

Contents

Autumn 2000, issue 40

Paschalococos and the Disappearing Palms *by Carlo Morici* **page 5**
'Extinct is Forever' as the posters say. Carlo ponders this, and explores and explains about other vulnerable species of palm in this well-researched article.

Palms in the Channel Islands *by Michael A.F. Carter* **page 9**
An interesting look at palm life in the Channel Islands, off the coast of France. The palms are indeed there, if you know where to find them.

Cycad Tour of Mexico *by Ian Watt* **page 10**
Fascinating and entertaining article covering Ian's recent horticultural tour of southern Mexico, mouth-watering fare for Cycad lovers, and nice pics!

An Introduction to Tree Ferns *by Peter Strong* **page 18**
Tree ferns are becoming almost common in cultivation, especially in the U.K. and garden centres and nurseries sell thousands and thousands of *Dicksonia antarctica* every year. Here Peter gives us some background to this and other species, and reminds us how little we really know about this by now familiar plant. See also his postscript in the Letters Page

Palm Archives *by Jörg Schumann* **page 19**
Another in Jörg's series about little-known palms. Here he gives a verbal snapshot of two rare Madagascan species

Summer Meeting in Ticino *by Jörg Witticke* **page 20**
Jörg relates the palmy adventures of 50 of our members who got together for an exciting summer meeting in southern Switzerland, seeing some of Europe's finest palms and gardens. Shoulda been there!

Letters **page 23**
Your chance to air your views and share your news.

Cover: 10 Glorious Years! A selection of our covers from the last decade of Chamaerops.



Chamaerops is the journal of The European Palm Society

c/o The Palm Centre Phone: +44 20 8255 6191
Ham Central Nursery Fax: +44 20 8255 6192
Ham Street, Ham E-mail: mail@palmssociety.org
Richmond, Surrey, TW10 7HA, UK Website: www.palmssociety.org

Editorial

Martin Gibbons, Editor, martin@palmsociety.org

It's minus 3 degrees centigrade as I write. The sun has just dropped below the horizon and from my office window I can actually watch thick frost forming on the roof and windscreen of my car. However, winter's icy grip cannot last forever, and as we are already at the end of January, I guess I can put up with the cold for another month. Just a week ago I returned from three weeks in south east Brazil, somewhat different weather-wise with temperatures around 30-35C every day, and blazing sunshine to boot. Brazil is a very palmy country and we saw some fabulous examples: lots of different *Syagrus*, all four species of *Allagoptera*, huge *Attalea*, spiny *Baccharis*, ubiquitous *Elaeis*, and many more.

Our itinerary took us from Rio north west into the dry interior, primitive but not uncomfortable. The scenery was spectacular with, every so often, huge 'sugar loaf' mountains rising from the flat plain, sometimes with palms on the very top. Here we found the rare dwarf *Butia archeri*, which grows only to about 3 or 4 feet even at maturity. The short but thick trunks were blackened as a result of many grass fires, but they seemed not to mind.

We continued north, heading east then towards the coast, where we turned south. We found the rare *Allagoptera campestris* and were congratulating ourselves on finding this small population, only to see nothing else, from horizon to horizon, for the next 30 miles. There must have been countless millions of them, as far as the eye could see, in all directions. It's so rare as to be virtually unknown in cultivation. An important subsequent find was *Syagrus macrocarpa*, considered by some authors to be at serious risk of extinction. They are beautiful palms with – you've guessed it – big seeds, the size of hen's eggs. Heading down the coast we ended up in Rio, and spent a couple of days as tourists at Copacabana and Ipanema. Visiting the famous and huge statue of 'Christo Redemptor' (Christ the Redeemer) on a mountaintop over

looking the city with outstretched arms, was a long-to-be-remembered bonus. The Brazilians are a relaxed and friendly people, ever willing to help, hospitable to the extreme, with an open and sunny disposition, which certainly suits the climate. An article of the whole trip is planned for a later issue.

This issue, number 40, marks an important anniversary in the history of our Society. We have now been going for 10 years, our first issue having been published in 1991. Oh what changes there have been in the intervening period! The interest in 'our kind of plants' has been little short of a revolution, and now you can buy *Trachycarpus* and *Chamaerops* and *Phoenix* even at your local flower shop. It's phenomenal! But I guess an even bigger change has been the introduction of the Internet, which most people had never even dreamed about, let alone heard of, back in 1991. Now it's so familiar and commonplace we take it totally for granted. Has there ever been a change so dramatic, so widespread that took over the world in such a short space of time? I doubt it.

I'm very pleased with the articles in this milestone issue. There is a great paper about an expedition to Mexico to look for Cycads, very interesting reading indeed. Another article from Peter Strong all about Tree Ferns, one about disappearing palms by Carlo Morici, just to mention a few. Something for everybody!

From our next issue (#41) we are changing the style and size of our journal. It will be DOUBLE the size, which will enable us to publish much bigger photographs, still in the high quality that we are used to. But we need your help! It's a bit late for New Year Resolutions but if you haven't yet contributed, please resolve to pen an article or even a letter in the next few weeks. The European Palm Society, now a proud ten years old, is nothing without its members, and their contributions. We need your input and look forward to hearing from you soon. Meantime, enjoy this issue.



Paschalococos and the Disappearing Palms

Carlo Morici, Palmetum de Santa Cruz de Tenerife, Parque Maritimo, 38001 Canarias, Spain

Paschalococos disperta would be a great introduction for the Canary Islands. I am sure that this feather palm from Easter Island would do wonderfully in other subtropical and Mediterranean areas. Its native island is located at about 28 degrees southern latitude, making this palm resistant enough to cold to even grow in Southern France. Sadly, nobody will ever grow *Paschalococos* because it is extinct.

For a plant lover, a plant in its pot is just a part of a dream which includes memoirs of an exotic locality with plenty of animal life, mysterious people, a curious climate, and a taste for adventure. I love to read about palms in their original environments. The habitat tells a lot about the plant and the palm tells a lot about its home. I definitely think that some palms have an Asiatic look, while some others look Australian. Some "smell" like savanna and some grow in a "Cloud Forest Style." Take a look at the palms in your dining room: the tall *Dypsis lutescens* (Areca or Bamboo palm) close to the window is perfectly adapted to the white sand beaches of Madagascar; that small clump of *Chamaedorea elegans* (Parlour palm) evolved in the understorey of humid forests of inland Mexico. There, the poor soils contain a lot of limestone and it can be quite cold at night. *Howea forsteriana* (Kentia) could tell long stories about its native habitat: a windy and humid island in the South West Pacific.

The ecological problems known to all of us are deeply affecting palms. The general public talks continuously about the disappearing tropical rain forests, but seem to be less concerned about the loss of other palm habitats such as dry forests,

scrubs, savannas, semi-deserts and coastal bushlands. These ecosystems are home to most of the palm species suited for cultivation.

I have been stimulated to write this paper by a book published in late 1996. It is the first "Status Survey and Action Plan" for the palm family produced by the I.U.C.N. (International Union for Conservation of Nature). The editor, Dennis Johnson, gathered the efforts of 30 palm specialists from many countries; these specialists are the same people who produced most of the prolific palm literature of the last decade.

According to the survey, the situation is apparently going toward a disastrous collapse. About 80% of the palm species of the globe are threatened to some extent, or, even worse, we are ignoring their conservation status. A dramatic datum is that 21 species are classified as "Probably Extinct." This means that there are no more wild stands of those species and, if a rediscovery will ever occur, only a few old isolated specimens are likely to be found.

Nevertheless, a "Probably Extinct" species can, in some cases, be rescued. It recently happened to an African desert fan palm called *Medemia argun*. I remember that, when I was 17 years old, Pietro Puccio, a friend of mine from Palermo, Sicily, told me about an enigmatic palm named *Medemia*, which was originally distributed throughout Egypt, getting close to the Mediterranean coast. Seeds of *Medemia* had been found in Egyptian tombs, among offering gifts, almost as frequently as those of the date palm. This legendary plant would have doubtlessly done well in Sicily but disappeared from Egypt between

the 6th and the 7th century. In the XX century, isolated trees were reported by Boulos in 1968 and by Issawy in 1964, but the *Medemia* track was soon lost again. Nowadays my friend Pietro is growing small *Medemia* seedlings in his Sicilian garden, as the palm has recently (in late 1995) been rediscovered in Northern Sudan by two European nurserymen, Martin Gibbons and Tobias Spanner. The next step, which would need an international cooperation plan, would be to reintroduce *Medemia* seedlings in Egypt, where it may be extinct.

Not all cases are so lucky: a feather palm from Juan Fernandez Island (Chile) is threatened by introduced domestic animals that eat its seedlings. Seeds have been collected and distributed on several occasions, but *Juania australis* has won the name of "The Un-growable Palm." Only one mature specimen survives away from its island (in Santiago de Chile), because the cultural needs of the palm seem to be quite peculiar. A few small plants survive here and there in warm temperate climates. However, I think that the island of Madeira (Portugal) would perfectly match the climatic requirements of *Juania*.

As *Juania* and *Paschalococos* show, the conservation status is critical on most islands. These environments are in most cases more fragile than their mainland counterparts. Life forms from continental areas are usually more competitive and less specialized than the island dwellers; islands host evolutionary deliriums, exceedingly curious species which would make no sense on the mainland. Islander palms reflect this trend and "absurd" freaks are found amongst them; weirdness seems to be the rule: Bottle palms from the Mascarenes (*Hyophorbe*), the Caribbean belly palms (*Gastrococos*, *Pseudophoenix*, *Colpothrinax* and some *Coccothrinax* spp.), the triangle palm from Southern Madagascar (*Dypsis decaryi*), and the overwhelmingly interesting double coconut of the Seychelles (*Lodoicea*), which produces the biggest and heaviest (up to 18 kg) seeds of the plant kingdom. The major threat on islands, after habitat destruction, are the free-roaming

introduced domestic animals. Pigs, goats, chickens, and cattle have been selected by man to forage on whatever is edible and they will never be finicky about a good palm leaf.

One of the many dramatic examples comes from the Caribbean. The wild stands of the tall Thatch Palm *Coccothrinax barbadensis* in Antigua (Lesser Antilles) have been destroyed by cattle, which ate the leaves of most seedlings and saplings. The only reproducing population on that island is found in the old cemetery of the island and the adjoining garden of the small cathedral. These two plots were the only sacred territories of the island and therefore prohibited to cattle. In this case a small and inexpensive fence would be enough to shelter a wider area and allow the population to expand.

Some painstaking cases of threatened palms are happening in Hawaii. The genus *Pritchardia* is represented in the Hawaiian Archipelago by 23 species.. A few of them are abundant in the wild and cultivated in gardens but most are severely endangered, mostly threatened by feral pigs. Some cases are extreme, such as the one of *P. munroi*, which has only one single wild individual left. Here are some of the statistics:

- Kaua'i
Pritchardia napaliensis : less than 90 individuals
Pritchardia viscosa : only 2 mature individuals
- Hawai'i
Pritchardia schattaueri : only 12 individuals
Pritchardia affinis : only 60 individuals
- Moloka'i
Pritchardia munroi : only one single wild individual
- Niuhau
Pritchardia aylmer-robinsonii: 2 individuals
- Nihoa
Pritchardia remota : 680 individuals
- O'ahu
Pritchardia kaalae : two populations
(Data from Johnson, 1996)

Seeds of *Pritchardia munroi* were distributed

to many botanic gardens in the early 70's. Nowadays many of the palms grown from those seeds have died due to Lethal Yellowing or other factors, and the few survivors are planted together with other species of *Pritchardia*, giving rise to hybrid seeds. Thankfully, two adult specimens of *P. munroi* are now growing and fruiting in the Jardín Botánico Viera y Clavijo, in Gran Canaria. No other species of *Pritchardia* are growing in this garden, so the hundreds of seedlings produced are pure.

The Mascarene islands have lost the greater part of their original vegetation. They are (or were) home to many commonly grown palm species, such as *Hyophorbe* spp. (Bottle and Spindle Palms), the *Dictyosperma* (Hurricane Palm), and the different species of *Latania*. *Hyophorbe amaricaulis* is extinct in the wild but one old specimen is growing at the Curepipe Botanic Garden in Mauritius. This sole surviving specimen is very decrepit and could die very soon, and nobody is able to propagate it. The "Conservation Action Plan" reports: "The situation of the last remaining *Hyophorbe amaricaulis* is desperate. The palm is on the brink of extinction; it regularly flowers but only produces sterile fruits. . . ."

Plants have on several occasions been cloned by embryo culture at Wye, Edinburgh, and Kew, and tissue culture of anthers was initially a success at Paris. Unfortunately each time the plants were removed from aseptic media they died."

Bibliography:

References for Juania, Paschalococos, Pritchardia, Hyophorbe and almost all the survey data: Johnson D. (ed.) and the IUCN/SSC Palm Specialist Group. 1996. Palms: Their Conservation and Sustained Utilization. Status Survey and Conservation Action Plan. IUCN, Gland, Switzerland and Cambridge, UK. 116+viii pp. Available from: IUCN Publication Service 219c Huntingdon Rd, Cambridge CB2 0DL, UK Tel. +44.1223.277894 - Fax +44.1223.277175 www.iucn.org

The extinct palm Paschalococos has been described in: Zizka G. (1991) Flowering Plants of Eastern Island. Palmergarten 3

References for Medemia argun: Täckholm V. and Drar M. (1950). Flora of Egypt 2. Bull.Fac.Sci. Cairo Univ. 28: 99-146 and 296-302

Boulos L. in: C.Gómez-Campo (1985). Plant Conservation in the Mediterranean Area. Geobotany 7 Dr.W.Junk Publishers, Dordrecht, The Netherlands.

Gibbons M., T.Spanner (1996) Medemia argun Lives!. Principes 40(2), pp.65-74

References for Coccothrinax barbadensis: Morici C. (1997) Coccothrinax barbadensis in Antigua. Principes 41(2), pp.84-86





Palms in the Channel Islands

*Michael A.F. Carter, 52 Golden Avenue, West Kingston, N. East Preston,
Littlehampton, West Sussex BN16 1QX*

Over the years I have been fortunate enough to visit Jersey on a number of occasions, but have been to the neighboring island of Guernsey less frequently. Jersey has a mid-winter mean temperature of 6.5°C /44°F with a summer high of 18°C/64°F. Although the island is heavily influenced by the mild Gulf Stream, it lies only a dozen miles off the Cherbourg peninsular and can be influenced by the Continental land mass to the east, under certain weather conditions, which can give colder snaps and greater heat waves than these mean temperatures would suggest. Guernsey lies some 20 miles further west and has a slightly more oceanic climate, offering milder winters and cooler summers.

Sub-tropical vegetation has long been planted in the islands, raised from cuttings and seeds dropped off by passing ships visiting more exotic climes. The important holiday industry has further promoted the growing of palms and similar exotic plants. *Cordyline australis* and *Trachycarpus fortunei*, for example, appear everywhere, and 20 feet high *Chamaerops humilis* can be seen in the grounds of Saumarez Manor in South-East Jersey near the capital, St. Helier. Young tree ferns have also been planted in the Howard Davidson Memorial Park in St. Helier. Severe frosts in the winter of 1986/87, however, decimated the *Cordyline* population and changed the local landscape in Jersey for a number of years before the new suckers could revive and grow back to the 15 to 20 foot specimens that are seen everywhere today. *Phoenix Canariensis*, the Canary Island Date Palm, was not able to recover, however. I recall a beautiful specimen growing amongst the picturesque cottages of local granite behind St. Brelade's Bay. This Canary Island Date was a magnificent specimen around 20/25 feet high. The owner told me that she and her husband had driven back from Alicante some 25 years

earlier with two young palms. One was planted in the front garden and one in the back. The palm in the front had survived, but was badly damaged by the frost of the winter of 1986/87. It was showing signs of recovery when it was blown down by the hurricane of October, 1987. The owner said that its trunk had become like jelly. I recall younger *Phoenix canariensis* at Mt. Sohier and near La Corbiere, which also disappeared around this time.

After a succession of mild winters, however, the Canary Island Date has reappeared along the front at Gorey, where a number of handsome trees are growing, and at St. Aubyn, where some of the local *Tracycarpus* have taken on the dimensions of *Washingtonias*. There is also a strong *Washingtonia filifera* growing by the entrance of the St. Peter Garden Center near Jersey Airport.

As stated earlier, my visits to Guernsey have been less frequent. However, I recall seeing two large *Phoenix canariensis* growing at Candie Gardens in St. Peter Port. A brief visit in 1991 showed that at least one had survived and was still flourishing, together with a smaller Canary Date, although its large partner and some citrus trees growing along a walled area had disappeared.

I was fortunate enough to spend two days in September of 1999 on a business trip to Guernsey, and was able to confirm that the magnificent *Phoenix canariensis* still thrives in Candie Gardens. There are also a number of smaller palms of the same species in neighboring gardens and along the sea-front of St. Peter Port. A huge *Datura* bush, plus numerous species of normally winter-tender *Fuchsias* growing in gardens nearby, testified further to the local climate on Guernsey - situated as it is just the vital few miles further out to sea, away from the Continental influence of the European mainland with its periodic winter plunges of temperature.

Cycad Tour of Mexico

Ian Watt, Brooklands Plants, Dorchester, Dorset

The ten day cycad tour of Mexico was organized by Californian Jeff Chemnick, who has over twenty years of experience observing Mexican cycads in habitat. I met Jeff and the other three members of the group on the 29th of February in Veracruz. The aim was to observe fifteen species of cycad in habitat; to make comparisons between related species; and to look closely at habitats, aspects, populations, and recruitment. We were to head north along the coast, then inland through the mountains towards the Pacific, south into tropical forest, and then back towards Veracruz, thus completing the circle.

Transport was by air conditioned minibus. Accommodation was in modest hotels along the route. The distances between locations was sometimes great, and a good pace had to be maintained in order to cover the itinerary.

A few miles drive up the coast from Veracruz followed by a two mile hike along the seashore and through the high dunes got us to our first and possibly most unusual cycad locality: *Dioon edule*, growing in sand and soft sandstone about a third of a mile from the shore. The *Dioons* had multiple trunks over a meter in length with a head of thirty or more leaves. Many were male with immature cones and some plants covered an area of five by five meters. The total area of cycads was less than one hectare grouped near the ridge. All were facing towards the sea and surrounded by thorn brush, *Bursera*, and an *Acrocomia*. The plants generally appeared to be in good health, considering the harsh location and poor soil, with the exception of one with leaf damage from insect activity. A couple of seedlings were found at the bottom of the slope.

We drove inland, stopping briefly at a site where *Zamia loddigesii* was once very common, before heading into the hills and the Palma Sola region. *Sabal* and *Tabebuia* trees were flowering in the lowlands alongside the fields of sugar cane,

whilst higher up in the cooler air, oaks and pine dominated the countryside. *Dioon edule* was once abundant along the road out of Palma Sola, but with easy access and a demand from across the border, the plants were quickly depleted. The City's laws have helped curb the flow but have not stopped it. The few cycads we saw were growing along a dry and rocky stream bed surrounded by oak and grasses. Their trunks measured up to 1.5m and were charred black from clearing fires. Some had been cut down, and these were pushing out new growth from the base. No seed, seedlings or young plants were seen.

Further west, on a road cutting, a *Ceratozamia* had colonized the rock face. Known in the trade as *Ceratozamia* "Palma Sola," they are characterized by large, stiff, upright leaves with prominent spines. Seedling and mature plants were growing in fairly good numbers.

From the Palma Sola region we climbed to 1600m through steep valleys and round sheer rock outcrops clothed in pine and oak to see a relatively new discovery. *Ceratozamia moretii* is a medium sized cycad with leaves to 1.5m and grows in the cloud forest of the Sierra Madre facing the gulf. Described in 1998 with a population estimated at 300, this is a cycad that is difficult to observe. Its preferred habitat is sheer rocky walls with drops of 150m to the valley floor below. Average rainfall in this region is 2m. *Ceratozamia moretii* is high on the want lists of collectors; therefore, the location has not been published. Other plants growing in the vicinity were *Gunnera*, *Alnus*, *Clethra*, *Dendropanax*, *Ilex discolor*, *Liquidamber*, *Magnolia*, *Quercus laurina*, *xalapensis* and *germana*.

The drive to the next locality was through more spectacular scenery, including views of Pico de Orizaba, otherwise known as Citlailepetl (see cover of "Chamaerops" # . At 5610m above sea level, it is the highest peak in Mexico and third highest in North America. The last eruption was

in 1566. *Ceratozamia mexicana* is an elegant, narrow leafed cycad. The location, El Esquilon, was a very steep wooded hill with *Chamaedorea* palms growing in the dense shade. The *Ceratozamia* were difficult to locate but a few were eventually found. A landslide had occurred recently and two large plants were found at the bottom of the slope. These were collected and later dropped off at the research institute.

The next stop was the Jardín Botánico and Institute of ecology in Xalapa, which provided an excellent opportunity to observe nearly all the Mexican cycads, some currently under investigation. We had a tour of the greenhouses and met Andrew Vovides, curator of research at the institute. Vovides, in conjunction with the local farmers, is involved in the development of cycad nurseries growing thousands of *Dioon edule* to generate income and reduce the threat on wild populations. The project was started about ten years ago near Chavarillo, the type locality for *Dioon edule*.

Along the Rio Pescardo we stopped to view *Dioon edule* clinging on the north-facing cliff walls 50m above the road. With trunks up to 3m, it is estimated these slow growing cycads are at least 500 years old and may be 2 or 3 times that. The cycads were hanging on to the rock face in a very precarious manner. Views to the river and valley plain some 200m below were breathtaking. From the Rio Pescardo we headed south through the *Tillandsia* trail, made famous by the pre-CITES *Tillandsia* and *Orchid* collectors..

Another hour or so later we were at El Mirador looking for a variety of *Ceratozamia mexicana*. The El Mirador cycad differs by having much longer, arching leaves with broader leaflets, and very reduced spines on the petiole. Also, the cones are much longer. Someday it may be separated out as a subspecies. We found two beautiful examples growing on a ranch: a mature male with cone, growing at the top of a bank, and the second on a high shelf in the owner's kitchen. It was a magnificent specimen with long trailing leaves. The owner of the ranch was very hospitable, handing out beers and showing us around his house and garden with great pride.

The next day we continued south on the auto route past Tehuacan in Puebla and towards the high desert. Pine and oak gradually gave way to the xerophytes, initially through large stands of *Yucca elephantipes*, densely branched and up to 10m in height, and then through huge numbers of the cactus *Pachycereus weberi*, and massive trees with stout trunks and dense crowns. Further along, the dominant plant was *Neobuxbaumia*, a tall columnar cacti. Huge barrel cactus, *Dasyliirion lucidum*, *serratifolium*, and two species of *Agave* were recorded, as well as numerous other *Cactaceae*. The unusual and rare *Fouquieria purpusii* was only in one location, 4m in height and growing on a large rock. In the distance, growing at the foot of a cliff, was a large number of *Brahea*, which were the only palms in the area.

We left the high desert and drove into the hills towards Teotitlan Del Camino in Puebla. *Dioon califanoi* grows above the town of Teotitlan, at an elevation of 2000m. The road cuts through the colony with plants above and below in a narrow band. Many cycads must have been destroyed during its construction. Large areas of the hillsides in this region have been cleared for farming, and land too steep or rocky has sparse vegetation of thorn and oak. The cycads in this locality numbered fewer than 100, male and female, with semi mature cones and trunks up to 3m. There were few seedlings and no young plants. *Dioon califanoi* is easily distinguished from other *Dioon* by its strongly keeled leaf. There is one other known locality for *Dioon califanoi*.

On day four we headed for the *Dioon purpusii* locality Canada De Cuicatalan in Oaxaca, along 6km of powder dry track lined with thousands of *Neobuxbaumia*. This cycad grows in similar habitat to *califanoi*, scattered along a band of mountain side at 1500m, with the road cutting through the colony. The hillside was more densely covered in thorn and it was necessary to track along narrow goat paths to get to the plants. It's a large cycad, some with trunks of at least 4m. Other plants in the area included impressive stands of *Brahea dulcis*, *Nolina longifolia*, *Dasyliirion serratifolium* and *Agave*





potatorum. The numbers of *Dioon* were low with very few seedlings and no young or immature plants. There are seven known localities of *Dioon purpusii*.

We continued south, spending the night in the capital Oaxaca, and then moving onto a truly spectacular cycad locality. Cerro Gavilan is a rock outcrop standing 220m above the surrounding countryside, near the town of El Camaron. The cycads, *Dioon merolae* "El Camaron", only grow on the lip of the North-West face at an elevation of 1500m. The climb was through oak and pine forest with large boulders and deep leaf litter. The top of the rock was sparsely covered with *Nolina* and *Agave*. The *Dioon* had trunks up to 4m upright and more prostrate, with some hanging down over the edge. There were less than 30 cycads in all, male and female, but again no young plants and only one seedling located at the base of the rock. *Dioon merolae* populations are widespread with seven known localities. They can be identified by their flat fronds with crowded leaflets.

A four hour drive followed to our hotel in Zanatepec on the Pan American highway, a very busy area with numerous military stops. Our next cycad locality, El Rancho, was a short drive away just over the border in Chiapas.. Two giant *Dioon merolae* were growing in thin pine forest 30km from the Pacific coast and at an elevation of 830m. The two cycads, a male and a slightly larger female, had numerous trunks emerging from the base, prostrate and upright measuring up to 5m in length. The base of each plant was charred from fires and a piece of broken trunk lay on the grass nearby. They were growing just below the top of the slope facing in a northerly direction. Several smaller, mature plants were growing in the gully at the bottom of the slope 15 meters away. There were seedlings on the slope but no young plants.

Moving east and further inland into dense tropical forest habitat of *Zamia splendens*, we encountered strange lizards, colorful birds and carpets of *Chamaedorea* in the forest. *Zamia splendens* is a small cycad with a subterranean stem and two to four leaves. We searched a part of the forest where they had been previously seen; unfortunately, it proved too elusive for us to find.

Ceratozamia miqueliana was found further up the valley at Lago Mal Paso, growing in cooler conditions at a higher elevation. This is a small to medium sized cycad with an erect crown of leaves to 1.8m. This locality was on the edge of a remote but expanding village and is under threat. We found three large plants cut down in an area cleared for coffee. Three more plants were located on a steep slope at the edge of the forest.

Our overnight stop was in Tuxtla Gutierrez, not far from the Sumidero Canyon, one of the most spectacular geological faults in America. Vertical walls plunge a staggering 1300m to the bottom of the gorge and the Grijalva river. *Ceratozamia robusta* grows on the sides of the canyon in low numbers, and a nearby nursery was selling *robusta* plants for a few pence each.. We then drove north-east through forests of *Pinus montezuma*, stands of *Brahea dulcis*, and a village with numerous *Ensete ventricosum*. We spent the night at the Aqua Azul falls, a complex of rapids, cascades, and brilliant turquoise pools, surrounded by tropical vegetation, before heading north to Palenque.

Zamia lacandona grows on the steep slopes behind the Maya ruins in the Lacandona forest at Palenque. Only one was seen high up on the trail: a small cycad with erect arching leaves up to 1.5 meters long. On the road-side north of Palenque, *Zamia loddigesii* was growing amongst tall grass. Easy to spot during the dry season, *Zamia loddigesii* is a small cycad with a subterranean stem with one to six leaves on a mature plant. Young plants and seedlings were also present.

From Palenque we had a long fast drive to Acayucan in Veracruz for an overnight stop before continuing on to the next locality east of Tuxtpec, Oaxaca, on the Palmares road. *Dioon spinulosum* occurs at elevations of 100m to 150m in Veracruz and Oaxaca, preferring a warmer and more humid climate than some of its relations. The cycads were on steep limestone islands surrounded by farmland with many more growing on the distant hillside.. Two sites were visited. The first was a bare rock cleared of almost any other vegetation possibly by fire. The cycads were in full sun on the top of the rock, the crowns

holding only one flush of leaves. The second site was heavily forested and larger in area. The ground was very rocky and steep, with little soil. The Dioon here were up to 10 meters in height and one of the dominant plants in this locality. They held two to three flushes of leaves and some had immature cones. Seedlings were in abundance, but there were no young plants. Bats were roosting under the leaves of one plant. Also growing among the Dioons are giant *Dioscorea macrostachys*, which look like turtles with vines growing out the top.

From *Dioon spinulosum* in the morning it was a short drive to San Bartolome Ayautla, the type locality for *Dioon rzedowskii* in the afternoon. Described in 1980 and endemic to Oaxaca, this Dioon is a large cycad with a trunk up to 5m. The locality was near the town of Jalapa at an elevation of 430m. Permission from the villagers was necessary and a guide accompanied us 200m down the steep canyon. On the way down, plots of land less than a few meters across were being farmed. The Dioons were growing in a spectacular setting in huge numbers, clinging to steep outcrops of limestone, some upright with others draped down over the rocks. Orchids and Agave were also in abundance. The river was another 150m below and disappeared through a maze of wooded canyons. This is one of the most impressive populations of Dioon and appears to be under no immediate threat. Further up the canyon at a much cooler elevation of 770m, was *Ceratozamia robusta*. These cycads were growing under a canopy of oak. Only a few plants remain amongst the boulders surrounded by farmland. The largest had an trunk of 0.5m and 20 leaves 2m in length.

On the last day and still in the state of Oaxaca, we drove to see a recently described and named cycad by Jeff Chemnick, *Ceratozamia whitelockiana*. It is closely related to *Ceratozamia miqueliana*, but with some notable differences, namely smaller cones, longer petioles and blue-gray new leaves. The locality was a steep, wooded slope 70km south of Tuxtepec at an elevation of 550m. This was not the type locality and only one plant was observed.

We took the coast road on the way back to

Veracruz to look at *Zamia furfuracea*. The locality for this cycad was 50km southeast of Veracruz on coastal sand dunes. Once widespread and common in this area, it is now quite scarce. Vegetation on the dunes was sparse with thorn scrub, coarse grasses, and stands of *Sabal mexicana*. Walking through the dunes for a mile, we located less than 20 cycads, all small with five or six leaves up to 50cm long, some with new leaves emerging. Cows and goats graze the dunes but the main reason for this cycad's scarcity is over collection.

Any problems encountered during the tour were relatively minor. Despite precautions, all members of the group with the exception of Jeff suffered gastrointestinal discomfort to varying degrees which in most cases lasted a couple of days. The mains water is of questionable quality and even taking a shower is risky. March is in the dry season so mosquitoes were only present in low numbers; however, ticks and sandflies were a nuisance. Some hikes were over rough and very steep terrain, often in the heat of the day, and a certain level of fitness was essential. Military road blocks were numerous, but the delays were short. The police stopped us on a dirt road in a very remote area where they held us for quarter of an hour before eventually letting us proceed. None of the officials spoke English. Generally the locals were helpful and friendly. There are areas where Jeff will not venture despite the call of new cycad localities, as outlaws and drug dealers make it too risky. It is also worth mentioning that some of the localities were potentially dangerous and great care had to be taken, especially when looking at the cycads on cliff edges and rock faces. Many of the cycad localities are in remote areas that would take years to find without a guide. Jeff Chemnick is one of only a handful of people that know these localities.

The cycads are truly remarkable plants and to see them in the wild is a real privilege. Most memorable were the large Dioon growing on cliff tops and the giant Dioon *merolae* in the pine forest. The *Ceratozamia* also made a big impression, being highly ornamental with elegantly arching leaves and glossy leaflets. I've not seen any in cultivation come close to these..

It was interesting to note how some species of cycad grow at fairly narrow elevations, and by following the contours through the canyons, Jeff has located new cycad populations.

The cliff top habitats presented intriguing questions as to why the cycads are found just on the ledges, usually with a northerly aspect. Possible reasons could be competition from other plants, climate fluctuations, and human interference. More could be learned of these plants if their age could be accurately determined; unfortunately, up to now there is no scientific method of doing this.

Habitat destruction and poaching are the greatest threats to cycad populations, and although no species has become extinct in recent history, the threat is very real. Generally *Dioon* suffer from poaching and *Ceratozamia* and *Zamia* from habitat destruction. What is also disturbing is the lack of recruitment in some populations. This presents no immediate threat as cycads are such long lived plants; however, it would have been encouraging to have seen some immature plants.

The tour was a resounding success. We saw sixteen species of cycad at over twenty localities and covered nearly 2000 miles without serious incident or injury, traveling through parts of Mexico seldom seen by Europeans. One item desperately needed was a field guide to the plants of Mexico, as on many occasions we were at a loss to put a name to a plant. From the remote mountain villages to the busy cities, Mexico is a country of many contrasts and a delight to tour. The sheer variety of plant habitat is overwhelming, making Mexico a botanist's paradise.

We are planning a return trip in Nov 2001. If anyone is interested in a similar tour scheduled for Nov 2001, please get in touch with me via the EPS.

An Introduction to Tree Ferns

...continued from page 18

form a trunk, but they are not true tree ferns. The two genuine genera that make up the tree fern family are *Cyathea*, of which there are some 800 species, and *Dicksonia*, of which there are only some 26 species. In general, they are tropical to sub-tropical, but several do tolerate much cooler climates. It has even been suggested that a member of the genus *Cyathea* may have the ability to protect itself from being killed by frost. Let me hastily add that this is being looked into and has not yet been proven. One of the fascinations with tree ferns is that every now and again some one, some where, finds a new plant or plant attributes that suggest that we know precious little about these plants, and have an awful lot more to learn.

It is generally accepted that many more tree ferns are found in the southern hemisphere than the northern hemisphere, although many are from the northern hemisphere. For the moment we can safely say that the majority are found in Australasia, and of these only some 15-20 species of *Cyathea* and 6-7 *Dicksonia* are commercially cultivated. The majority of tree ferns available in Europe are there at the behest of collectors of exotic plants, and therefore many nurseries or garden centers do not stock them. Sadly, many people, possibly the majority of indoor plant lovers, have no idea how delightful these plants are when grown in pots. The *Dicksonia* in particular will happily stay in a pot for many years, providing a lovely addition to the many other perennial, indoor, potted plants that the larger public enjoys. The colder climate of Europe restricts the growth of these plants so that they can be kept indoors and in pots for so much longer.

**Editor's note: From January 2001, *Dicksonia antarctica* is no longer covered by the CITES convention, and certificates are no longer required for either export or import.*



An Introduction to Tree Ferns

Peter Strong, Fernleigh Farm Nursery, Kloof, South Africa

Introduction

The journey into discovering tree ferns requires that we first come to know a little about ferns in general. The age of ferns is generally agreed to have been the Carboniferous Age, some 350 million years ago, when ferns dominated the planet's vegetation. Most of the ferns of that age became extinct, though some developed into the ferns that we know today. Strangely enough, flowering plants were not found in the dim distant eons. Ferns can really therefore be described as primeval, and, as such, they can be said to be among the oldest living things. Ferns are incredibly diverse and have intricate designs. Botanists agree that there are over 11,000 in 240 genera. They can be found in nearly any climate, from cold temperate to the hot, steamy tropics. The inclination of some ferns to spawn mutations provides an ever increasing number of "new" species on a regular basis, drawing the attention of the fern lover.

Structure

Ferns are considered to have more complicated structures than almost all other plants. Describing them therefore requires using terms that may sound strange to many. For instance, we do not talk about leaves; they are called fronds. These fronds have a stalk, called the "stipe," and a "blade," which is the leafy part of the frond. The size of fronds varies greatly, from the giant tree fern fronds of several meters in length to the tiny little mosquito fern which is only a few millimeters in length. Ferns have rhizomes, which are actually the stems of the plants, and they can be vertical or horizontal. From these rhizomes the fronds will emanate. They can be thick or thin. Some of the tree ferns have rhizomes that are approximately 75cm in diameter, and stand 12m tall. As stems, these rhizomes can be cut off at ground level and the top half can be planted, with every good chance

of the top stem growing again.

Reproduction

The seeds of ferns, called "spore," come from the sporangia, which are minute pouches that produce the dust-like spores from which ferns are propagated. They are virtually invisible to the naked eye, and are produced by the million. In ancient times ferns were thought to be magical because no one could actually see the spore, and yet they grew. Folklore and mysticism of bygone ages ascribed magical properties to the humble fern. The strange little moonwort fern (*Botrychium lunaria*) was supposed to have the power to open locks. This belief has figured prominently through the ages; even Shakespeare refers to the mysterious fern in *Henry IV* when Chamberlain says to Gadshill: "You are more beholding to the light than to fern seed for your walking invisible." This mystery was only unraveled in the 1800's.

Tree Ferns

The tree ferns we know today are small in comparison to their predecessors, which were infinitely taller and thicker stemmed. Notwithstanding, there are still species today that stand over 15m tall with trunks of over 80cm diameter, and frond canopies of 10m or more. Recently some *Dicksonia antarctica* were found that were estimated to be over 500 years old and still growing. Sadly, with the ever increasing number of humans and their demands, these plants are in danger of becoming extinct, and all tree ferns are today covered by the CITES* convention.

Tree ferns are often mistakenly described as any ferns that have trunks. However, there are but two genera that make up the total family of these wonderful plants. There are others which

...continued on page 16

Palm Archives

Jörg Schumann, Rathausplatz 2, 09247 Röhrsdorf, Germany

Palm Archive No. 3 - *Ravenea glauca*

Are you looking for a palm that is attractive and easy to grow? Do you want to try something different? Do you need a plant that can survive dry periods? So why not a *Ravenea glauca*? *Ravenea glauca* grows up to 8m tall in the central highlands of southern Madagascar, at an altitude of up to 1800m. It is also sometimes found trunkless, mainly in dry areas. Interestingly, some people say that *Ravenea glauca* can survive bush fires; something few palms can lay claim to. This is the reason why you can find *Ravenea glauca* without understorey plants in some areas. *Ravenea glauca* is famous for its beauty, even as a seedling, with its glaucous, pinnate leaves. These are waxy beneath, hence the scientific name "glauca."

The lightweight seeds of *Ravenea glauca* are up to 20mm in diameter, and lose their viability very quickly. Therefore, it is necessary to use very fresh seeds for good germination rates. First, the thick primary root develops up to 20cm. In Madagascar, the thicker roots are necessary for surviving the drier periods. After some weeks, the first leaves begin to come very

quickly. *Ravenea glauca* grows very well in a bright, sunny place, and with moderate watering, as they are easily over watered. A subtropical to tropical climate is best. A great indoor plant, *Ravenea glauca* can also be put outside during the summer months, which I have been doing for many years.

Palm Archive No. 4 - *Dypsis pusilla*

After the very extensive new classification by Dransfield and Beentje, the genus *Dypsis* now includes nearly 150 different species. *Dypsis pusilla*, for one, belongs to the genus formerly called *Vonitra*, and was the smallest member. During a recent trip to Madagascar, I visited the habitat of this particular species, an area which contains the Masoala peninsula and the

Mananara Biosphere reserve. It seems that many members of *Dypsis* are suitable for indoor cultivation, such as *Dypsis decaryi* or *Dypsis lutescens*, though perhaps some of you have tried other species. *Dypsis pusilla* is surely a very attractive species that is still waiting for a serious introduction to indoor cultivation. This species is small, developing a fibrous stem generally less than 2m tall. *Dypsis pusilla* is normally single stemmed, only rarely forming multiple stems. I found *Dypsis pusilla* in their habitat in primary forest, where they seem to prefer semi-shade or shade to full sun. Give them enough water and a higher humidity and they will grow well.

The glossy green leaflets are densely arranged, elegantly curved and stiff, and held flat in a V-shape. There are up to 28 leaflets on each side of the rachis. Sometimes the new leaves are colored light red to brown. The oval seeds are about 16mm long, and they germinate very well, even if the seeds are not very fresh. The seeds germinate after a couple of weeks and the first leaf is bifid. *Dypsis pusilla*, like most of the Madagascan palms, is endangered and may be extinct in Madagascar in some years. Many of them will only survive in cultivation. Help to make sure that these wonderful palms will survive in the future!

If you may have questions about these very interesting palms, please contact me via email (info@palms.de).



Summer Meeting in Ticino

Jörg Witticke, Am Eulenberg 13, 06528 Beyernaumburg, Germany

Finally, at the end of the year 2000, I have some time to sit down and write an article about our summer meeting in Ticino from August 21-25. First I can say that the number of people and countries represented indicates how successful it was. Fifty people from eight countries came together for one hobby. We made interesting trips and saw wonderful gardens, the weather was excellent, and the hosts did a superior job organizing it.

On Monday August 21 we started with our meeting in the "Kursaal" of the casino of Locarno with a short welcome. On this evening there were some dark clouds in the sky, and during the night we had a thunderstorm. I was prepared for the worst when Tuesday morning came, but it was just beautiful; the sky was blue and the sun was shining. So, we started at 9:30 a.m. with a guided tour through the city of Locarno. Our guide was one of the city gardeners. He showed us the interesting places in Locarno with excellent palms like *Brahea armata*, *Chamaerops humilis*, *Butia capitata*, and, very important for any participant, *Jubaea chilensis*. Other exotic plants we saw were *Cordyline australis* green and red, Agaves, and Cacti. He told us some things about the history of the city gardens in Locarno and also about his intentions for the future to make the city more attractive. Plans include planting an avenue with different kinds of camelias, as well as planting more palms to give the city a more tropical touch. Also interesting was the history of a big *Jubaea*, which was transplanted some years ago. On the place where this palm used to grow is an underground car park, to which the very old and big *Jubaea* had to give way. The new site of the *Jubaea* is not far from the old, but it was a great expenditure to make the transplantation. To give these palms good conditions in which to survive, the gardeners use electric heaters to heat the soil in the winter. The palms continue to grow and bear fruit every year.

After lunch, we met on the port of Locarno to go by boat to the Brissago Island. We visited the nice botanical garden of the Brissago Island, unfortunately without a guide; however, it gave the participants a chance to look around individually at the plants that were of special interest to them. There you can find Mediterranean plants like palms, Yuccas, cacti, flowering plants, and so much more. At the end of the visit to Brissago Island, many participants used the time to collect some seedlings of *Trachycarpus fortunei*, which grows everywhere on the Island. By the time we drove back to Locarno, it was nearly 6:00 p.m.

On the 23rd we started at 9:00 a.m. and took a bus to the garden of long-time EPS member Manfred Walder in Versico. The bus parked in the center of the village and we walked through an alley to his house. The garden is on a very steep plot. The arboretum behind the house is planted in a very natural fashion could well be a forested slope in the Himalayan foothills. There are many *Trachys*, camelias, exotic oaks and hundreds of other exotic plants from all over the world that Manfred Walder collected over the last decades. In front of his house is his palm collection, which includes *Brahea armata*, *Washingtonia robusta*, *Trachycarpus wagnerianus*, *Chamaedorea radicalis*, and some others. Very interesting is a *Trachycarpus fortunei* with yellow stripes on the leaves, although he did not know the reason for this interesting variegation. Everybody went through the garden collecting his or her own impressions. Dr. Walder and his wife provided us with some snacks and drinks--welcome refreshment on a sunny day. For lunch we went to the Grotto "Mai morire" where we had ordered a meal for the participants.

We got more than enough to satisfy our hunger, and two hours later we drove to our next station, the fabulous garden of Carl Schell in Brissago. There are just two ways to get to his



house: a very steep staircase or a lift for just four persons. When we were all in the garden, Carl Schell greeted us and told us some things about his amazing garden with many rare plants and special palms. He has a breathtaking view of the Lago Maggiore. Carl gave us a little guided tour through his garden, and his wife provided us with fresh drinks. After a friendly discharge, we departed back to Locarno.

We met at 9:00 a.m. on the 24th on the port of Locarno to go by boat to the Isola Madré, further south on the lake in Italy. The drive lasted three hours. We passed this time on the boat in discussions about different things, not limited to palms. On the Isola Madré we had enough time to explore the sights, but there was one object from which some of the participants could not break away. The fruits of one *Jubaea chilensis* were ripe and they would drop down, not all together, but piece by piece. So, they waited for the next piece to drop to get one of them. Besides this one *Jubaea chilensis* there were also some other palms like *Butia*, *Washingtonia*, *Phoenix*, *Brahea*, and others in a beautifully landscaped setting. After refreshments we went back to Verbánia by boat, and from Verbánia to Locarno by hydrofoil. When we changed in Verbánia into the hydrofoil we lost one of our participants, but he was from Italy so it was not a problem for him to get back to Locarno, and he arrived just a half hour later than we did.

On the last day we started at 8:00 a.m. First, we drove to the nice little garden of Fredy Ruethemann in Cimo. His garden is not as large as the gardens of Manfred Walder or Carl Schell, but very nice and well groomed, clearly with love. The big attraction at his house was the crocodile, which he fed for the benefit of the children in our group. After having a lovely brunch of sandwiches and drinks ourselves, we went to our next stop, the garden of Marco Pfister. This garden was also not as big as some of the others, but very lovely nonetheless. We got a fresh welcome even though we arrived earlier than he had expected, and he and his wife were excellent hosts. They offered us snacks and drinks, with and without alcohol. The best was the wine from the Pfisters' own vineyard. Then we started our

big plant buying tour. Marco Pfister has a little greenhouse and offered many little palms. Many people in our group bought something, and so the first plants of the tour joined us on the bus.

The next stop was for lunch in a good restaurant in Malcantone. We stayed there a little while and had a nice meal. During this time, we made the decision to make a stop at the Palmetto Nursery of Domenica and Urs Blatter, where we also bought some plants. Our bus was beginning to look like a plant transporter. The last station on the bus tour was the Parco Botanico del Gambarogno and famous Eisenhut nursery. There we had a very good guided tour through the garden by Mister Eisenhut himself. After the guided tour, we again had the opportunity to buy some plants, and many people used this chance. By the end of our bus tour, there were more plants than there were people on the bus! As this was our last evening together, we had a farewell meal in the Ristorante Svizzero in Locarno, where many people sat talking and having fun together deep into the night.

In conclusion, I would like to say thank you to everyone involved. I want to thank all the people in Ticino who helped me organize this meeting, namely Manfred Walder, who did most of the organization, Urs and Domenica Blatter, and Fredy Ruethemann. Also thanks to Marko Pfister and Carl Schell for their hospitality in the gardens, thanks to all the participants for the fun, and thanks to whomever was responsible for the nice weather! I'm hoping it will be possible to make the next meeting in 2003, as there is little time left for a meeting in 2001, and in 2002 there is the meeting of the International Palm Society in the south of France, and it is not a good idea to have another meeting in the same year. Therefore, I think 2003 is a good year for the next meeting, and I would like to suggest it be held in southwest England.

If you are interested in helping to organize such an event, or if you have other suggestions, please do not hesitate to contact me by e-mail <Joerg.Witticke@t-online.de> or regular mail.

Letters

Your chance to air your views and share your news.

A Short Guide to Collecting Tree Fern Spore

Virtually all tree ferns produce spore, but not all ferns produce spore. Tree ferns are fairly easily raised from spore. It is imperative, however, that the spores are fresh, so I would like to offer some insight into collecting tree fern spore. First you have to know when to collect the spore. You will require a magnifying glass to study the spore, which is generally found on the underside of the fronds. Totally green spores are generally not ready. If the sporangia (the miniature sacks or capsules that contain the spore) are brown in color and some of the sporangia appear fuzzy under the magnifying glass, this is the time to remove it. Pick the frond, or that part where the sporangia are, and place the frond on a clean, white piece of paper and store in a warm, dry place for a day or two. After this you will notice light brown dust called chaff, and a very fine dust, which is the spore. If you gently tilt the paper from side to side you will notice that the lighter chaff will approach the edge of the paper first. Remove this chaff and you will be left with the spore.. In the case of most *Cyathea*, the spore is dark brown, and in the case of *Dicksonia*, a pale yellow color. Carefully place this in an envelope and seal from the outside. Do not place the spore directly onto plastic, as the static will cause the spore to adhere to it and make removal difficult; as such, if you only have a small quantity of spore, it may very well be lost completely. Store in a cool dry place.

Peter Strong

Eating Palms

While on holiday in France recently I saw some hearts of palms in tins displayed on a supermarket shelf among the tins of beans and peas. Always willing to try anything new, I bought a tin to share with my group of young people. There was no clue as to the species of palm, except that it came from South America,

but the verdict of the youngsters and myself after tasking some was that a mass extinction of the species through eating was not likely. The palm hearts looked like some tough and yellowing slices of leek and they tasted similarly to those that might be years past their sell-by date.

As this story of our palm eating spread around, I was told of a Cornish farmer whose family regularly eats the hearts of *Cordyline australis* as a vegetable. After having offered some to a local restaurant, whose customers found it to be delicious, this farmer is considering growing them as a food crop. From the windows of our house, I can see dozens of *Cordylines* and I am tempted to see what they are like to eat. I am concerned that we may like them too much, however, and that all we may see is dozens of bare trunks. Is this why the Australians sometimes call them "Cabbage Palms"?

Yours Sincerely, Rev. Geoffrey Squire

Their edible bud is indeed why Cordyline australis are called "Cabbage Palms". In many countries in South America, palms are now farmed for the production of palm hearts. Depending on the species and the canning process, the quality of palm hearts can vary considerably. The best palm heart in South America is said to be produced by Euterpe and Prestoea ssp. but Bactris gasipaes is frequently seen in farms as well as it is extremely fast growing. T.S.

Send your letters to:

*The European Palm Society
c/o The Palm Centre
Ham Central Nursery
Ham Street, Ham
Richmond, Surrey, TW10 7HA, UK*

Or by e-mail: mail@palmociety.org

www.palmsociety.org



10th Anniversary Issue