The Cycad Newsletter

A Publication of the Cycad Society
Dedicated to the Conservation of Cycads
through Education and Scientific Research
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In This Issue:

COVERS (photos by Bart Schutzman):
Front: Expanding leaf of *Cycas calcicola* showing circinate vernation of leaflets
Back: Megastrobilus (female cone) of *Bowenia serrulata*, open and receptive to pollen

President's Report
Tom Broome

I have been told that we are getting new members all the time, so I would like to welcome all our new members who have joined since the last newsletter was published. Craig Nazor, our new Membership Director has been working hard at his new position, so if you have not received your new membership packet yet, you should soon.

We are having our board meeting in late June this year in Miami, but chances are this issue will not be published until we have already had the meeting. I will have an update on this in the next issue.

I only have a few news items to discuss. First, we are still in need of votes for the Articles of Amendment that was mentioned in the last issue. This is very important for the continued success of the society and we need everyone's help. Anyone who did not already vote for this please take the time to vote now. You can do this by mail, or by e-mail. There is an insert that gives you all the information you need to vote.

In order to have our 2004 board members elected by January 1st, we are asking for nominations in this issue. We are looking for interested members who would like to help the society accomplish our goals and are willing to take on new jobs. See the call for nominations and nomination form elsewhere in the newsletter, and consider being part of our board if you would like to help make our society great. Thank you all for your interest in our society.

I would like to thank Libby Besse and Severn Doughty for all their hard work and time they have spent for our society. Libby has been a board member for many years, and has been our Librarian for most of the society's existence. Severn has been a board member for years and has more recently helped us in our elections. Both Libby and Severn have stepped down from their positions, and both will be sorely missed.

Message from the Editor
Bart Schutzman

I first would like to turn my attention to the Cycad Focus column; it is becoming more and more exciting now, as we get contributors who have fascinating things to say! This time, for example, Garrie Landry, the co-author of *Ceratozamia hildae* (with the late Marcia Clint Wilson) gives his thoughts, plus many tidbits of background on the description of the species. This information that has never before appeared anywhere and lends an incredible depth to the data we have. My hope is that we can continue to get this kind of contribution. So that you can prepare us some sumptuous photos and dazzling text for future Cycad Foci, I want to remind you of the upcoming species. For September, *Macrozamia heteromera* group will be featured, and in December, *Cycas panzhihuaensis* is the center of attention. In March 2004, the featured species will be *Lepidozamia peroffskyana*. That should give you something to sink your teeth into! If you would like to see a particular species featured in "Cycad Focus", you can always e-mail me (cycad@mail.ifas.ufl.edu). I will list the remaining species for 2004 in the September edition of the Cycad Newsletter.

The other item that I want to bring to your attention is that I would like to expand the conceptual basis of our Cycad Newsletter to include all aspects of the plant group, not just the taxonomy, cultivation, propagation as well as goings on of the Cycad Society (all of which are very important, of course); I would like to include other types of articles that will bring depth to the Newsletter. I am referring to topics such as anthropological (ethnobotanical) information, historical data and artwork that features or includes cycads, and relationships between cycads and animals and insects. By artwork I mean photography, drawing, painting, sculpture, and any other type of cycad depiction. Older volumes of the Newsletter included features on cycad ikebana, cycad stamps and other topics, and I think some of these should be revisited. So no matter what your cycad perspective is, I am sure we would all enjoy hearing from you!

Cycad Ecotouring in Vietnam

Article and Photos By Jeff Chemnick

As the final banquet of the Cycad 2002 conference at the Nong Nooch Tropical Garden in Thailand was coming to a close, most of the participants were bracing for their return home. But for one group of 13 participants, the departure destination was a bit more exotic than whence they had come…this group was bound for Vietnam to visit wild populations of cycads.

Each International Cycad Conference is traditionally followed by a post-conference cycad ecotour to capitalize on the aggregation of the world's scientists and enthusiasts; they meet in areas of significant cycad biodiversity. The post conference tours in Australia and South Africa took advantage of bountiful native cycad populations to offer participants a dazzling array of species to visit *in situ*. When Cycad '99 was held in the USA, with only one native cycad, Mexico was the site of the post-conference tour. While Thailand has ten *Cycas* species to offer, the decision was made to visit nearby Vietnam instead because it has 25 species (some unpublished) and greater diversity. The genus is distributed throughout the country in a variety of habitats and exhibits a considerable variety of form.

Ken Hill, the world's principal investigator of the genus *Cycas*, magnanimously organized and led the post conference tour along with Nguyen Tien Hiep, a venerable Vietnamese botanist and key to anything botanical in Vietnam. Hiep served the Vietcong as an ethnobotanist, advising troops marching along the Ho Chi Minh trail as to the edibility of wild plants. He now lives in Hanoi with his wife and travels widely surveying plants, and doing taxonomic and ethnobotanical work.

While Vietnam is a fascinating country with a dramatic history and colorful scenery, travel to remote areas to visit wild cycad populations is not easy because of the government travel restrictions in addition to the normal logistical and linguistic difficulties of travel in a third world country. Much pre-trip preparation was necessary to secure permission and create a workable itinerary. Our group benefited from Ken's prior Vietnamese fieldwork and good working relationship with Hiep, who has worked with Ken in discovering and describing new species of cycads in Vietnam over a number of years.

The flight from Thailand to Vietnam takes less than three hours. We arrived in Ho Chi Minh City (which almost everyone still calls "Saigon") and were escorted to our hotel on the minibus, which was our first week's cycad access unit. The plan was to drive through the southern half of the country visiting cycad populations along the way and then fly north to Hanoi from the midpoint at Hue. That first afternoon was spent gawking at wares in the local market. From buckets full of wriggling eels to jars of adult beverages containing pickled geckos and snakes, Vietnamese markets kept us in endless awe. Stacks of stinking durian fruit, mounds of dried crustaceans, and endless bags of rice of all manner and description. Perhaps the most vivid impression is of the people and their motorbikes racing in all directions.

Leaving Saigon, we drove all day to arrive late in the afternoon at our first locality, right on the coast. Eagerly we departed the minibus and began to explore the large granite boulder/scrub woodland and the two species of *Cycas* there, *C. lindstromii* and *C. pachypoda*.

C. bifida *leaf detail.*

C. pectinata *in habitat.*

Cycas lindstromii is a dwarf plant with melon-sized subterranean stems and short, erect leaves with reduced leaflets. Discovered in a marketplace in Thailand by Anders Lindstrom (of the Nong Nooch Tropical Garden) subsequent research led Ken Hill and Anders to the type locality in southern Vietnam. Growing sympatrically with this species is the much larger *C.*

C. pectinata *with megastrobilus and a bloody Stan Walkley.*

Ha Long Bay; the limestone island cliffs are home to C. tropophylla.

Examining wild-collected C. elongata *bound for market on the road to Danang.*

pachypoda with longer, slightly arching leaves, broader leaflets, and arborescent caudex. As the name suggests, *C. pachypoda* typically sports a swollen base, often divided into deep corky fissures. There were decent populations of each species though the habitat was very much disturbed. The original overstory is nearly gone, converted into charcoal, firewood, and lumber. *Cycas lindstromii* favors flat areas of granitic sand, while *C. pachypoda* grows in the hills among granite outcroppings. One wonders what mechanisms are at work to keep two such closely growing cycad species within the same genus distinct. We found numerous large excavations where, according to Hiep, either plants or a large, tasty local lizard had been removed. We spent the night at Ca Na, a small, beautiful coastal town on the South China Sea, with waves lapping at our door. Many of us went swimming in the ocean, taking care to avoid the sharp coral reefs and the "warm outflow" from the nearby hotels.

The food on our tour, simply put, was delicious. Hiep ordered all the food at every lunch and dinner, and so we were largely at his mercy in terms of content and quantity. But never was the quantity deficient nor the quality lacking. Typical meals would consist of several courses; usually vegetables, fish, soup, more vegetables, more fish, perhaps some crustaceans, perhaps some terrestrial animal items (no, we never ate dog though it was occasionally offered on the menu) and rice, rice, rice… and maybe some noodles. Never had any of us dined on such a diverse botanical variety of vegetables. Unusual plant families we consumed included the Convolvulaceae (Morning Glory Family), Euphorbiaceae (Spurge Family), Asclepiadaceae (Milkweed Family), and even Pteridiaceae (Ferns)! Perhaps the most ubiquitous item at mealtime and often our first course was *Ipomea aquatica*, which grows everywhere as a roadside weed. But fried up in oil with garlic and soy sauce, it is delicious! Washing down all this food was beer, tea and cola. In Vietnam, unlike Thailand, one eats with chopsticks. By the end of the trip, nearly everyone was fairly fluent in chopstick. But we were all humbled by watching seasoned veterans deftly manipulating even the tiniest objects on their plates with nonchalance.

We continued north the next day and were shocked to discover conspicuous displays of huge, wild collected cycads alongside the road. It seems that specimens are commonly collected from habitat and offered for sale. We also observed piles of rotting, discarded cycads that apparently were not sold in time. There must be sufficient roadside sales of wild cycads such that invasive forces continue to plunder the remaining populations, putting the plants in considerable jeopardy. Many of such roadside cycads were over three and even four meters tall. We inquired about the prices from several vendors and found that they were very cheap. We encountered wild-collected cycads for sale throughout Vietnam along the road, in nurseries, in marketplaces, and even on the backs of motorcycles, carts, and bicycles. The Vietnamese love their gardens. Rarely does one see greater attention given to the cultivation of plants and flowers anywhere on earth. Cycads are particularly popular because they make such great bonsai subjects and venerable tropical statements.

The following morning we loaded ourselves into the air-conditioned minibus and headed north. We stopped *en route* to examine a population of *Cycas elongata*, a very tall species. With each population we visited, a pattern began to emerge of the kind of habitat and exposure in which one could expect to find Vietnamese cycads. Perhaps the most disconcerting truth about the populations we saw is that the habitat is extremely degraded and most individuals are surrounded by dense second growth. Many of the cycads we visited are remnant

Crossing stream to see C. dolichophylla *in habitat. The long bare legs are Ken Hill's.*

C. lindstromii *with newly emerging leaves.*

C. ferruginea *on limestone cliffs close in northern Vietnam.*

The group examines cycad cycle laden with C. lindstromii *for sale in Hue.*

Picking up some ducks for dinner on the road to Ba Be.

forest, left as sentries to stand watch over fields and pastures, or coexisting with exotic introductions such as *Eucalyptus*, *Lantana*, and *Opuntia*. Nearly all of the original woodland has been cleared for firewood, pasture, and ranching. We saw precious few patches of primary forest, mostly along the steepest exposures and on cliff faces. Otherwise the forest along the road has disappeared and with it, most of the native cycads. Ken remarked more than a few times how a locality we were visiting on this trip was more densely forested a few years ago when last he saw it. The decline is marked and unequivocal. For readers interested in visiting wild cycads in Vietnam, you'd better hurry! Perhaps further up the hills, further off the road. But of course, there lurks in the back of your mind the thought of unexploded land mines.

Stan Walkley examines wild collected C. elongata *bound for market.*

Roadside vendor with habitat-collected C. pachypoda.

Potted specimen of C. brachycantha.

Other than a couple of rusting old U.S. army tanks and a few memorials and museums, there just is not much evidence that only 30 years ago the country was nearly obliterated. Neither in the south nor the north did we see evidence of "communism." Rather, Vietnam seems to be engaged in free enterprise as much as anywhere. The first sight to greet us upon disembarking from the airplane in Hanoi were duty-free shops, boutiques, and huge billboards proclaiming the virtues of Sony, Hitachi, Honda, Coca Cola, etc. People everywhere work aggressively, buying, selling, advertising, building and farming. All is a beehive of activity. And there was no apparent animosity toward us as "western foreigners." On the contrary, we were warmly welcomed wherever we went.

Vietnam seems hell-bent on reconstruction. The architecture is remarkable and distinctive. In response to the high tax rate per square foot of land, houses and buildings occupy a small footprint but go up several stories to compensate instead. The typical house is tall and skinny, employing a dramatic flair for what is known in architectural circles as "wedding cake." Fancy ornamentation, conspicuous balustrades, bright colors, polished metal trim, steeply pitched roofs, and much wrought iron all played to favorable review amongst our group. Unfortunately most photography of non-cycad subjects had to be taken from the minibus as it rolled onward toward the next destination. The days began to unfold…

Hiep with C. fugax*, from the only known colony in existence.*

Excerpts from my field notebook:

Aug. 6 Traveled from Ca Na to Nha Trang. Another night at another beach resort hotel. And it was Ken Hill's birthday so we had a party. Several stops along the way…one particularly good population of *Cycas elongata* up a gully beyond a cemetery. Some of the plants with stems over 4 meters tall and massive trunks. Huge planting of wild collected specimens of *C. elongata* in front of our hotel.

Aug.7 The road to Danang. Saw *Cycas pectinata* growing just above the coast road. Ken regards this plant as a "*pectinata*" type but distinct from Thai varieties with large flat leaves and narrow leaflets and a slightly glaucous bloom. Stopped at the fascinating old town of Hoi An for shopping and sightseeing.

Aug. 8 *Cycas aculeata*. Subterranean stems with crowns of six leaves to 3m long with long, broad, undulating leaflets. We found many in dense secondary growth by following a trail above Hai Van Pass to a population that apparently neither Ken nor Hiep had encountered previously. Many had newly emerged leaves and were quite attractive.

Aug. 9 From Hue we drove toward the Laotian border and found a decent population of *Cycas chevalieri*, but inaccessibly situated on the opposite side of the river. Ken's original locality was accessible but nearly wiped out. We had to cross a swiftly flowing river by crab walking over the rapids on a double-stranded steel cable "bridge." Then, we rock-hopped through the rest of the river to reach the other side and visit this handsome dwarf riparian species. Stopped

C. balansae *in a garden. Note piles of spices and medicines.*

along the way to explore a portion of the Ho Chi Minh trail and a deserted U.S. army tank. We took bicycle taxis in search of the city cycad sellers in Hue but couldn't locate them. Spent a couple of nights in Hue. Highlights included touring a huge Chinese temple from which Stan Walkley suddenly spotted a bicycle-riding cycad vendor selling plants 100 meters distant. Stan yelled and waved frantically as the vendor appeared ready to hop aboard his cycadomobile and pedal off in search of customers elsewhere. Somehow the vendor noticed Stan's entreaties and dismounted to wait as we all went running out of the citadel and toward the street to see which species were piled on the back of his rig. The cycads he had on offer were *C. lindstromii*, which we had seen hundreds of miles to the south. It turned out that these plants had indeed come from the type locality near Ca Na that we had visited. We crowded around examining the plants and taking pictures (the poor fellow must have thought he was about to make the sale of the month) while Hiep asked him a number of questions. He told us that he has made three trips over two years to buy cycads from local collectors because he favors the species for bonsai use. He estimated that he has sold over 100 plants all together. He said that he pays 5-7000 dong per plant and resells them for 15-20,000 dong in Hue. At the time of our visit the rate of exchange was 15,000 dong to the US dollar.

The Citadel and Pagoda we visited were fascinating. As usual, the gardens were favored with bonsai subjects and *C. revoluta*. Two of the more commonly used plants for bonsai included *Adenium obesum* and *Feronia* (weed apple). Soon it was time to go. So, we boarded the bus and went to the airport for our flight to Hanoi, the capitol of Vietnam. Never mind the images from television and movies held over from the sixties and seventies - Hanoi is modern and beautiful, yet with small pockets of "old city" interdigitating with the new. We stayed in a former army officers' barracks now turned into a three-star hotel. That night we ate a fancy banquet at a flashy restaurant. Delicious fish wrapped in a carved carrot fishing net and lotus flowers with rice. We were entertained by a wonderful band playing traditional (with the occasional Celtic and Australian melodies mixed in) music on traditional instruments. And outside on the patio we found a *Cycas hoabinhensis* growing (surprise) in a decorative pot as a bonsai subject. Ken explained that the plant is a cliff-dwelling dwarf species, which has been nearly extirpated from the wild for just such use.

Hiep with C. bifida *in situ.*

Jeff Chemnick with C. bifida *in situ; leaf detail.*

C. chevalieri *in its riparian habitat.*

C. tropophylla *with megastrobilus in a restaurant garden.*

C. tropophylla *megastrobilus in a restaurant garden.*

C. pectinata *microstrobilus with characteristically long apical spines on the microsporophylls.*

The following morning we finally met face to face with the Russian-made jeeps about which we had heard so much. Hiep divided us into four groups to fit, according to some social order that he envisioned, into each of the jeeps. Accordingly, we were to remain members of our designated jeep for the rest of the trip. We drove all day long from Hanoi. It was rainy in the a.m. but the weather improved as the day wore on. We made several garden stops en route to see *Cycas fugax*, *C. bifida* and *C. ferruginea*. The *C. bifida* and *C. ferruginea* we would see again in situ but the *C. fugax* "locality" was something unique. Apparently gone from the wild due to loss of habitat, the specific epithet *fugax*, means "fleeting or ephemeral", referring to the near extinction of this species before it was recognized as a botanical entity. It is not certain but does appear that the plants we saw growing in the vicinity of several houses are in fact remnant wild plants that have persisted in their current locations while the rest of the native forest was cleared away. The *C. fugax* that we examined had one to two leaves up to 3.5 meters long borne on a dwarf, subterranean stem. We did find three female cones but only a single developed seed. This species has the widest leaflet in the genus, up to 3cm in width. The female cone is diagnostic with extremely long teeth on the megasporophylls. We were fortunate to find several plants with newly emerged leaves. This tiny cluster of distinct plants was discovered by Yang in 1995 while driving by en route to a *C. dolichophylla* population. We stopped to see *C. bifida* in a small town where Ho Chi Minh first began to stir people with speeches under a huge *Ficus* tree (which is still standing). The last garden stop we made was to see *C. ferruginea*. That night we stayed at a filthy hotel in Nguyen where we had to wait for the water to be pumped up to our room and had scratchy towels the size of handkerchiefs … a far cry from the luxury accommodations in southern and central Vietnam! En route the next morning we stopped to examine a *C. bifida*/*C. dolichophylla* intergrade at a restaurant as well as a specimen of *C. brachycantha*. Stopped mid-day to take a brief but arduous hike up to see *C. dolichophylla* in habitat. Shucked our shoes to cross a stream then slogged and clawed our way up a steep, rocky hill through a remnant patch of wet, shady evergreen forest with beautiful *Arenga pinnata* palms. We managed to find a total of three plants, with no new leaves and no cones. Back on the road, we wound our way through numerous valleys, passing children riding on water buffaloes, waving wildly. High water from the recent rains reflected the afternoon light off flooded rice paddies in an eerie fashion. Our caravan stopped at a roadside market to pick up a couple of ducks for dinner and arrived finally at what I thought was the most scenic natural setting of the trip, the beautiful Ba Be National Park. Though the rain fell steadily, we took a long boat ride through the steep limestone walls that define this huge natural lake which still has some primary forest left. That night we had a birthday celebration for Piet Vorster complete with champagne, duck, beef, fish, pork, spring rolls, soup, rice, and veggies. Ferns, it turned out, were to be the evening's edible plant group du jour. The next morning we hiked straight up a very slippery and very steep "hill" to examine a small population of *C. brachycantha* growing under a dark forest canopy in limestone outcroppings. Slipping and sliding our way back down the hill in time for lunch and much needed showers.

One of the hazards of ecotouring on long dirt roads in the rainy season is that they can become long muddy roads. Occasionally mudslides and avalanches turn them into impassable messes. We suffered from such a fate less than six km from rejoining the main highway en route to Cao Bang. By "main highway" I really mean "two lane road with actual pavement." We came upon our impassable mess after a three hour drive up a very long and winding muddy gorge, which followed the roiling flood waters of a river swollen by recent rains. I wondered at several points what the prospects were that our road might just suddenly wash away into the river below. Then, just before reaching the long-awaited intersection, our way was blocked by a large landslide, which knew no compromise nor circumvention. We surveyed the hopeless situation and did the only thing we could do…we ate lunch! We shared our impromptu meal with a family near the

C. elongata *in what's left of the roadside habitat with Roy Osborne lending scale.*

C. pachypoda *en situ. Note the swollen base. Grows sympatrically with* C. lindstromii *in southern Vietnam.*

C. aculeata *with megastrobilus. We found a new population above Hai Van pass in central Vietnam.*

slide who had graciously offered us shelter from the rain. They boiled up some water and we all enjoyed "noodle packets." Braced by the meal, we retraced our three hour drive back down the valley (once again defying death in the roaring muddy quagmire below) only to take the long way around. Finally we reached the highway to which we had been so close just seven hours prior. Later, as if to take our minds off the long drive, our jeep decided to break down. Something about the fuel filter. The drivers eventually were able to effect a repair with a blade of grass drawn through the carburetor. That night Willie, Roy, and I found an Internet café from which to maintain contact with "back home." Roy sent birthday greetings to Dennis Stevenson who had been penciled in as a participant on our trip but was forced out by other circumstances. The following day we visited a population of some 15 individuals of *C. bifida*, which persist in remnant forest patches and second growth. *C. bifida* is a beautiful plant, with subterranean stems and leaves to 6 meters long held in erect crowns of 2-5 leaves. As the name suggests, the leaflets are characteristically split in two. It belongs to the *Cycas* subsection, *Stangerioides*, which includes such remarkable species as *C. micholitzii*, *C. multipinnata*, and *C. debaoensis*. Later, we saw several good populations of *C. ferruginea* scattered on limestone cliff faces with multiple stems to one meter plus in length. No cones were visible but we did see some 1000 plants.

The final few days were more of the same…consisting mainly of long drives in the Russian jeeps. These jeeps featured ancient suspensions that brought new meaning to the concept "feel of the road." Windows that couldn't be rolled down and drivers that, like everyone else on the road simply could not go more that 100 meters without honking the horn, with or without any apparent reason to do so. Late in the afternoon we stopped to follow a guide through a cinnamon farm to a tiny, very degraded patch of remnant second growth to find 3 *Cycas balansae in situ* (plus a few seedlings to indicate that regeneration and recruitment are still a possibility).

On our last day, we took a boat ride into the world famous Ha Long Bay to see, among other things, the cliff dwelling *Cycas tropophylla*. This recently described species hangs in scattered colonies on several of the huge limestone monoliths for which the area is known. The plants seemed to favor west-facing exposures. We did have a brief swim and then sampled some of the ubiquitous "bia hoi" (homemade draft beer). The farewell banquet that evening featured gifts and toasts. Hiep gave each of us a pamphlet he authored on some of the more interesting plants of Ha Long Bay. Ken in turn presented Hiep with a copy of "The Cycads of Australia" and a GPS on behalf of the group. The following morning we had a final accounting of trip costs, which were much better than expected. We all agreed the experience was remarkable on several fronts. We had managed to almost completely dodge the monsoon season, which had threatened to rain us out several times. We had seen a number of species that are clearly in decline and headed for extirpation without intervention of some kind. We decided that, unlike Australia or South Africa, Vietnam was not a country we would recommend for solo visits in search of cycads. Without Hiep and Ken it would have been extremely difficult to do what we did. Even with the special travel permits and dispensations we were given as "honored botanical dignitaries", we were unable to visit one of the premier localities on the itinerary because of some last minute change of heart by the military. As Ken said several times, "In Vietnam, things just aren't that simple." We gave our heartfelt goodbyes all around and scattered to the four winds, promising to meet again in Mexico in 2005.

For more detailed descriptions of the *Cycas* species mentioned in this article, as well as all the world's known cycad species, be sure to visit Ken Hill's "The Cycad Pages." This remarkable resource is online at:

http://plantnet.rbgsyd.gov.au/PlantNet/cycad/index.html

1905 engraving of Cycas micholitzii *reproduced from the Gardener's Chronicle.*

The Cycad Society Seed Bank

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Dear Members,
The April seedlist contained the following seeds:

***Ceratozamia* sp.** (Pacifica),

Cycas simplicipinna,

Dioon merolae (Santiago la Chigiri),

Encephalartos concinnus,
E. horridus, ***E. lehmanii***,
E. senticosus, ***E. trispinosus***,
E. villosus,

Zamia floridana (Key West),
Z. furfuracea, ***Z. herrerae***,
Z. integrifolia (Wide leaf),
Z. loddigesii, ***Z. lucayana***,
Z. paucijuga, ***Z. variegata***,
Z. vazquezii, ***Z.* sp.** (Cayman Islands), ***Z.* sp.** (Jamaica),
***Z.* sp.** (Mexico),
***Z.* sp.** (New Providence).

Seed lists can be obtained by sending several self-addressed, stamped, business-style envelopes to my address above or by joining our online seedlist. Please e-mail me at the above address with the name and address that you used when you joined the society so we can verify your membership.

Seed sources: We are always actively seeking new seed sources and we are interested in obtaining seeds of almost every species. As always, our seed sources are kept confidential. We welcome any quantity of seed we can get and I can be contacted at the above numbers and e-mail.

Many Thanks,
Darin Yeatman

ONE PERSON'S ADDICTION

By Bev Vallentine

During my late teens and twenties, I used to spend time at my parents' beach house on the Pacific coast about 150 miles south of Sydney. The house was on the banks of Currambene Creek near where it ran into Jervis Bay, in the middle of a pristine, deserted white sand beach with shoals of washed-up shells along the tide-lines and a variety of fish and other marine life in the water.

Equally fascinating to me was the hinterland which was home to a huge population of Burrawangs. (Pronounced Burrawong). I knew they were cycads, but didn't discover until quite some time later that they were *Macrozamia communis*. When I wasn't fishing from the jetty or collecting shells along the beach, I spent many hours wandering in this wonderland amongst the glossy green inhabitants. There were tall trees providing dappled shade, with orchids, ferns and fungi on the ground and birds' nest ferns in the tree branches above.

The beautiful, graceful cycads were in all stages of development, from sprouting seeds to mature plants with large trunks. There were epiphytic orchids and ferns growing in profusion on the trunks and the large pineapple-like cones had bright red seeds which spilt onto the ground. I can't remember much about the male cones - I suspect that I thought these were just immature cones as I was not aware that there were males and females.

In the gently sloping wooded landscape I had discovered some "secret" open, grassy areas which occasionally became watercourses. It was here at about five o'clock in the afternoon that many big timid Eastern Grey kangaroos came to graze. I would take houseguests who I thought might be interested through the cycad forest to view the cycads and kangaroos.

My mother and I decided at one stage that we needed to take a couple of Burrawangs back to Sydney to plant in our gardens there. We selected some lovely big specimens but discovered that they had huge trunk bowls under the ground and were too big and difficult for the menfolk to dig up and transport.

Consequently, we took a couple of quite small plants, which flourished and grew and are still doing well today. I had acquired my first cycad!

Many years later, with my own family, I moved to Darwin in tropical northern Australia. There was an occasion on which I received a floral bouquet with greenery which I assumed was plastic. I thought this was a bit strange in an arrangement of fresh flowers! Later, I began to suspect that it wasn't plastic. When the flowers died, I threw them out and kept the leaves in water. They lasted for weeks. I had no idea what they were.

Later still, I attended a Garden Fair and a stall there had pots of this same greenery! I asked the lady in attendance what it was. "Cycads" she said. "Oh no, they aren't cycads" I said, knowing quite well what cycads looked like. I instantly thought that that was probably a stupid thing to have said to this lady, so I added "are they??" "Yes," she said. They're bowenias, native to Queensland. I purchased a *Bowenia spectabilis* and a *B. serrulata*.

Libby Besse in Australia with a stand of Bowenia serrulata. *Photo by Bart Schutzman.*

Being very intrigued by these bowenias, I had to find out more. There are many cycads growing in the Darwin region, which are all *Cycas* species and the fronds look somewhat similar to those of the Burrawang. There is a lovely macrozamia *(M. macdonnellii)* which inhabits an ancient valley hundreds of miles south of Darwin, near Alice Springs in central Australia, which is also similar, but is a blue-grey colour. But nothing like a bowenia!

I saw a picture of an *Encephalartos horridus* in a garden magazine and couldn't believe the sky-blue colour. I thought there was something wrong with the printing process. Then I discovered that we had, close to Darwin, a population of *Cycas calcicola*, a smallish cycad with very fine leaflets, which appear in a beautiful silvery-aqua colour. I was totally hooked.

If three Australian cycads could be so different from each other and an African one was different again, what else was out there? I learnt of the dioons, ceratozamias and zamias of the Americas and was delighted to discover that many of them were available commercially in Australia. My collection increased and I am sure will continue to do so as I find other cycads and spaces in my garden which need to have a cycad planted in them.

As a member of the "Friends of the Darwin Botanic Gardens," I have been involved to a small extent with the creation of a cycad garden, which will become part of the worldwide "Network of Botanic Gardens for Cycad Conservation." Darwin is a fairly suitable place for cycads. With a sub-equatorial location and distinct wet and dry seasons, most cycads, given the right treatment, do well here.

Recently, the "Friends" co-funded a visit to Darwin by Dr. John Donaldson, the Chair of the Cycad Specialist Group of the International Union for the Conservation of Nature. He was able to give valuable advice on our cycad project. We have many cycads in pots, awaiting transplantation into their new home and a government grant has meant that construction on the area is well under way.

John was present at the last three Cycad conferences that I attended (China, Florida and Thailand) and it is inspiring to have met him and many of the other cycad "luminaries" who are doing the research and producing the books which we avidly snap up as soon as they appear. (Ken Hill, Roy Osborne and Loran Whitelock, who are three of the latest in print, were also in Thailand).

It amazes me that so much new information comes out at each cycad conference. The discoveries made seem to ask even more questions than they answer. I look forward to attending the Seventh International Conference on Cycad Biology in Mexico in 2005 and to catching up with the latest discoveries and the interesting "cycad" people from around the world whom I have already met.

Cycad Focus:

Ceratozamia hildae

"Bamboo Cycad"

Photos by Bart Schutzman (unless otherwise noted).

Cultivation of *Ceratozamia hildae*

by Tom Broome

Ceratozamia hildae is my favorite landscape cycad here in Florida. It has an upright habit that is different from most other cycads, which have more of a fountain form. It can be grown in a smaller spot so it makes a great accent plant in a larger landscape, but can also be a specimen plant in a smaller landscape. The leaflets are grouped in unique bowtie-shaped clusters. Typically the species has green-emergent leaves, but a few rare brown-emergent individuals exist in collections (which I find very attractive).

This species is easily grown in all of Florida. It reacts well to fertilizer applications. I have had four flushes of leaves in one year on several individuals in my nursery. They also mature fairly fast; males mature in less that five years and females cone in five to six years. I have found that a plant with a four-inch stem diameter can produce a cone. *Ceratozamia hildae* is best grown in partial shade. A plant grown in full sun will actually grow very fast, but never looks very good. The sun seems to bleach out the leaves and makes them look yellow or burned. If they are grown in deep shade, the leaves will look good, but plants will grow much slower and look a little thin. Ceratozamias seem to prefer a little more water than some cycads, but as with other species, good drainage is just as important. This species has an underground stem, so drainage is important if it is grown in a wet area. Mounding may be needed if the ground is often saturated. This *Ceratozamia* is very cold hardy and should work well in any part of Florida. I have known of plants in Florida that sustained no leaf damage after a freeze of 14F. I have known of other plants in Texas that had no leaf damage at 12F. Even with leaf damage, the plant should survive temperatures much lower than this because of the underground stem, but I have never heard of this species tried at temperatures below the low teens.

Most cycad species have a three to four week window each year when female cones become receptive and male cones shed pollen. Ceratozamias in general are different. All the species I have worked with have an extended receptivity period ranging from as early as January to as late as June, with everything in between. This makes it a little harder to pinpoint the exact time for each plant. I have to check all my plants every two or three days during a four month period to make sure I haven't missed anything.

Ceratozamia hildae is a very attractive cycad and is easy to grow. This plant should be on every new collector's list of cycads to try out. It can get to be seven feet tall and grows rapidly compared with many cycads, which is very rewarding for anyone new to rare cycads.

Immature microstrobilus. Photo by MBC.

Young seedlings of C. hildae *do not have fasciculated leaflets.*

Megastrobilus.

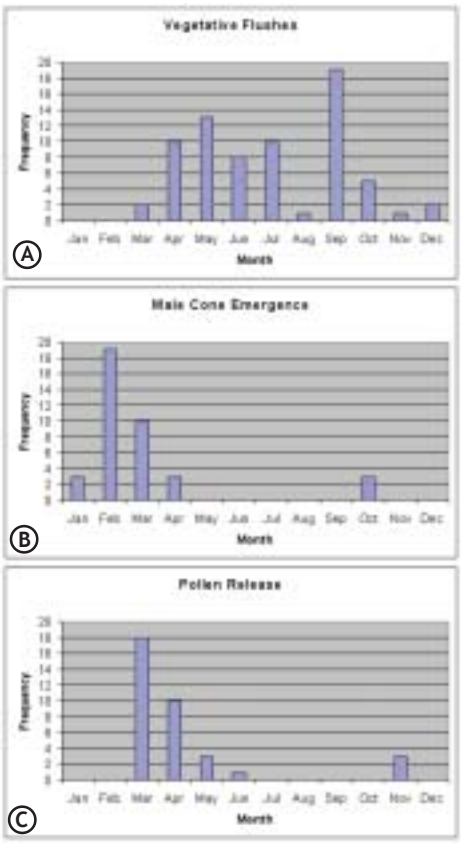
This well-grown plant is already highly branched. Photo by Fe Almira.

Phenology in South Florida

by Jody Haynes

Montgomery Botanical Center (MBC) currently has 187 cycad taxa, 1,414 accessions, and 2,688 plants in our ground collection, and at present, we collect monthly phenology data on more than 1,500 plants.

Although we have fewer than 20 plants of *Ceratozamia hildae* in the ground, we are able to report some trends for this species as it grows in our subtropical climate and limestone-derived soils. Plants flush twice and rarely three times per year, primarily in May and September (Fig. A below). Although there is some variation in flushing times, individual plants usually exhibit cyclical flushes from year to year. Male plants cone once and rarely twice per year, usually beginning in February or March (B). Pollen is then released approximately one month after cone emergence (C). Although our sample sizes are small for female reproductive phenology, our data suggest that female plants cone once per year in January-March, become receptive from April-July, and mature in February or March the following year. Rarely, a female plant may cone in September and produce mature seeds the following September.



A-C. Vegetative and reproductive phenology of Ceratozamia hildae *at Montgomery Botanical Center, Miami, Florida*

Taxonomy & Nomenclature

by Bart Schutzman

Oftentimes by coincidence a species is discovered and described by different botanists within a short time of one another. When this happens, the botanical rule of nomenclatural priority applies; the first validly published name for a species has priority over later names, which are regarded as synonyms. This can cause confusion when both names are being used in the horticultural trade. This nearly happened in the case of *Ceratozamia hildae*. The paper by Dr. Andrew P. Vovides and John Rees describing the species (they were going to use the name *C. fasciculata*) did not get to press before Garrie Landry and Marcia Wilson's description came out in Brittonia in 1979. Therefore, it was not used by horticultural people and did not result in this kind of confusion. The authors wisely decided to cease publication of their paper, and instead in 1980 published "Datos adicionales sobre *Ceratozamia hildae* Landry et Wilson, 1979 (Zamiaceae)" in the Mexican journal Biotica. So a fine addendum to the Landry and Wilson paper resulted, with excellent illustrations (below), habitat data, and comparison to a nearby species, *C. zaragozae*. The plants described by Landry and Wilson were originally brought from the wild in 1960 by Luciano Guerra, a well-known plant collector, and were growing in Baton Rouge, Louisiana in the garden of Dr. Walter Harman (the founder of the Cycad Society; see his obituary in *the Cycad Newsletter* 25[2]:11). The name *C. hildae* was derived from the latinized form of "Hilda," the name of Mr. Guerra's daughter. The plant had been known by *Ceratozamia* "Hilda" informally in the horticultural trade since Guerra's introduction of the plant.

In the trade, one can find plants labeled *C. hildae* that are only sparingly fasciculated, i.e., they don't have much of the leaflet clustering that Tom Broome speaks of. Many of us believe that this species naturally hybridizes with another *Ceratozamia* growing nearby, considered by some to be *C. latifolia*. Only further research will tell 1) what species the other purported parent is, and 2) whether *C. hildae* hybridizes with this nearby species or if the differences merely reflect natural variation in *C. hildae*.

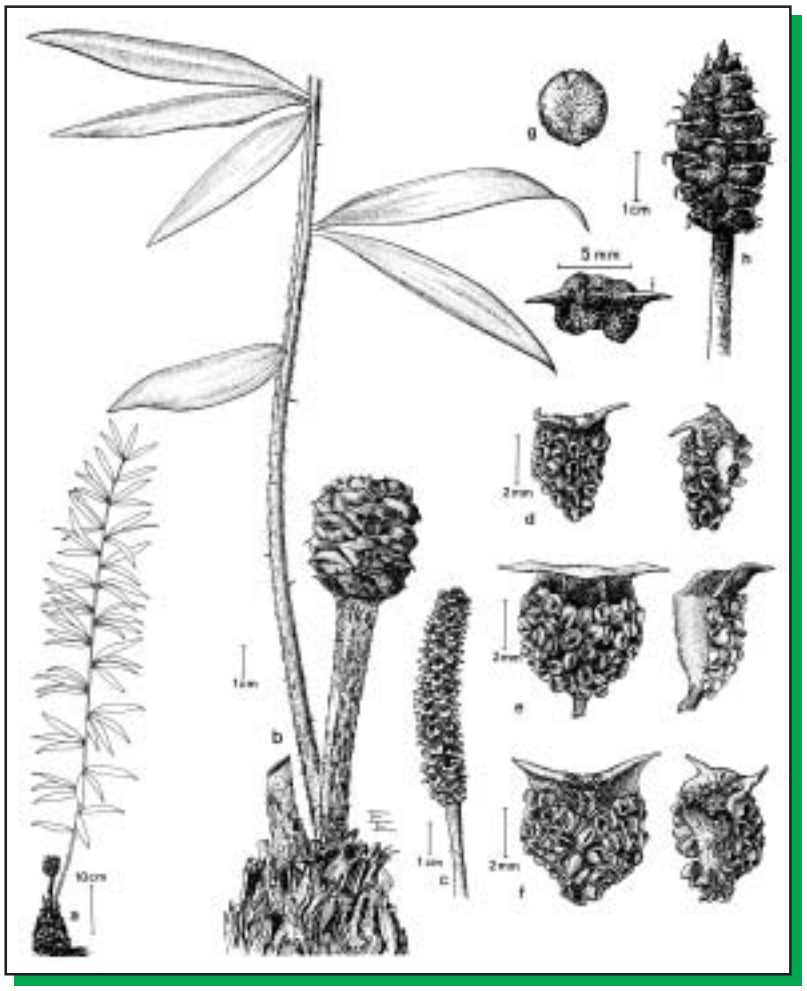


Illustration of Ceratozamia hildae *in Vovides & Rees' 1980 paper*

How the Scientific Description of *C. hildae* came about

by Garrie Landry

In 1975, my first year in graduate school, I knew I wanted to work with cycads in some capacity and began looking at potential taxonomic projects. I was essentially on my own with minimal guidance, as there were no true cycadologists of that day to confer with. Initially my interest focused on *Ceratozamia*. I relied heavily on my advisor and friend, Dr. Walter Harman, for suggestions and support for the ideas I had about working with this genus.

The project seemed feasible at first, for here was a genus that was confined geographically to Mexico and Guatemala. Furthermore, the number of known species appeared to be a reasonable one to pursue based on a preliminary search of the literature. I familiarized myself with the then-known species of *Ceratozamia* and quickly discovered that there were less than a dozen described species, but so many horticultural names that the idea of resolving some of these potentially unknown or misidentified species became the premise for a research project. I was too naïve to realize the extreme complexity of *Ceratozamia* and that a revision of the genus was far beyond the capabilities of a master's degree project. Nevertheless, I pursued my interest in *Ceratozamia* by visiting botanical gardens and herbaria to see their specimens. A small Sigma XI grant partially funded a trip to visit the national Herbarium in Mexico City (MEXU) where I studied and photographed specimens for later comparisons with horticultural specimens. Several trips were made to Fairchild Tropical Garden (FTG). There I met with Stanley Kiem, Crafton Cliff, Nina Woesner and Mary Collins, who were very generous with their knowledge and time. The garden's collection was without a doubt the best in the eastern US, affording me the opportunity to observe many mature cultivated specimens. During that time, which coincided with the inception of the Cycad Society, I met many knowledgeable people, among them the late Marcia C. Wilson of Brownsville TX. Marcia and I became great friends and I thoroughly enjoyed my visits to her home, each time learning more about the complexity of *Ceratozamia*. It was during periods of researching the literature, and observing both herbarium and horticultural specimens that one species of *Ceratozamia* really stood out as unique in so many ways. The more I learned the more I began to realize that the idea of revising the genus was far from my capabilities. Nevertheless, the exposure to all of the information I had accumulated certainly suggested that there were species known in horticulture but unknown to science. Yes, undescribed species of *Ceratozamia*! Admittedly, the 1970's were ideal to cultivate an interest in American cycads - collected mature plants were readily available from many sources. At times these plants were so abundant in the trade that one could expect to find various Mexican genera and species at almost any nursery along the gulf coast. Few people of that period seem to give much thought to the idea of conservation of wild populations and to the constant flow of collected plants across the borders.

One species quickly became my favorite, *Ceratozamia* "Hilda", perhaps because it was so unique among ceratozamias and because it was unknown to science while well known in horticulture. When I first proposed describing a species from horticultural material to Dr. Harman and those at FTG it was very well received. Crafton Cliff, the FTG horticulturist at that time, who was surprised to learn of my intentions, applauded the idea. I was encouraged by many to do so.

If I was to describe a new species from horticulture, I had to be absolutely convinced that it was unknown and had not been previously described under some obscure name. A complete review of the known species of *Ceratozamia* and their botanical descriptions was first on the list of things to do. Fortunately, *Ceratozamia* "Hilda," with its clustered leaflets, was so unique among all cycads that the literature would surely reveal if it had been previously described. After a year or more of literature research, I was convinced that it was not. Others around me were convinced long before I was. Now the task at hand was to actually describe it. For help, I turned to Marcia Wilson, who intimately knew the person responsible for the first introduction of this cycad into cultivation and the reason behind the peculiar but so familiar name of "Hilda." Marcia supplied me with information about its location in Mexico and the history of its discovery. I elicited the help of renowned mycologist and Latin scholar Dr. Bernard Lowy of LSU, whose help in the Latin description of the plant was invaluable. Dr. Walter Harman offered specimens from one of his cultivated plants for designation as the type material. A botany student and friend at LSU, Scott W. McReynolds, offered to do the drawing of "Hilda" to be used in the publication. Then came the time to choose a name for this new species. For the first time ever I will reveal that my initial preference for a name was not *Ceratozamia hildae*. I really wanted to be more innovative - my first preference was *Ceratozamia* "*bambusifolia*." I liked that name, and after all, *Ceratozamia* "Hilda" was also referred to in the trade as the Bamboo Cycad. But I was out to solve a nomenclatural problem and not create a new one. Ultimately I realized that the only people who actually knew and cared about this unique cycad, the collectors and growers, knew it as "Hilda." To introduce a new name to an already widely known plant, I thought, would have only complicated the matter. The horticultural trade was filled with common names, names handed down from importer to distributor and distributor to collector, and by the time it reached the collector, any significance behind the name was almost certainly lost. I recall a perfect example, *Ceratozamia* "Thomas and Charlie." It was not until I had traveled into Mexico several times that I realized the name was the corrupted name of the small town Tamazunchale, a favorite spot in Mexico for bird watchers and plant collectors. Yet most people only knew the plant as C. "Thomas and Charlie." So in the end, I decided to simply latinize the name "Hilda" to *hildae*, thereby retaining the original identity of this amazing plant. The description was submitted to Brittonia for publication and subsequently accepted. *Ceratozamia hildae* was now a valid species.

Unidentified Ceratozamia sp. *with receptive megastrobilus.*

Notes on *Ceratozamia hildae*

By Jeff Chemnick

Ceratozamia hildae has long been one of the most enigmatic neotropical species for several reasons. Though widely represented in collections throughout the world due to extensive collecting in the seventies and subsequent propagation, the wild population was thought to be extinct because no one apparently had seen the plant in situ for a couple of decades. Though various botanists as well as cycad fanciers had gone in search of *C. hildae* over the years, it seemed to have vanished from its purported type locality and was largely regarded as extirpated due to overcollecting and habitat destruction. Another paradox existed around the ease with which this species can be propagated in southern Florida. Long thought to be a high elevation species, it seemed to contradict the cultivation experiences of other montane *Ceratozamia* species, which do not readily cone and lend themselves to easy propagation in lowland tropical climes. Furthermore, though the fasciculate leaflet arrangement (whorls or clusters bunched together) on the rachis is more typical, nonfascicled plants are known in many collections. This has lead some to conclude that perhaps the fascicled *C. hildae* were aberrations of some kind and had been selected out of a population that contained many more of the non-fascicled types giving a false impression of the more typical morphology.

When the Montgomery Botanical Center of Miami, Florida joined forces with GannaWalskaLotusland of Santa Barbara, California and the Institute of Ecology in Xalapa, Veracruz (and future site of the 2005 International Cycad Conference) several years ago to sample as many wild *Ceratozamia* populations in Mexico as possible, one of the many goals was to rediscover the type locality of *C. hildae*.

The original description by G.P. Landry & M.C. Wilson, Brittonia 31: 422 (1979) has an unfortunate typographical error which claims an elevation of 3600 km (approx. 2200 miles)! Perhaps one result was to give the cycad world the impression that *C. hildae* was a montane species. Several of the cycad enthusiasts I know that have gone in search of *C. hildae* have looked long and hard in areas of high elevation. Our working hypothesis was that the error was in units and that instead of "km" the authors meant "ft." Certainly 3600 feet would be the correct elevation for a number of *Ceratozamia* species and seemed a good place for us to begin our search. The day we arrived to begin our search, we indeed found several dirt roads that our topographic maps indicated would transect upward through such elevations and perhaps through habitat that still was sufficiently intact that it might contain some remaining wild plants. But unfortunately (or fortunately as we later found out), the recent rains had turned our roads into a muddy mess which our vehicle could not traverse. After several attempts to gain elevation only to slip and slide and nearly tumble off the road completely, we were forced to retreat to the lower elevations whence we came. It was hot and humid and we were rather frustrated to add our names to the list of those who had come in a fruitless attempt to find a wild *C. hildae* population. But as we were slowly heading back, we came across a local fellow standing in front of his house. Mostly out of habit and perhaps some desperation, I showed him a leaf that we had recently collected of *C. microstrobila* (which is the most similar in general appearance to *C. hildae*). "Si, hay!" He responded (Yes, it is here!), telling me that he had such a plant in his backyard but that the leaves were longer and the leaflets were in clusters rather than uniformly arranged like my sample. This was sufficient information to get everyone very excited. I followed him into his house where he explained the situation to his wife who eyed us with a bit of uncertainty. Fortunately she consented to our passage to the backyard to see the garden. At first I couldn't see any cycad at all because the leaves on his plant were so tall that they eluded my search image. Then….there it was! A plant of *C. hildae* with 3m leaves! His response to my question about where his plant came from was to strap on his machete, tell his wife he would be right back, and exclaim "Vamonos!" Buzzing now with anticipation, our group quickly loaded up water, cameras, field equipment and rubber boots for the hike. Though our guide was in his seventies, he outpaced us all as he effortlessly moved over the extremely slippery karst substrate en route to the population. Only a 20 minute walk from his house, we finally came face to face with some wild plants. After an hour or so of canvassing the area, we found upwards of 50 specimens, including several non-fascicled individuals which, curiously, seems to match the approximate ratio of wild collected plants seen in cultivation. The elevation? 360 meters. No wonder this supposed "high elevation" plant did so well in Florida! No wonder it was thought to be extinct. Wet and muddy but very pleased to have documented at long last that *C. hildae* is very much alive and well in the wild.

With respect to cultivation in Santa Barbara, I can attest that it will grow outdoors year round but doesn't begin to produce leaves of the length we saw in Mexico. Rather, leaves of 1m+ are typical. When grown in full sun, the leaflets will often produce a waxy, glaucous bloom that gives the plants an almost bluish appearance from a distance. Plants growing in Santa Barbara typically produce two to four leaves and look best when grown in clusters. I know of a pair of plants growing side by side in a nearby garden that happen to be male and female. The plants seem to cone every other year and though the owner never pollinates the female cone, it has produced upwards of a dozen viable seed on several occasions.

Because *C. hildae* is distinctive, leaf friendly, and easily grown, it makes a wonderful addition to any cycad garden whether in the highlands, lowlands, tropics or California.

Male plant of C. hildae *with microstrobili. Photo by Bijan Dehgan.*

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This is the first circular for CYCAD 2005, (web page) just click on pre-registration (red). Please pass message on to those you think might be interested. Messages will be sent periodically on web page:

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Related Societies

Cycad Society of South Africa

The Cycad Society of South Africa is a nonprofit international organization that is based in South Africa. It is devoted to education and the conservation of cycads. Its quarterly magazine, "*Encephalartos*" is sent to members by airmail and *inter alia* contains information on the discovery of new cycad species. Please contact one of the following correspondents:

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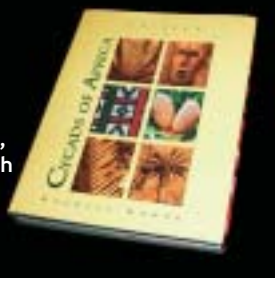
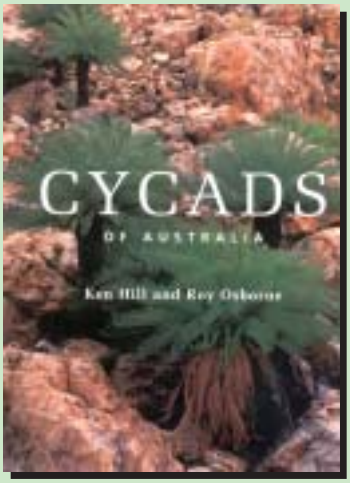
Book Review

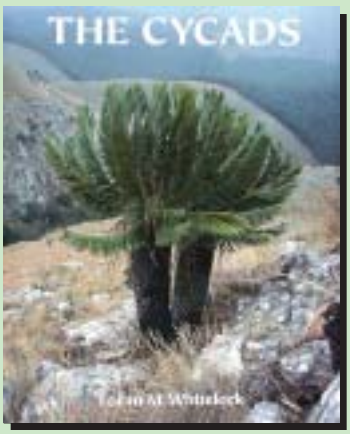
Cycads of Africa Volume I
***All New Edition*, D&E Cycads of Africa Publishers, Gallomanor, South Africa, 352 pp.**

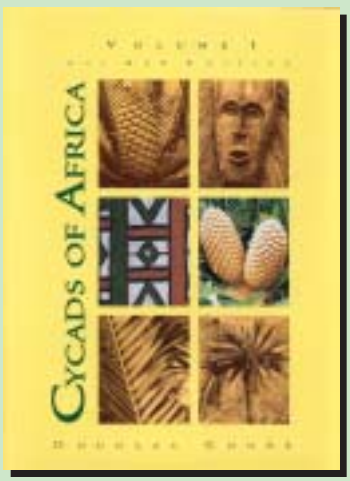


Having owned and enjoyed Douglas Goode's original "Cycads of Africa" for many years, I seriously questioned whether I wanted yet another version of the book. This mulling over expenditures ended abruptly when I saw the new volume - I was enthralled! While the first volume is universally thought outstanding among cycad books because of its magnificent paintings, this volume mostly lacks illustration except for the paintings of sporophylls. Instead, the book comes fully stocked with every conceivable habitat photograph for the 66 species included (64 *Encephalartos* spp. plus *Stangeria eriopus* and *Cycas thouarsii)*. Not only was the "Goode Book" entirely made with a different "look and feel" from the first volume, it is a complete rewrite; the text is entirely different from the first "Cycads of Africa." If anything, I think it is a "must have" for anyone seriously interested in cycads as well as the native and endangered flora of Africa. A small error in the volume is that the order of listings in the contents and index pages are identical - neither one is alphabetical, but instead is sequential. The larger mistake made by Mr. Goode was using the same title for this book as he did for the 1989 book. Those who buy this incarnation won't realize that they also MUST possess a copy of the previous "Cycads of Africa," now unfortunately out of print and excruciatingly expensive (if you can even find a copy!). Whether or not you own the previous book, though, the new volume will give you a thrilling vicarious experience in the wilds of Africa looking at these incredible plants sans the cost of an airplane ticket and today's dangers and inconveniences of travel. For a mere pittance you can drool over photographic plate after plate of some of Africa's stateliest plants - but make sure you don't ruin your book - it is certain to become tomorrow's collector's item!

Bart Schutzman







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