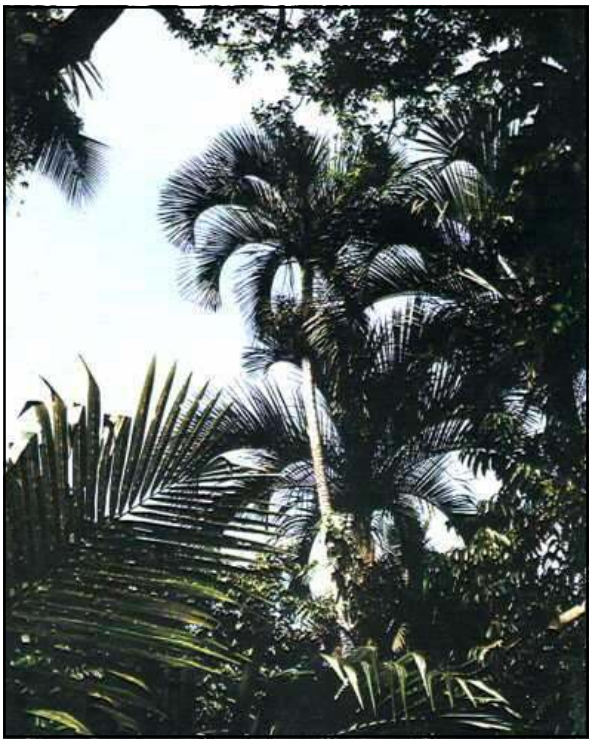
It appears that botanists first described this beautiful palm around 1875 and later expeditions to locate this palm failed. It wasn't until 1987 that an Australian botanist, John Dowe, reported cultivated specimens on the island, but was not successful locating a native stand of *Carpoxylon macrospermum*. Subsequent botanists located cultivated species on other neighboring islands, but still no survivors in the wild.

Sometime later, after much research, Dowe located some 32 mature specimens in their natural habitat throughout the island chain and some 122 mature fruiting palms in cultivation. However, through many observations, it was concluded that even with the palm being observed on numerous islands, there were dire concerns as how to go about preserving the remaining specimens.

On one island, for example, mature fruiting specimens of *Carpoxylon* were being cleared for agricultural crops. Secondly, it was found that the entire population of native palms contained little DNA genetic viability. Therefore, extreme efforts by the government were necessary to guarantee this palm's protection and next generation.

The government has since established a successful endemic palm seed bank, including that of *Carpoxylon macrospermum*. This effort will not only provide much needed financial support of continued research and conservation efforts, but will provide education for native peoples toward the conservation and planting of the palm. In addition, by spreading seedlings worldwide, in theory, it may help to increase its chance of survival…. be it in Australia, Malaysia, or even South Florida.

I went to a friend's nursery to say hello after not seeing each other for awhile. Actually, I know he grows a myriad of incredible, unusual crotons, and wanted to stop by to pick up one or two. We began to talk and my attention was directed toward three odd specimens growing as if they were attentive soldiers. They were standing as if on guard for the rest of the nursery. I was drawn as if in a hypnotic trance that only a palmophile would understand. These palms were about 7 years old from a seed distribution, had been germinated in his nursery, stepped up continuously into larger and larger containers, and then set into the ground about 4 years ago.



Above, Carpoxylon macrospermum*, clearly a gem—growing in habitat on the island of Espiritu Santo, Vanuatu. (Picture from the PACSOA website)*

He said that it was rare species of palm from the South Pacific and it appeared to enjoy life here in South Florida. After saying that it was *Carpoxylon macrospermum*, I was fascinated. It was an omen. I had only yesterday read about the amazing rediscovery of this palm. I now attempted to find out more information about its native lands, growing habits, and what type of environmental and climatic conditions it enjoys. I found only a bit of helpful information.

What I was able to find was that this palm enjoys rich, moist, yet well drained soils in partial sunshine. In its

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Carpoxylon macrospermum

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native habitat, the seedlings appear to sprout close to the mature trees, in the moist organic mulch.

I found that Vanuatu itself is an interesting island chain settled over 5000 years ago from peoples of Papua New Guinea and the Solomon Islands. Captain James Cook named the islands "New Hebrides" in 1792. After obtaining their own independence in 1980, the country continues to celebrate rich cultural heritage – a diverse mix from all peoples now calling Vanuatu home.

Geographically, the islands run north to south and form an imaginary letter "Y." Since it is in the southern hemisphere at approximately 13 degrees south, you would expect their warmest month to be February and the coolest month to be August. However, being only 13 degrees south of the equator, the climate is relatively uniform with very little temperature fluctuation from winter to summer. The average high temperatures in the summer months range about 86 F with lows at night about 75 F. During the winter months the average high is approximately 78 F and the low averaging 61 F. During the rainy season (November to April), the heaviest rainfall occurs on the windward (southeast) parts of the larger islands. On average, most islands see about 105 inches of rain on the wet side and about 49 inches on the drier side. The highest peaks of the islands may receive as much as 8000 mm (312 inches!) of rain. Cyclones may cross paths with the island archipelago, namely in January and February, peak cyclone season. Unfortunately, since the island chain is situated north to south, about 2 to 3 cyclones damage the islands every season.

My prized palm was root pruned for months, preparing for the big move. The soil that it was growing in at the nursery is very much like my own…sandy, loamy, and alkaline based. Nevertheless, the palm appeared to be doing quite well. Here, it received regular irrigation, but no mulch covered the drip line. In addition, it took 36 F at the nursery with only spotted cold damage showing about 3 weeks after old man winter's grip.

The palm's root ball, which measured about 3 feet wide by 3 feet deep, was wrapped in burlap to ensure the soil would not drop away. Additionally, I feel that it help to keep the root ball intact during transportation.

A backhoe was used to lift the palm and place it onto the bed of my truck. I realized that what looks large in the field, looks even larger when placed against an object of scale, like my Ford F-150 pickup truck. It was large!

I was in an emotional rollercoaster car – and in the front seat. I was concerned about many things. Would the spear be shattered like an *Archontophoenix*? Would it transplant well? Will it take the slight salt spray in my garden? How much water shall I give it until it is established? Furthermore, how will I get it out of the trunk and into the hole without heavy machinery?

After much sweat and effort, my *Carpoxylon macrospermum* is now home. It is a palm that stands out in the crowd. It is one of the anchor palms in my collection, shining right in the front garden, standing about 9 foot overall. The base of the palm is a saucer measuring about 22" in circumference stretching up to a bright lime-green crownshaft. I removed a few fronds for the transplantation process, but it normally holds about 8 – 10 pinnate, heavily arched fronds, much like a *Hyophorbe* (Spindle palm) crossed with *Adonidia merrillii* (Christmas palm). It is said that the trunk will narrow from the saucer and grow to a possible height of. 60 ft.

I am hopeful that this palm will recover through the conservation efforts abroad. It certainly deserves to be reestablished in Vanuatu and distributed to every palm collector's garden as well. With these conservation measures, I hope in our lifetime, that we may see the *Carpoxylon macrospermum* used as specimens lining avenues. It certainly holds the possibilities of being a rival to all the *Veitchia* species.

If you have an opportunity to purchase a *Carpoxylon macrospermum*, do so. This incredibly spectacular palm is a pinnate beauty. I have good feelings about this new kid on the block.

[Rick's palm garden is in Fort Lauderdale. See his account of starting anew in the September issue of The Palmateer.*]*

My 'Hot House

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Results suggest that heat chamber conditions, even though very variable in temperature, were more favorable to the survival of seedlings of species that are highly vulnerable to low temperatures and, perhaps, to low humidity.

Another nice thing about the "hothouse" is that it keeps undesirable plants and animals away from the seed pots. In the heat chamber, I find no animals other than small, flat snails (that don't seem to eat plant leaves) and very small lizards and tree frogs. A few weed seeds find their way into the chamber, but noth-

Exotic Palms Near the South Carolina Coast

[This article appeared in the Fall, 2003, issue of Rhapidophyllum*, the journal of the Southeastern Palm and Exotic Plant Society (SPEPS) and is reprinted here with the permission of the editor, Jeff Stevens, and of the author.]*

By Brian Mielke, Hanahan, South Carolina

My wife Rebecca and I started planting our borderline Zone 8b–9a garden in 1999. The garden is about 10 miles inland just west of the Cooper River near Charleston, and has 26 species of palms, and a variety of bananas, citrus, ginger lilies and many other exotic plants. Most of the palms are hardy species like *Trachycarpus fortunei*, *Butia capitata* and *Sabal palmetto*, but our garden also includes several experimental palms like *Archontophoenix cunninghamiana* var. 'Illawara' and *Bismarckia nobilis*, as well as relatively unusual palms like *Jubaea chilensis* and *Jubaea* x *Butia*.

Even though my climate would be described as warm by many SPEPS members, growing palms on the Coastal Plain isn't without challenges. The workhorse of many hardy palm gardens, *Trachycarpus fortunei*, struggles in my climate and soil conditions, and to a lesser extent, so does *Musa basjoo*. Both require nearly constant feeding and watering to only grow at a rate which would be described as slow for the species in a cooler climate. On the other hand, many palms which are suitable for our heat, humidity, and soil, like *Washingtonia robusta* and *Phoenix canariensis*, invariably get damaged fronds by the infrequent and short duration, yet predicable, once-or-twice-a-winter cold spells.

The winter of 2002–2003 brought the coldest temperatures our garden has experienced. According to my thermometer, during the arctic blast in January the garden had consecutive lows of 26°F, 19°F and 18°F (-3°C, -7°C and -8°C) with three days of highs in the low 40s (5°C). Although colder than previous winters, cold spells like this are by no means unusual for the area, and thus it was a good hardiness test for both many species and for my protection methods of non-hardy species.

During this arctic blast, I protected the *Bismarckia nobilis* by constructing a dome structure out of PVC and covering it with a tarp. The dome was about six feet tall in the center and provided enough room so that only the tips of the fronds touched the tarp. I also placed a 60-watt light bulb inside the dome, as well as two 10-gallon buckets filled with water, in an attempt to increase the heat capacity inside the shelter. Temperature readings inside the dome indicated that it provided about 15 degrees worth of protection, plenty for this species to survive a cold blast of this magnitude.

Bismarckia nobilis*, that Central Florida favorite, here growing in a definitely more chilly locale.*

However, the second night of the freeze was quite windy, and in the morning the tarp was blown half way off the PVC structure. Since I have no idea when the tarp was disturbed, I have no idea what temperature the palm actually experienced. Immediately after the freeze the *Bismarckia nobilis* looked undamaged, but by late March the damage started to became noticeable. Eventually all of the fronds died, however the center spear never showed any damage. It currently has put out four very healthy full-sized fronds, and appears to be picking up speed.

Another surprise is my largest *Phoenix roebelenii*. Last summer I planted it in the garden, because with three feet of trunk, it was becoming much too big for its container, and much too heavy to continue moving inside on cold nights. Thus, it's planted close to the east side of my house. I also protected it with a large

(Continued on page 22)

Above, Archontophoenix cunninghamiana*, the 'Illawara' variety, by the fence in suburban Charleston. Below, a* Washingtonia robusta *grows high above a hardy banana. This striking picture was on the cover of this fall's issue of* Rhapidophyllum*, the SPEPS journal.*

South Carolina Palms

(Continued from page 21)

PVC structure that leaned onto the house, and also enclosed one of my queen palms (*Syagrus romanzoffianum*). The cover also was blown partially off, completely exposing the *Phoenix roebelinii* on the night we went down to 18F (-8°C). This palm also completely defoliated, but the growth bud and center spear remained green all spring, and it's currently putting out healthy fronds.

My protection of the king palms (*Archontophoenix*) was sufficient to withstand the wind, and all three of my Illawara's came through the cold spell undamaged and are now over six feet tall to the top of the fronds, and are developing clear trunks.

As for borderline species that I didn't protect, I have to say that I'm quite pleased with the Everglades paurotis palm, *Acoelorrhaphe wrightii*. Two years ago I planted two from 3-gallon containers and they have performed quite well. They were damaged during the freeze but both started growing very early in the spring and currently look better than they did last fall. As for citrus, improved Meyer lemon is a winner in my book. Only one of four were damaged during the freeze. The three that weren't damaged are currently full of fruit, and the damaged tree is recovering nicely.

The giant snow banana, *Musa ensete glaucum*, has also performed quite well. I'd consider it completely trunk hardy in my climate.

Unfortunately, not everything fared so well last winter. I lost many of my *Livistona chinensis*, all of which were mostly undamaged in previous winters, including one that had over a foot of solid trunk. All of my *Cordyline australis* were killed to the ground. And to my surprise, since the literature boasts its hardiness, I lost a *Chamaerops humilis* var. *cerifera* when other similar sized *Chamaerops humilis* were not damaged. ■

More of Brian's palm, landscape and architectural photography can be found at www.brianmielke.com.

Growing Cycads in Central Florida

When the Central Florida Palm and Cycad Society was formed, the founders knew that we had a very unique growing area that is much different from other parts of Florida, let alone the rest of the world. Our area includes locations that will get as cold as the lower teens, and some areas that rarely get below freezing during a winter. Some members live near the coast where salt water, or salt spray can be a factor, and some of us live on relatively high ground with only sand to work with as a soil. Our members have to deal with extremely different growing situations, so one reason to have our own newsletter is to report to our members how to grow cycads and palms in our unique area. This is the first of many articles that will be written by more than one person on the cultivation of cycads. Each person may have different growing conditions, and in some cases certain people may have better luck growing the same species than others. We hope you enjoy these articles and will benefit from our experiences.

--Tom Broome

Growing *Lepidozamia peroffskyana* in Florida

By Chuck Grieneisen

The *Lepidozamia perrofskyana* is one of my favorite cycads. It is one of the few cycads that have no spines at all and the leaves are soft. It has dark green leaves, giving it a distinctive look. It is from one of the wetter parts of Australia, so it seems to like Florida. It gets about as large as a queen sago (*Cycas rumphii*) with up to a 20-foot spread for a very large one. My largest one only has about a 7 foot spread.

For me they have grown faster than the king sago (*Cycas revoluta*), but not quite as fast as the queen sago (*Cycas rumphii*). They seem to like to get some morning sun then part shade best. I have seen them growing well in dense shade where grass struggled to grow.

They do grow in very dense shade, but very slowly. I also put one out in the full sun this summer to see how it did. The leaves got just a little sunburned and the caudex seemed to grow much faster. That was better than I had hoped. I had never seen anyone growing one in the full sun. I don't have any in the ground. My soil mix that they like is 1 part compressed peat, ½ part cocopeat, 1 part pine bark, 1 part cypress sawdust and 1 part perlite. They seem to like it a little on the acidic side. Maybe 6.0.

And like *Cycas revoluta*, they can get manganese deficiencies. When they get it they put out a white leaf. I have seen the leaves almost as white as paper. I have has some success with "greening" them up with a foliar spray containing manganese and iron. It must be sprayed almost every day for a while, though. I had many with that problem, until I got the cycad supplement from Tom Broome. I was going to take a picture of a white leaf for this article. I had many with white leaves in the winter, but the supplement has greened all the leaves up now. (so, no white leaf picture) They seem to get the deficiency worse in soil mixes that have a lot of pine bark in it. The pine bark seems to leach out all minerals including nitrogen. They seem to need more fertilizer in that mix as well. The *Lepidozamia*s with the deficiency were in the above soil mix. You just need to supplement them with a mix that has that much pine bark in it. They grew very well otherwise.

As far as getting the white/Asian/Miami/ scale, it is just now getting to my nursery. None of the *Lepidozamia*s have it . I have heard that they don't really get the scale, except maybe a little in the cone. Not a life threatening or a white covering like in the *Cycas* (both *revoluta* and *rumphii,* and most other *Cycas* species). *Lepidozamia*s are usually available for sale at the CFPACS meetings or at our plant sales.

Growing Leps

By Tom Broome

I have read Chuck's account of growing *Lepidozamia perrofskyana* and I will just add a few things while trying to avoid very many repeats. *Lepidozamia perrofskyana* is a very good cycad for central Florida. It is spineless and every part of the leaves is soft, making them a great landscape plant. I have found them to be cold hardy down to 20F without burn when they are grown under trees. I have had leaf damage during a freeze with a low of 23F that came along with a bad frost when the plants were grown in full sun.

I have also seen the same manganese deficiency in plants growing in the ground and in most cases this seems to be when the cycads are grown in alkaline soils, or are irrigated with alkaline water. I have never had this problem in containers using my soil mix of 40% Canadian peat, 30% sand, 20% cypress sawdust, and 10% Perlite. If anyone wants to see some nice plants before they decide to get one, I would suggest going to Leu Gardens in Orlando. They have a few in their cycad area, with one plant having a stem close to three feet tall. This one particular plant has been through many freezing events without a problem. This is a fairly large cycad, and for anyone who is limited for space, you should look at this particular plant at Leu before you decide to put one in the ground.

The Suncoast Palm & Cycad Symposium at Selby

By Tom Broome

On October 3, 2003 I attended the Suncoast Palm & Cycad Symposium at Marie Selby Botanical Garden in Sarasota Florida. The program was put on by Selby and the University of Florida IFAS extension service. There were 165 attendees from all walks of life from landscapers and landscape maintenance people to home owners that just wanted to know more about palms and cycads.

First, Dr. Bijan Dehgan's talk was titled "**Cycads for the Suncoast**," but he went into a lot more detail about cycads than just a list of species. He talked about his experiments with root branching to increase growth rate and his experiments with producing multiple heads on cycads by injecting chemicals into the apex of cycads. As all cycads are on the endangered species list, Bijan's talk included subjects on cultivation, propagation, and conservation. He did a great job and hit on as many varied cycad subjects that he could in an hour's time frame.

Dr. Monica Elliot's talk was "**Palms: Key Diseases and Their Control.**" She showed many palm diseases that I have seen before but also showed a few new ones. This talk was more on recognizing these diseases because all but one that she showed was not curable. Once you see these diseases on your palms, it is too late for that palm. It was interesting, but in most cases the "cure" was to remove the plant from the landscape.

Dr. Timothy Broschat made two presentations, one on "**Palm Nutrition**" and the other on "**Palm Planting and Establishment**." Both were good talks. The most important information in the nutrition talk was that palms need fertilizer on a regular basis and should not go without fertilizer any time during the year. They want good minors and you should use fertilizers that release all during the expected life of the fertilizer. As an example, if you are using a three month formula, you should use a product that releases all elements over the entire period of time. His talk on planting and establishment was probably the most interesting to me, just because I had heard most of the other subjects discussed before. He talked about how important it is to plant palms at the level they have been growing. Many times we hear that is just fine to bury *Sabal palmetto*s deeper in the ground, but he showed why this is not the case. I know this was news to me. He talked about how roots are damaged while transplanting, and that some palms will lose all the old roots and grow new ones, like on *Sabal*, and the roots on other genus of palms will just branch and continue to grow after being damaged. He listed a few genera of palms and it was very interesting to see how each compared to the others. He even broke all the data down to how roots reacted when they were cut at different lengths away from the stem. This was all very informative, and I learned a great deal on how each palm should be dug for optimum success.

Dr. Bill Howard talked on "**Palms: Key Insects and Their Control."** He showed many insects that get on palms, and got into basically how to get rid of them. He did not get into specific products to kill insects which might have been helpful. He touched on the Asain scale and sagos, but had to be asked again after he finished to elaborate on this particular subject. It appeared as if at least half the attendees wanted to know more about this subject. The Asian scale has spread all over the West coast of Florida and many people came to hear how to take care of it. His response was to use horticultural oil to smother the insects on the leaves. He did mention that he had heard that the scales could infest the roots as well, but could not elaborate on that. He told the group that he didn't really like sagos anyway, so he would just remove the plants, instead of trying to take care of them. This was probably the only part of the symposium I was distressed about. I know for a fact that the scales can cover the roots systems of *Cycas* and just using oil will never totally take care of the problem. Many attendees went home wanting more information on this subject, and I can see a great need for a cycad symposium here in Florida in the near future.

On top of the talks, a great barbeque lunch was served, and a self tour of Selby Gardens was included with the speakers and other county extension people taking positions throughout the garden to answer people's questions they may have had.

All in all, the symposium was very informative and was well worth attending. It was geared more towards palms instead of cycads, but I needed to learn more about palms anyway. As I said before, I hope someone can put a cycad symposium together soon because people need to know more about how to combat the scale and possible alternative cycads that can be used that are more resistant to the scale, because I can see that this problem will plague Florida for decades to come.

Seed-cleaning Enzyme

(Continued from page 8)

ing on the top, and after 2 weeks only a few seeds were clean. I assumed the enzyme was having a hard time penetrating the seed coat. I tried scraping the seed coat a little for my next experiment. Eureka! The enzyme entered the scrape and broke down the coat from underneath. Depending upon the size of the hole the seeds were perfectly clean in as soon as 5 days using the 1½teaspoon rate. All I had to do after that was to rinse them in water and I had perfectly cleaned seeds. Having to manually scrape each seeds still took too long. I found that if I soaked the seeds in a bucket for three days and then used the wire brushes for a couple of minutes, the seed coats would be damaged enough to let the enzyme work. For those who don't have a drill, I found that after the three-day period, if I put some gloves on and worked the seeds through my hands for ten minutes I would get the same results.

The next question was still critical. How would the use of the enzyme affect germination? I found that even after soaking seeds for up to three weeks, I had no loss of germination. I then soaked some seeds that had recently germinated in the enzyme and after three days, the radicles weren't adversely affected. I think the key is that this is a very specific enzyme and does not work like an acid that could damage seeds.

After experimenting with this enzyme for years, I have found that the enzyme reacts best at 95 degrees Fahrenheit. If temperatures are lower than 80 degrees the enzyme doesn't work as well, and below 70 degrees the seed cleaning procedure may take several weeks, which can rot some of the seeds. Even though this is not necessary, I would like to add that once the seeds have soaked for the full time, if you use the brushes on the seeds for less than a minute, it will help dislodge any extra seed coat that may be sticking, which aids in the washing process. Sometimes I purchase seeds that are not totally cleaned but have found that soaking these seeds for a couple of days will clean them the rest of the way which helps keep fungus from growing on the seeds.

For those of you who have problems cleaning palm seeds that have a fruity coating, I have found that the enzyme will perfectly clean any of the fruity palm seeds like *Arenga* and *Butia* by just soaking them for a few days. In the case of *Arenga*s, the seed coat is toxic and should not be handled, so this procedure is an easy way to clean these seeds without handling them. I have used this enzyme for *Arenga*, *Butia*, and *Zombia*. In each case, the coatings melted off in a few days without the need for the wire brushes. The seed coats of these palms don't seem to have the same waxy coating that the *Zamia* seeds have which makes them even easier to clean than cycad seeds. In the cases of the *Zombia* and *Arenga* seeds, the seed coats almost melted off within 3 days and washed off easily with a hose.

I use this for most of my seed cleaning needs now, but have found a powdered form of the enzyme that can be stored for a much longer time, and is easy to ship to people in the mail. I am always testing ways to make my job easier and improve plant growth, but I think that in this case I may have the ultimate seed cleaning procedure.

[Tom Broome sells the enzyme described above in powder form. For further information, contact him. —Editor]

Logo (at last): the Inside Story

(Continued from page 1)

the Internet for professional design firms, and found Logo Designs of Boca Raton. The Board authorized the expenditure of $375 for the creation of the logo.

Logo Designs came up with several choices fairly quickly, none of which the Board liked. Twice more, the firm sent revised versions, incorporating Board input. And, after about six weeks, we had our logo. Its small last touch was suggested by the Editor's friend and colleague, Elaine Kromhout of Indian River Community College, who thought (when shown the final version) that the logo would have greater visibility if the letters in the words 'Central Florida' were outlined in a dark line rather than left indistinct.

For the technical-minded, the professional firm supplied the final design zipped on CD in five file formats, usable in just about any way: eps. (Adobe Illustrator 9.0), ai (Adobe Illustrator 9.0), jpg., and gif.

The company also adapted the logo to a banner which can be seen on our website (www.cfpacs.com).

Having arrived so dizzyingly fast with the logo and, then, almost instantaneously translating this onto t-shirts advising the world of CFPACS's presence, we must catch our breath before offering decals, baseball caps, bumper stickers, and the like. "The like"? Oh, imprinted earmuffs for our few Northern members. Cutting edge, that's us!

---John Kennedy

Montgomery Botanical Center

A Center for Plant Research Collections Emphasizing Palms and Cycads

9 September 2003

Ray Hernandez, President
Central Florida Palm & Cycad Society
4315 W. San Juan St.
Tampa, FL 34629

Dear Ray,

Having recently returned from my field work in Honduras, I am following up on your $1,169.63 donation to Montgomery Botanical Center for the purchase of a Nikon CoolPix 4500 digital camera and accessories. I am enclosing a Travel Report summarizing how the camera contributed to an expedition that's part of a large [illegible] conservation project, the Caribbean Basin Conservation Collection.

This project is a long-term commitment at MBC, not only to collect cycads and palms from [illegible]

[illegible]

Jody Haynes
Cycad Biologist

cc: [illegible]

[illegible]

The letter at left was sent to all CFPACS board members in September, enclosed within a beautiful example of desktop publishing, a four-color folder—with pictures—entitled "Expedition Honduras 2003: Supporting the Caribbean Basin Collection at Montgomery Botanical Center." Under the leadership of MBC Biologist Jody Haynes (seen in two of the nine pictures), the expedition produced 1,713 palm and cycad seeds and 138 accessions collected, representing 45 populations. Up to a million Dioon mejiae *were documented in 20 populations. Two undescribed* Zamia *species and one undescribed* Ceratozamia *were reported. The Caribbean Basin project began in 2002 and continues until 2009. Last year the Bahamas and Puerto Rico were targeted for collection; next year will be Florida, Cuba, and Mexico.*

Distribution of CFPACS Contribution of $1,169.63

Qty	ITEM	Price
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	TOTAL	[illegible]

Right, a breakdown of how CFPACS's grant to MBC was spent, principally for the special camera itself, then for accessories. The table is taken from the folder/brochure mentioned above.

10 *Perfect* Palms

(Continued from page 15)

The seeds germinate quickly and easily, usually in under 3 months and at a high rate. The fruit or dates are reddish/purple when mature and most are edible but a bit mealy in texture. Here in Florida they are much easier to form and mature than *dactylifera* dates. Initial growth is slow and small juvenile palms can take 3 or 4 years to turn into something worth looking at. Hence the popularity of bringing in larger palms from date groves in western USA. Around 6 or 7 years of age the palm begins to accelerate its growth some, and eventually a slight stem begins to form. At this stage one can expect about 1 to 1.5 ft of overall height gained per year; healthy palms will develop 30-40 leaves per year. *Phoenix* palms will also begin to flower at this stage, sometimes sooner. The leaflets are numerous and dagger-like at the tips. They should not be planted where children play or any other high traffic areas where accidental contact can take place. These are large palms eventually and are best used as solitary specimens in the landscape or planted in odd numbered groups but far apart (around 20-30 ft.). They are also great for lining streets or framing entrances.

10 - *Sabal causiarum/domingensis*

I admittedly had a tough time coming up with the 10th palm for this list. I almost decided to go for one native species but after some thought I realized that this palm suited all the requirements. Though I did cheat a bit and include two species, it is nearly impossible to decipher any differences between the two palms in appearance or growth habits. A 3rd species, *S. maritima,* is said to be a match for these two as well but I have no personal experiences with it. The *causiarum* seems to be a bit slower growth wise and *domingensis* tends to show some foliar damage in heavy frost but both are very tolerant of the worst freezes. These palms very much resemble our native *S. palmetto* for about the first 5 years or so of their lives. After that things begin to change some. For one, the frond production increases noticeably, from 3 or 4 leaves earlier they now make twice that. The frond size changes as well, the petiole become much longer and thicker, the circumference of the leaves themselves is in excess of 3 ft, often reaching 5 ft. Think of a green *Bismarckia*!

For most *Sabal* it apparently takes about 10 years (give or take a few) for them to finish their underground "stem development". After this time you can observe the beginnings of an above ground trunk forming. Still

Trunk of a Sabal domingensis *growing in Grant. For scale, that's a 33-inch machete laid across the boots. This palm was grown from seed collected in 1994 from the Bidlingmayer site in Vero Beach; the picture was taken last month. The species looks, at first glance, like the ordinary* S. palmetto. *A second glance makes obvious that both trunk and leaves are considerably larger. The growth, too, is much faster.*

overall growth is slow, about 1 to maybe 1.5 ft per year. A single adult can produce copious amounts of seed, which germinate easily in warm weather. Most sprout in under 3 months and at a very high rate (90%). Growth is very slow as seedlings, only 3 to 4 strap leaves per year for the first 3 or 4 years. Once fan leaves form, the growth rate picks up a bit. It also helps to use large containers to expedite root development. If pot-bound they usually slow down or stop growing all together. I like to use 1-gal. pots for the first 2 years, then 3-gal. pots for the next two years. After that it's best to get'em in the ground.

Sabal palms are oblivious to just about any type of insect or fungus provided they are planted in a suitable spot. Shaded palms tend to have more problems than specimens in full sun. They can handle overly wet soil

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IPS Board Member Reports! (Our Faith)

Greetings from me, Faith Bishock, your IPS Board representative. I have just returned from the annual IPS Board meeting—this year in Houston.
Well, anyway -- one thing I noticed is that IPS Directors don't report back to their respective chapters about what's going on with the Board, and I think that is not good.
Yes, you can wait for "Palmcipes" (everybody calls it that -- Dransfield started it, I think) but I think I should give you my take on what's going on -- so here's my summary.
We have a new bookstore manager, Tim Cooke - a real pro at selling books. He is adding some titles to the list of hard to find palm literature. The list is in the *Palms* supplement and also online at www.palms.org . Five IPS published books, including the new *Palms of Trinidad and Tobago*, are also on his list. In an effort to reduce the number of stored back issues, the price for an old *Palms* or *Principes* issue has just been reduced from $15 to $10 and the price includes surface mail to anywhere in the world.
As an Endowment Fund project, excess back issues, in as complete sets as possible, have been donated to libraries around the world along with gift subscriptions This project has been very well received and is good promo for the Palm Society, too. Many of these libraries are in areas where palm habitats are threatened and this should help with education and preservation. Each year the IPS Endowment Fund distributes grants to various palm specialists and palm-related organizations worldwide. You can read about the details in *Palms*. Oh, and by the way, chapters are eligible for grant support of worthy projects if requests are submitted to the Endowment Fund Committee.
As a result of problems in planning the 2002 Biennial, the Board decided to create guidelines for future Biennials and Leland Lai is Chairman of this committee. If the IPS is responsible, then it should be able to control the basic running of these trips. That way we can ensure the quality and consistency of future trips. The 2004 Biennial will be in May in Hawaii and plans are being made for the 2006 Biennial in the Dominican Republic.
Just before I left for Houston, I received a lengthy and in depth e-mail from Toby Spanner regarding our website. Toby is an IPS Director from Germany and is the Editor of the European Palm Society's journal *Chamaerops* and has experience publishing not only hard copy but online as well. You may also know him from rarepalmseeds.com. He had some very good ideas and lots of experience and we named him head of the committee to revamp our website. Don't quote me, but the committee will examine the possibility of offering Internet membership (where you download your own *Palms*) and perhaps offer the site in other languages (especially Spanish). How many palms are there in South and Central America? How many members do we have there? Do you see where I'm going here? Spanish would hopefully get us more members there.

The palms at right were first thought to be suffering from some kind of infestation. But, no. It was lightning that damaged these barely alive Livistonas *at Borassic Park in Grant.*

Toby wants to make the IPS website the hub for palm information dissemination. The board has allocated a budget with up front money to produce a first class website. We'll see where this goes. The limits of all this, of course, is the cost. But change is imminent Our website hasn't been significantly changed since it started in 1995. If you have any concrete suggestions, let me know. (No whining about the message board PLEASE! Any ideas for improvement would be appreciated, though.)
The Palm Society began in 1953 on the front lawn of Fairchild Garden when Dent Smith and a bunch of palm friends decided to start an organization to promote palms. I can't give you a blow by blow of how we have gotten to where we are now, but I can tell you that IPS is at a turning point. It is evolving into a competent, well funded organization. We can do more to save habitats (through the Endowment Fund), we can get out more information and we can promote more planting of palms. What could be better? Please support IPS. **–Faith Bishock**

(E-mail budrot@earthlink.net)

Why a loss? An explanation. . .

We show an unaccustomed loss on this report, which is mainly a seasonal phenomenon, accompanied by one-time events.

Our seed bank income was at a low monthly rate compared with the last two years, but has recently picked up nicely.

Summer membership income is seasonally low. Our sales/auction income is unusually low, but will pick up with the fall sales and auctions.

During this reporting period, we paid the main expenses for two quarterly issues of *The Palmateer* and paid a one-time fee for the design of a logo and banner.

—Michael Merritt, Treasurer

TREASURER'S REPORT

June 14, 2003 to September 13, 2003

INCOME:

Seed sales……	723.87
Membership Dues……	400.00
Donations to CFPACS……..……..……..	0.00
Public Sales …….	0.00
Private Sales (June meeting) ……...……..….	27.50
Back Issue Sales……	0.00
Total _____	1,151.37

EXPENSES:

Publications (v. 23, nos. 2 and 3)……..……	1,775.07
Grants ……..….	0.00
Miscellaneous (Logo design and Website)……	570.00
Total _____	2,345.07

INCOME - EXPENSES …….. –1,193.70

Bank balance 06/14/03…… 25,216.33
Bank balance 09/13/03…… 23,862.63

Net decrease……. 1,353.70

(Note: Club-budget and bank reporting periods do not exactly coincide.)

ASSETS:

Endowment (mutual funds)……. 10,000.00 (purchase price)
……. 9,456.26 (value at time of purchase)
……. 8,269.70 (current value, close of market 09/11/2003)
(5,310.89 Washington, 2,958.81 banked from sale of Putnam shares)
Office equipment and tent…… 1,595.00
Computers and software……..… 2,544.41 minus depreciation
Printer……..… 2,200.00 minus depreciation

Feliz Navidad

The Freezing Past:
West Central Florida in Winter (O Lord, not this year!)

From the National Weather Service, Tampa
Freezing temperatures occur across portions of West Central and Southwest Florida nearly every winter. However, *hard freezes*, defined as 3 hours or more of temperatures below 27°F, are more rare. Widespread hard freezes are more rare still. Widespread killing freezes are the worst of all.
In general, a widespread killing freeze requires several hours of readings below the mid 20s, relatively low humidity values sufficient to prevent frost formation, and little or no temperature difference between flat and hilly terrain.
Since 1950, there have been five widespread killing freezes in West Central and Southwest Florida. A brief summary of each follows.

The Big Freeze of December 1962

At that time, the December 1962 freeze created the greatest statewide Citrus loss in the state's history. Damage was greatest along Florida's west coast and northern interior (Stout, 1964). Damage to Oranges and Tangerines was nearly 50 percent; damage to Grapefruit was less. Low temperatures on December 14th, the primary day of the killing freeze, fell into the upper teens across most of west central Florida; more importantly, the duration of less than 20°F temps ranged from 1 to 3 hours in Polk and Hillsborough Cos; up to 5 hours farther north. The culprit was Arctic High pressure, which sprawled across the eastern and southern U.S.

Cold and Snow: January 18-20, 1977

By definition, minimum temperatures did not fall below killing freeze criteria during this period. However, the persistence of unusually cold temperatures, averaging 20 degrees below normal for five consecutive days, combined with five consecutive mornings with minimum temperatures in the 20s over many growing areas, produced widespread agricultural damage. Dollar damage was estimated to be near $250 million (1977 values), the majority from vegetable losses (Citrograph, 1977) Waves of arctic high pressure penetrated the state through the period. A band of light snow developed as an upper level disturbance moved through, with small accumulations noted in Pasco, Polk, and Hillsborough Cos.

Christmas Freeze of 1983

This particular freeze replaced the December 1962 event as the costliest in state history. An estimated $1 billion in damage was realized to agriculture. For central Florida, this was a watershed episode, one which struck a devastating blow to growers in northern Polk County, as well as the former 'citrus belt' west of Orlando. Christmas morning dawned clear, breezy, and frigid. Low temperatures ranged from 15 to 20 north of Tampa Bay; 20 to 25 east of Tampa Bay. Nearly identical readings followed on the 26th. An intense arctic high pressure system (initially 1063 mb) spread quickly south and east from western Canada on the 23rd, covering the eastern 2/3 of the U.S. by Christmas morning. An unusually large snowpack (1 inch or more) covered much of North America that month, allowing little modification to the air mass. Record cold so early in the season caused high loss of life - at least 150 persons were killed directly by the episode (NOAA, 1983).

Inauguration Freeze, January 21-23, 1985

If the Christmas Freeze of 1983 was devastating to citrus agriculture, the Inauguration Freeze was fatal. Growers who had dramatically pruned back trees in 1984 to promote new buds lost everything this time around. Today, the landscape along central Florida's highways in northern Polk, Lake, and Orange Counties contains alternating views of subdivisions and barren hills, land that had been filled with citrus groves prior to these freezes. Once again, financial losses were staggering. As in 1983, arctic high pressure surged into the eastern and southern U.S., with the air mass moving over a snow pack, which extended into the Tennessee Valley. Minimum temperatures for the 21st and 22nd ranged from 15 to 20 degrees north of Tampa Bay; 20 to 25 over and east of Tampa Bay, and 25 to 30 over southwest Florida.

Christmas Freeze II: 1989

It was déja vu all over again six years later. Agriculture took yet another hit, with estimates of up to $300 million in damage statewide. The primary blow oc-

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Ten *Perfect* Palms

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during the growing period but prefer to be on the dry side during the coldest months. Young palms will tend to develop bud rot in constantly wet and shady conditions. Due to their underground growth they are extremely drought tolerant, even as tiny seedlings, all the way up through adulthood. They can handle cold down to 18-20F before any damage occurs, sometimes even lower. They have very little needs in the way of fertilizer or irrigation but respond very well to both. It is best to use a slow release type fertilizer around them as small palms due to the underground bud. This palm is massive in overall size even as pre-trunking juveniles, and tend to look best if planted alone or in well spaced groups of 3 to 5. They can make a nice canopy for understory plantings as well, with a spread of nearly 20 ft. I like to use these palms in areas where most palms have trouble growing (poor soils, lack of irrigation, etc.). Once established they can provide a nice accent planting for these spots as well some shade and structure for other plantings.

Freezes

(Continued from page 30)

curred on Christmas Eve, when low temperatures ranged from 15 to 25 degrees across all but the immediate coast, and north winds blew at 10 to 15 mph . Radiational cooling allowed similar low temperatures on Christmas morning. The atmospheric conditions were a bit different, however. Though an arctic high-pressure system sprawled across the contiguous U.S. east of the Rockies, Florida had been spared - until low pressure developed east of Cape Canaveral. This low intensified rapidly while moving north, pulling arctic air down from Georgia and the Carolinas. Accumulating snow and sleet fell across northeast Florida, with snow flurries observed in the Tampa Bay area on the 23rd.

Will a killing freeze affect west central Florida this winter? *Some studies, i.e. suggest that there is a better chance of such a freeze this winter than during the previous two winters. [Italics added.—Editor]* (http://www.coaps.fsu.edu/climate_center/freeze.html)

References

Citrograph, March, 1977: Florida, The Freeze of '77, pp 134-143.

Stout, R.G., 1964: Florida Citrus Fruit and Tree Losses from the December, 1962 Freeze, 34 pp.

Peace

The might Bo: close-up of the male Borassus aethiopum *at the Wabasso home of Joe and Anne Michael. The female that has provided seed for the CFPACS seed bank grows nearby and seems to be in decline.*

(Photo by Asit Ghosh)

From the Editor's Desk

My Sharp-Eyed Critic is after me. . .again. This time, it's my explanation—in the September issue--of how I came up with the name *Palmateer*. I am accused of forgetting that Dent Smith was the originator of the term. If I've really forgotten, this is an example of my fraying, senile memory. If I really didn't know, this is an example of my ignorance, not to say moral turpitude. Dent Smith, of course, was the founder of The Palm Society (turned much, much later into the IPS). I met Dent Smith several times, though I can't recall ever conversing with him, too much in awe as I was of the great man. Here's what he wrote in a very early *Principes* (April, 1957):

English lacks *a one-word term signifying "palm fancier," and besides nobody wants to go about the world blurting out "I'm a palm fancier" at the drop of a hat. We should coin a word. One occasionally sees the word "palmologist" applied to the scientific investigator of the palms, but a good many scientists avoid it as too contrived and of doubtful etymological standing, hardly more than a cut or two above "mixologist" for bartender. Good or not, it is not intended to mean the palm fancier. Two good English words that would do for this fine fellow are "palmist" and "palmer," but both have been preempted; the former is a soothsayer; the latter is a pilgrim, or else he is a card sharp. In these straits we should coin "palmateer." Even though it has a jaunty sound, with overtones of recklessness, it is still fairly mellifluous and its meaning would be apparent to highbrows, lowbrows and middlebrows alike. We could, of course, patent it, thus reserving the right to deny its use to anyone not a member of this Society; but at the moment it seems easier to offer it duty-free to the universe, with or without background music consisting of a few stridentulous bars from the William Tell Overture.*

It should be noted that "stridentulous" is Dent Smith's word. And, yes, I did read all of the earliest publications of The Palm Society, and wrote an article on their content for this newsletter. I don't recall reading the passage above before January, 1999 (when *The Palmateer* became the title). Maybe, however, this "coined" word stuck in my memory or perhaps, My Sharp-Eyed Critic, great minds think as one?

* * * * * *

So now we have a logo. The board has discussed this off and on for possibly five years but nothing really happened. This year, Karen Barrese, our Membership Chair, keeper of the rolls, took the initiative to find a commercial source that did this kind of artwork. The company in Boca Raton dealt with Karen, who sent prospective versions of the logo to the board for comment. And the board had many suggestions. The process went back and forth perhaps four or five times. The first versions produced were, to put it politely, undistinguished. The designer seemed not to have looked very closely at a palm and had never heard of a cycad; these cultural deficiencies were quickly overcome. And, after about six weeks, we had the logo that appears here on the front page, which pleased the board and (hopefully) also the members. We hope to have for sale t-shirts with the logo at the December meeting in Cocoa Beach. Still in the future, however, are (perhaps) caps with the logo, and—my wish—decals. Bumper stickers, another possibility, tend to flake off after a time. But decals in car windows last rather longer. It would have been nice if we could have put the website on the logo as well, but one has to be (alas) reasonable, and anyone searching the web can find CFPACS without any difficulty.

* * * * * *

Valentine's Day (on a Saturday morning) in the new year will feature—at Heathcote Botanical Gardens in Fort Pierce—the Amazing Palm Duo of Robert Lee Riffle and The Editor presenting a workshop on palms to beginners and, probably, to nurserymen as well. The co-author of *An Encyclopedia of Cultivated Palms* resides not five miles from Heathcote and is expected to give a rousing performance; The Editor's role is as yet undefined, might be that of straight man or, should matters get too raucous, as bouncer. For further information, contact www.heathcotebotanicalgardens.org or (772) 464-4672.

* * * * * *

Don't forget to RENEW your membership for 2004! The membership year is the calendar year, so you may be all expired as of the end of December. However, if you paid for a three-year membership, there may still be time on it. Check your label to make sure. If there are any questions, contact Karen Barrese (address on p. 35). But what a bargain: one year for $10, three years for $25. How much longer we can keep these stunningly low rates is a serious question but, for now, those are the prices. Great palm and cycad entertainment, notices of meetings, seed sales, and four issues of your favorite publication, *The Palmateer*.

* * * * * *

Cycad articles? Yes, we're making a real effort to include more cycad articles than in the past. If your special interest is cycads, rather than palms, do send in an article about cycads. Your favorite species of cycad? An underused cycad? Some special trick you've learned through trial and, mostly, error? Cultural information is always useful to other hobbyist-growers. If

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From the Editor's Desk

(Continued from page 32)

you need help with the writing, the English teacher-as-Editor is available for assistance. If you're afraid that your handiwork will be tampered with, policy is to run an article pretty much as sent in (preferably, electronically as a Word attachment). Pictures should come as jpg. attachments. Usually the only changes are in spelling—if there's one common link between contributors to this publication, it's their shaky grasp on spelling. If something is unclear or confusing, the Editor always requests clarification.

* * * * * *

Dave Witt's 10 palms for inland Central Florida might be called the "ironclad" palms. Those of you from Up North may recall a group of "ironclad rhododendrons," species/cultivars that would grow for anyone and that were truly tough. Dave's species fit that same description. I have all of them, mainstays in my yard. Not quite foolproof (as in the grower himself). *Arenga engleri*, untouched by disease, shrugging off cold, but could well be in Mr. MacGregor's garden. Remember, he was the cause of the 'accident' that occurred to Peter Rabbit's daddy. Peter Rabbit, and his many relatives, love *Arenga*s. Leathery leaves at ground level get chewed to bits, while volunteers disappear entirely (bunny ice cream). A small *Arenga* 'Long Leaf', protected for several years, had its protective chicken wire imprudently removed, and disappeared—roots and all—a few days later. No sign that it had ever existed. **I can't** recommend planting *Bismarckia* in what turned out to be the enlarging shade of a neighbor's trees: the result looks like two mutated dwarf forms, more than 20 years old, with trunks at least 12 inches high and each having five or six beautiful leaves. . . ***Allagoptera arenaria*** does have short trunks. My two palms of this species are more than 20 years old and in each clump is at least one stem that is about 18 inches high. **John Kennedy**

Deadline for articles for March issue:
FEBRUARY 6

The Seed Bank Report

The Seed Bank continues to offer seeds to CFPACS members via e-mail only, if you are not on the list and would like to be or if you've changed your e-mail address please contact: Beachpalms@cfl.rr.com

This past three months we've received a well rounded variety of palm species, from tropical to cold hardy as well as a couple of extra cold hardy cycad species. We've had some new members donating, along with some never before offered species. What follows is a compilation of all 5 seed offers for the quarter along with their donors.

We start off with Joe Michael donating his usual Borassoids (*Hyphaene coriacea, Bismarckia nobilis,* and *Latania lontoroides),* plus *Copernicia macroglossa* and *Attalea speciosa.* It should be noted that Jason Baker did the collecting for us.

Other donors include Mark Grabowski for *Latania loddegesii,* Dave and Geri Prall for *Acrocomia aculeata* (about $90 worth), Shri Dhar for *Phoenix sylvestris,* John Kennedy for 2 species of *Sabal, (S.minor, and S. domingensis),* new member Roy Morris for *Sabal minor* and *Thrinax radiata* and Walter Darnall for habitat collected *Sabal etonia,(*never before offered, $105 in sales) from his Lake Placid property. Ruth Sallenbach allowed us to scavenge her property at the annual picnic for any seeds we could find, *Wodyetia bifurcata, Acrocomia aculeata, Caryota "ruth"* and *Chamaedorea tepejilote* (clustering form) were the booty.

Mike Dahme brought back wild collected *Prestoea acuminata* and *Aiphanes minima* from Puerto Rico, then donated *Phoenix roebelenii, Coccothrinax miraguama, Serenoa repens, Licuala spinosa, Syagrus schizophylla, Dypsis decaryi, and Phoenix rupicola* all from his place in Grant.

Montgomery Botanical Center sent two extra cold hardy *Cycas sp.* (*C. panzhihuaensis, and C. taitungensis).* Despite limiting these seeds to 5 per request, demand still exceeded quantities on hand and about 10 members unfortunately had to be turned away.

New member and first time donor Joseph Prabhakar sent boxes full of seeds or should I say "sprouts" as a lot of these were already germinating. These included: *Dypsis tokoravina, Dypsis nodifera, Licuala grandis, Calamus siamensis, Jubaea chilensis, Caryota no, Cyrtostachys renda, Sabal minor, Sabal causiarum,* and three *Phoenix species (P.sylvestris, P. pusilla,* and *P. loureiri v. humilis).* Joseph also has a seed business that specializes in palm as well as other seeds. Its Internet address is www.ortanique.com: give him a try. His donations amounted close to $300 for the chapter.

Total sales for the quarter came to over $1500.00

Thanks to all who donated seeds! **--Charlene Palm**

Zamia ambiphyllida *pictured here in its Puerto Rican habitat. (Photo from our Puerto Rican Correspondent)*

Please print

Name_____
Street_____
City_____
State,
Zip_____
Email_____
Phone (area)_____

Wish to be added to Seed Bank E-mail list? (Circle one) YES NO

Willing to be listed publicly in roster? (Circle one) YES NO

Mail check made out to CFPACS (domestic: $10 one year; $25 three years; foreign: US$15 one year) to:

Karen Barrese
Membership Chair
5942 Ehren Cutoff
Land O Lakes, FL 34639
cfpacsmbrship@aol.com

Membership also available at website:
www.cfpacs.org

For Christmas this year—may it be merry—why not give the garden person of your acquaintance the gift of a membership in the Central Florida Palm & Cycad Society, which carries with it an enjoyable subscription to his or her very own copy of The Palmateer? The exceptionally reasonable price is $10 for one year, $25 for three years. Just fill out the information at left and send, with your check made out to CFPACS to the Membership Chair. Make sure you add your name. We won't send a card but an e-mail message can go to the recipient, if so desired.

The International Palm Society (IPS)

Anyone interested in joining the IPS and receiving the quarterly, illustrated journal, *Palms*, should send a check for $35 (regular membership) or $45 (family membership) to:

International Palm Society
P. O. Box 368
Lawrence, KS 66044

Dues may also be paid online at the IPS website, www.palms.org

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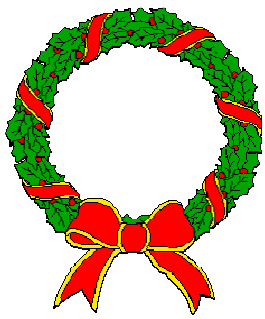

The Central Florida Palm & Cycad Society service area includes the following counties:
Alachua, Brevard, Citrus, DeSoto, Flagler, Hardee, Hernando, Highlands, Hillsborough, Indian River, Lake, Levy, Manatee, Marion, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Putnam, Sarasota, Seminole, St. Lucie, Sumter, Suwannee, and Volusia.
Please notify the Membership Chair (see directory above) of any changes in street address, phone number, area code, or e-mail address. The newsletter is sent to the address of record.

William Tang received a grant from CFPACS to help in the conservation of a rare Chinese cycad, *Cycas debaoensis*. The story appeared in the September issue of *The Palmateer*. The villagers requested that the grant go toward building a school. Their active participation in the project is shown in these three pictures taken by William Tang.

Renew your membership for

Plant auction time, Sept. 13, the Palm Beach Palm & Cycad Society's annual picnic get-together at Ruth Sallenbach's in Lake Worth. Our own Tom Broome is the auctioneer; the spectacular palm is Pelagodoxa henryana, *which is* ***not*** *on the list of most palm nurseries. The successful bidder (at $160) was Norm Moody. At left is Jeri Prall; Dale Holton (center) talks to Dave Prall (right). We suspect that an "indecent" amount was raised at the auction , with the active and eager assistance of those attending. (Photo by Chuck Grieneisen)*