

# ENCEPHALARTOS

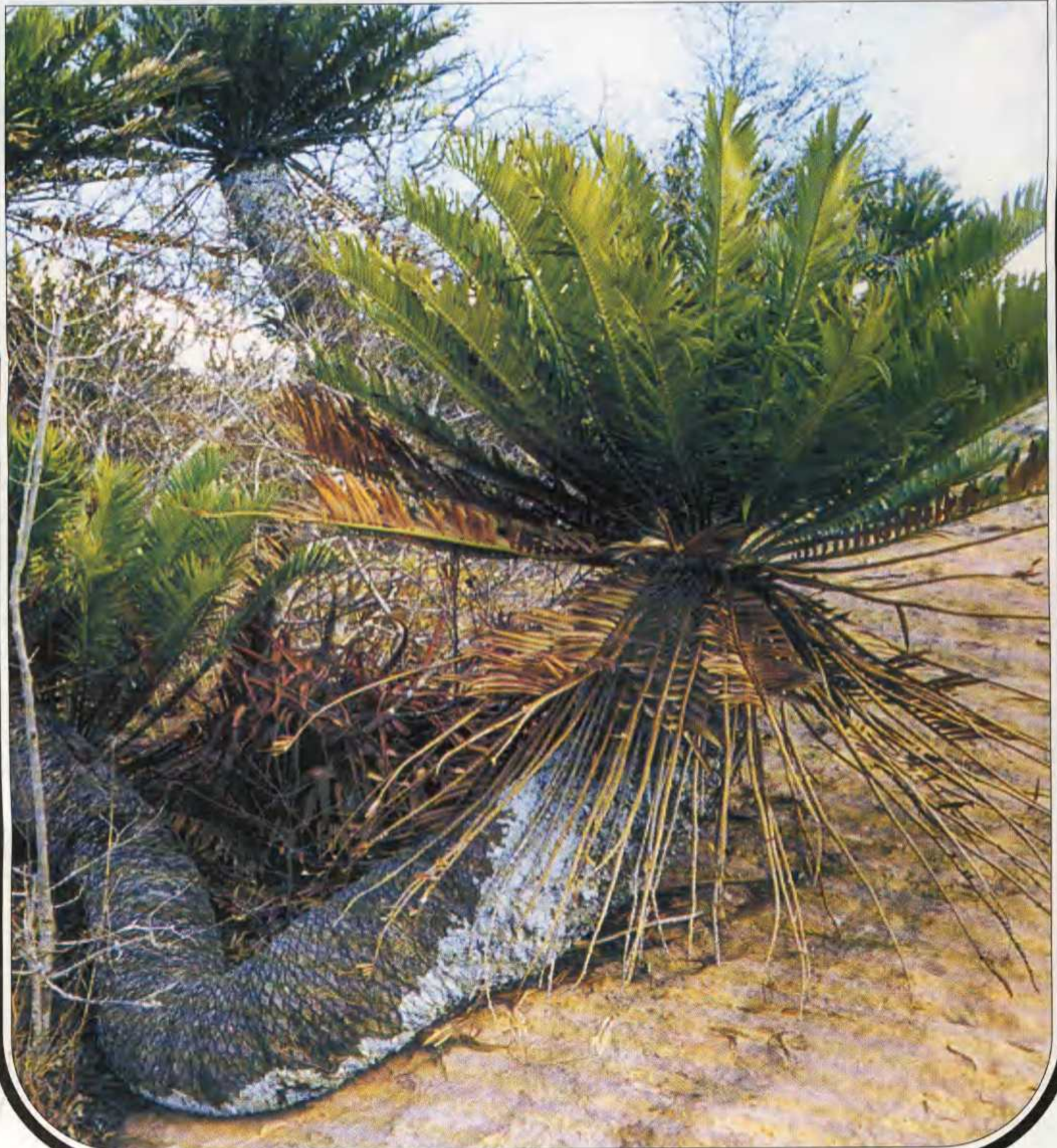
JOURNAL OF THE  
CYCAD SOCIETY OF  
SOUTH AFRICA

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BROODBOOM VERENIGING  
VAN SUID-AFRIKA

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Wanneer u van adres verander, laat weet asseblief die Sekretaris-tesourier.

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**COVER / VOORBLAD :** *Encephalartos lebomboensis*: on the Lebombo Mountains at Mananga, Mpumalanga, South Africa, a specimen with an interesting stem growing along the rock / op die Lebomboberge by Mananga, Mpumalanga, Suid-Afrika, 'n interessante eksemplaar waarvan die stam op die rotsplaat lê.

Photo / Foto: Alice de Beer

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## FROM THE PRESIDENT



## VAN DIE PRESIDENT

*ENCEPHALARTOS* is a newsletter rather than a periodical. It belongs to you, the members of the Society; and it is about what we do, what we would like to know, our successes, and our anguishes. For that reason I have always resisted suggestions that we should make it a full-colour magazine sold on newsstands. As it is, much of the contents of *ENCEPHALARTOS* is personal to our Society.

Because the Society and *ENCEPHALARTOS* belongs to YOU, you should always feel free to make a contribution or ask a question. If you make a statement, some of us may disagree with you, but we will never laugh at you. One of the best ways to generate knowledge, is to make a controversial statement, because it will stimulate others to expand on your statement or refute it.

We grow cycads because they beautify our surroundings, but the process is not always easy. The gardens of some members are indescribably beautiful, while those of other members are ... well ... "under construction". The idea is to get ideas and learn from each other. In this issue I continue my series on growing cycads in Stellenbosch with a story about hybrids, and I expect strong reactions (hopefully including some support) from members. Also in this issue is an article about Ian Turner's recent housemoving in Zimbabwe. Ian is a very old member, and a very serious collector having one of the most valuable and comprehensive cycad collections in the world. As happened to so many people in Zimbabwe, Ian lost the farm on which he grew up, and in the space of three months had to find another place to stay and move his collection there. He has promised to send us more news on how his plants perform at their new home.

The present Council's term of office expires at the end of 2003. Some of the council members, including the Editor and the President, have been serving for lengthy periods, and would like to step down in order to give others the opportunity to serve their Society, and to attend to their own cycads. Elsewhere in this issue is a call for nominations for the new Council. Please take this seriously by volunteering as candidates or by nominating other suitable persons. Especially the position of Editor to *ENCEPHALARTOS* is of critical importance to our Society.

**Piet Vorster**

*ENCEPHALARTOS* is 'n nuusbrieff eerder as 'n tydskrif. Dit behoort aan u, die lede van die Vereniging; en dit handel oor wat ons doen, wat ons graag wil weet, ons suksesse, en ons vrese. Om daardie rede het ek nog altyd voorstelle teengestaan dat ons dit 'n volkleur-tydskrif moet maak wat by nuusagentskappe verkoop word. Soos dit is, is baie van die inhoud van *ENCEPHALARTOS* persoonlik vir ons Vereniging.

Omdat die Vereniging en *ENCEPHALARTOS* aan U behoort, moet u altyd die vrymoedigheid hê om 'n bydrae te stuur of 'n vraag te vra. As u 'n stelling maak, mag sommiges van ons van u verskil, maar ons sal nooit vir u lag nie. Een van die beste maniere om kennis op te wek is om 'n omstrede stelling te maak, omdat dit andere sal aanmoedig om op u stelling uit te brei of om dit te betwis.

Ons hou broodbome aan omdat hulle ons omgewings verfraai, maar dit is nie altyd 'n maklike proses nie. Party lede se tuine is onbeskryflik mooi, terwyl die van andere ... wel ... "in aanbou" is. Die idee is om idees te kry en van mekaar te leer. In hierdie uitgawe vervolg ek met my reeks oor hoe ons broodbome in Stellenbosch vaar met 'n storie oor basters (kruisings), en ek verwag skerp reaksies (waarvan sommiges hopelik positief sal wees) van lede. Ook in hierdie uitgawe is 'n artikel oor Ian Turner se onlangse verhuising in Zimbabwe. Ian is 'n baie ou lid, asook 'n baie ernstige versamelaar wat een van die waardevolste en omvattendste broodboom-versamelings in die wêreld besit. Soos wat gebeur het met soveel mense in Zimbabwe, het Ian die plaas verloor waarop hy grootgeword het, en binne bestek van drie maande moes hy 'n ander eiendom vind waarheen hy met sy plante kon trek. Hy het belowe om vir ons meer nuus te stuur oor hoe sy plante reageer op hulle nuwe tuiste.

Die huidige Raad se dienstermyne verstryk aan die einde van 2003. Party van die raadslede, insluitende die Redaktrise en President, dien reeds jare lank, en sou graag nou wou uittree ten einde vir andere die geleentheid te gee om hulle Vereniging te dien, en om aandag te gee aan hulle eie broodbome. Elders in hierdie uitgawe is daar 'n oproep om nominasies vir die nuwe Raad. Neem dit asb. ernstig op deur u self beskikbaar te stel as kandidate, of deur ander geskikte persone te nomineer. Veral die posisie van Redakteur van *ENCEPHALARTOS* is van die grootste belang vir die Vereniging.

**Piet Vorster**

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## FROM COUNCIL / VAN DIE RAAD

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### NOMINATIONS FOR NEW COUNCIL MEMBERS NOMINASIES VIR NUWE RAADSLEDE

The present Council's term of office expires at the end of 2003. The present editor of *ENCEPHALARTOS*, Isabella Claassen, announced that she will not be available as editor because of reasons of health. We invite members to submit (to the present president) nominations for Council members (President, Secretary-treasurer, Editor, Accountant & Auditor, and Electronic Services) for the next two year term, not later than 8 July 2003 (so that we can publish the particulars of the new editor in the September issue). Each nomination must be signed by the nominee to confirm his/her acceptance of the nomination. [It is essential that the new Editor should have a thorough knowledge of the computer program MSWord.]

Die huidige Raad se dienstermyn verstryk aan die einde van 2003. Die huidige redakteur van *ENCEPHALARTOS*, Isabella Claassen, het te kenne gegee dat sy weens gesondheidsredes nie meer as redakteur beskikbaar sal wees nie. Ons versoek lede om nominasies in te stuur (aan die huidige president) vir Raadslede (President, Sekretaris-tesourier, Redakteur, Rekenmeester & Ouditeur, en Elektroniese Dienste), voor 8 Julie 2003 (sodat ons die besonderhede van die nuwe Redakteur in die September-uitgawe kan publiseer). Elke nominasie moet deur die genomineerde onderteken word om sy/haar aanvaarding daarvan te bevestig. [Dit is noodsaaklik dat die nuwe Redakteur 'n deeglike kennis van die rekenaarprogram MSWord moet hê.]

### BACK COPIES OF OUR JOURNAL / VORIGE UITGAWES VAN ONS TYDSKRIF

New members receive all issues of magazine for current year. Back copies of magazine available from **Guillaume Theron, P.O. Box 1790, 0027 Groenkloof, South Africa** at **R26** (with colour) or **R15** (black and white) per copy locally to members, and **R32** (with colour) or **R20** (black and white) to non-members; and **R60, US\$9 and A\$16** (with colour) or **R50, US\$7 and A\$13** (black and white) a copy to foreign members and **R75, US\$11 and A\$20** (with colour) or **R55, US\$8 and A\$14** (black and white) to foreign non-members (airmail delivery); and **R48, US\$7 and A\$13** (with colour) or **R39, US\$6 and A\$10** (black and white) a copy to foreign members and **R54, US\$8 and A\$14** (with colour) or **R50, US\$7 and A\$13** (black and white) to foreign non-members (surface mail delivery).

Nuwe lede ontvang 'n eksemplaar van al die uitgawes van die tydskrif "*Encephalartos*" wat kwartaalliks verskyn vir die jaar waarin hulle aansluit. Vorige uitgawes van die tydskrif kan afsonderlik bestel word van **Guillaume Theron, Posbus 1790, 0027 Groenkloof (Pretoria) [Suid-Afrika]** teen **R26** (met kleur) of **R15** (swart en wit) per eksemplaar vir lede, en **R32** (met kleur) of **R20** (swart en wit) vir nie-lede.

### PROBLEME WAT DIE SEKRETARIS-TESOURIER MET PLAASLIKE LEDE ONDERVIND

[As this communication is only applicable to local members I wrote it in Afrikaans without a summary in English. – Editor.]

Saam met die September-uitgawe van *ENCEPHALARTOS* ontvang elke lid 'n losblad kennisgewing vir die hernuwing van lidmaatskap vir die volgende jaar, waarin u versoek

word om u ledegeld voor die einde van Desember te betaal. Van u word verwag om daardie vorm saam met u ledegeld terug te stuur aangesien veral u lidnommer belangrik is vir

kontrole doeleindes.

Probleme: (1) Slegs 'n tjek in 'n koevert word gestuur; (2) daar word selfs tjeks van ander persone (nie-lede) in 'n koevert gestuur sonder enige verduideliking (veronderstel bv. u van is Lovatt maar u stuur slegs 'n tjek wat deur ene Goosen onderteken is, hoe verwag u dat die asekretaris-tesourier moet weet wie u is?); (3) tjeks word ontvang wat nie onderteken is nie; (4) tjeks word ontvang waarop veranderings aangebring is en geen Bank aanvaar meer sulke tjeks nie; (5) tjeks word ontvang wat aan Guillaume Theron (die Sekretaris-tesourier) persoonlik uitgemaak is en nie aan die "Broodboom Vereniging van Suid-Afrika" nie; (6) tjeks word ontvang waarop die geldbedrag in syfers van dié in woorde verskil. Al hierdie onbedagsaamhede veroorsaak onnodige moeite vir die Sekretaris-tesourier en onnodige onkoste vir die Broodboom Vereniging.

Voorin *ENCEPHALARTOS* op die vorm van "Nuwe Lidmaatskap Aansoek" sal u sien dat die rekeningnommer en bankbesonderhede van die "Broodboom Vereniging van Suid-Afrika" nou bygevoeg is vir die gerief van lede wat ledegeld direk by die Bank of Elektronies wil inbetaal. Op die inbetalingstrokie **moet die lid se naam sowel as lidmaatskapnommer** in die "Deponeerder se verwysings-besonderhede"-blokkie ingevul word sodat dit op die bankstaat kan verskyn. Hierdie besonderhede moet ook by elektroniese inbetalings verskyn. Onthou asb. om die **bewys van inbetaling** te faks na (012) 347 7807.

Konsiderasie teenoor ander mense en gehoor gee aan instruksies kos niks. Onthou asseblief dat die Raadslede geen vergoeding vir hul moeite en verdriet ontvang nie.

## RE: CONTRIBUTIONS FOR PUBLICATION

Please see "Instructions to Authors" in the back of this journal.

All illustrations in electronic format **must be sent** by E-mail **directly to Dr. Piet Vorster** at [pjvor@sun.ac.za](mailto:pjvor@sun.ac.za) (marked "For ENCEPHALARTOS"). The printers at the University of Stellenbosch then supply print-outs of all the illustrations which Piet Vorster send to the editor. **Please do not send illustrations in electronic format to the Secretary-treasurer.** You can send a **computer disk containing such illustrations directly to the editor**, accompanied by a computer print-out of the illustrations because the editor cannot open the files with the equipment at her disposal. If your print-out shows the illustrations in

monochrome, please indicate whether they are only in black and white or in colour.

To local authors: Please note that every contribution should have a heading and that all the illustrations/photographs should have a legend. Please number your photos on the reverse side and write a legend for each of them. It is very frustrating for the editor to **invent** legends (especially for photographs taken in gardens showing several cycad species which she is not always able to identify). Please indicate in your article/letter where you would prefer each illustration/photograph to appear.

## RE: *ENCEPHALARTOS* NO. 72, DECEMBER 2002

I was very disappointed when I received my copy of this issue. Apparently some misunderstanding occurred at the Stellenbosch side of the production line: (1) Morné Ferreira's photographs of *Encephalartos lebomboensis* on p. 29 and the photographs of "Cycads stolen in Fairchild Tropical Garden" on p. 30 should have been printed in colour; and (2) Ian Watt ("Cycad ecotour of Mexico", p. 10-14) sent all his photographs in electronic format but unfortunately the computer print-out versions of the

photographs which Piet Vorster sent to me were used to print them in our journal, resulting in rather blurred reproductions. This does not do credit to Ian Watt as a photographer. The photos on the computer print-out looked fine to me, and his black and white photographs in previous communications (see *Encephalartos* 59, September 1999, p. 12-14, Figures 1-4, and p. 28-29, Figures 1-4) were of excellent quality. - **Editor.**

## DONATIONS RECEIVED / DONASIES ONTVANG

5 JANUARY/JANUARIE 2002 TO/TOT 10 JANUARY/JANUARIE 2003

**THE FOLLOWING DONATIONS TO THE CYCAD SOCIETY OF SOUTH AFRICA  
(AS WELL AS UNLISTED DONATIONS BY FOREIGN MEMBERS)  
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1002	Janse van Rensburg, J.M.	14.00	2186	Scribante, J.C.E.	4.00
2388	Johannes, T.A.	14.00	2407	Scribante, L.F.	89.00
2501	Johannesburg Bot. Garden Foundation	17.00	2572	Smit, A.M.M.	17.00
2816	Jonker, C. v. N.	44.00	2399	Smit, C.A.	14.00
2485	Jordaan, J.A.	4.00	2378	Smook, Gustav	194.00
0146	Jordaan, Sakkie & Anna	17.00	2120	Snyman, A.D.	24.00
1462	Kable, Aubrey	44.00	2249	Sole, Terry	4.00
1134	Kirton, D.L.	24.00	2401	Sopp, Willie	20.00
1812	Kriel, W.J.	14.00	2740	Stander, Hennie	48.00
2311	Kruger, Johan	44.00	2687	Stebbing, Marina	24.00
1140	Kruger, S.R.	14.00	0911	Steenkamp, K.	24.00
2569	Kuesno, S.	30.00	2830	Steenkamp, L.P. & E.	44.00
1672	Kuschke, M.M.	94.00	2484	Stoltz, Danie H.	14.00
2392	Lemmens, D.R.	24.00	2761	Stoltz, Willie	28.00
2743	Liebenberg, Kallie	88.00	2210	Struyf, W.	38.00
1927	Liltved, William R.	55.00	2715	Sutherland, Andrew C.	20.00
0159	Loubser, J.D.	94.00	0139	Swanepoel, Johan	14.00
2219	Lourens, A.J.	94.00	0651	Swart, M.L.	100.00
2840	Louw, Daan J.	14.00	1981	Trollip, S.K.W.	500.00
2831	Malan, P.F.	78.00	2237	Udemans, Willie L.	44.00
2069	Manga, Vasan	50.00	2838	Van den Heever, J.L.	14.00
2376	Marais, D.D.	4.00	1969	Van de Pest, P.	20.00
2203	Maritz, H.P.	44.00	1283	Van der Merwe, C.H.	44.00
2564	Mattheys, H.H.	44.00	2835	Van der Merwe, C.S.	94.00
0205	Meyer, Corrie	4.00	0490	Van der Merwe, W.	4.00
2150	Minnaar, D. & L.	94.00	2181	Van der Walt, A.J.	24.00
0006	Minnie, O.J.	14.00	0038	Van der Walt, Ita	44.00
2585	Mitchell, James & Thea	44.00	2705	Van der Walt, I.H.	17.00
2765	Mooinooi Kwekery	14.00	2724	Van der Westhuizen, C.	44.00
0489	Morris, Steven F.	8.00	2590	Van der Westhuizen, P.D.	50.00
2086	Mostert, P.J.	14.00	2728	Van Duyker, Paul S.	188.00
1218	Muller, D.	200.00	2471	Van Eeden, B.W.	14.00
2550	Muller, P.W.J. & C.J.	50.00	2297	Van Geems, Jaco	14.00
1722	Muller, T.I.	14.00	2827	Van Huysteen, J.	94.00
2304	Myburgh, J.G.	17.00	2711	Van Jaarsveld, Jarrie & Magda	38.00
2220	Naude, L.J.	14.00	2105	Van Jaarsveld, W.J.	44.00
1423	Nel, J.J.G.	10.00	2240	Van Rensburg, P.F.J.	8.00
1194	Niemand, H. & D.	14.00	2470	Van Rooyen, A.L.	144.00
2832	Olivier, Trevor	94.00	1924	Van Rooyen, H.C.	4.00
0024	Pienaar, L.G.	15.00	2644	Van Vuuren, W.A.	24.00
1323	Pieterse, Frans	14.00	2751	Van Wyk, J.	44.00
2808	Pieterse, Gert	24.00	2610	Van Wyk, N.R.	14.00
2817	Potgieter, Yana	194.00	2604	Van Zyl, Daan	24.00
2409	Pretorius, J.J.	94.00	2601	Van Zyl, P.C.	44.00
1581	Prinsloo, J.J.	14.00	2772	Van Zyl, P.E.	14.00
1112	Rautenbach, M.J.	33.00	2060	Veldkamp, J.A.	44.00
1197	Reinach, Norman	14.00	0681	Venter, F.F.C.	94.00
2623	Reyneke, D.J.	94.00	1033	Vice, A.R.	144.00
0759	Ridge, Bruce	20.00	1949	Viljoen, Norman	14.00
2696	Roeloffze, W.A.	89.00	2786	Viviers, Martie & Bosch, Alta- Marie	44.00
2756	Roos, G.L.	248.00	2822	Von Below, Anton	44.00
2005	Roos, P.B.	44.00	2600	Vorster, A.D.	40.00
0973	Rossouw, N.B.	34.00	2842	Vorster, Jean	44.00
0415	Rudman, R.R.	24.00	0847	Walters, J.W.	94.00
1446	Schmid, Ralf	25.00	0448	Wessels, F.H.	44.00

Number Nommer	NAME / NAAM	Amount Bedrag	Number Nommer	NAME / NAAM	Amount Bedrag
0696 0008	Westermeyer, L.G. Wohlberg, H. Edgar	R 44.00 44.00	2736	Wolmarans, C.H.	R 4.00
<b>Total / Totaal</b>					<b>R 9180.40</b>

## CYCAD SOCIETY OF SOUTH AFRICA / BROODBOOM VERENIGING VAN SUID-AFRIKA

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2808	PIETERSE, Mnr Gert	Genl Bothaweg 32, ERMELO, 2350
2809	CAMERON, Mr Barry	P O Box 30156, NAIROBI, GPO 00100, KENYA
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2814	MALAN, Mnr G M	Posbus 40825, Veld & Vlei, RICHARDS BAY, 3900
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2826	DU PLESSIS, Mnr L M	Posbus 3388, MONTANAPARK, 0159
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2828	DI RAGO, Mrs L	Private Bag 10015, SANDTON, 2146
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2830	STEENKAMP, Dr Lucas P & Me Estelle	321 Sadie Street, LYNNWOOD PARK, 0081
2831	MALAN, Mr P F	34 Melsetter Rd, LOVEMORE HEIGHTS, Port Elizabeth, 6070
2832	OLIVIER, Trevor	36 Hillbrow Rd, UMGENI PARK, Durban, 4051
2833	COETZER, Prof I A	Dept Educational Studies, P O Box 392, UNISA, 0003
2834	JACKSON, Dr A G M	188 a Pine Street, ARCADIA, 0083
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2836	SIMPSON, D S	8 Sterkrivier Street, NORKEM PARK, 1618
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2838	VAN DEN HEEVER, Mr J L	P O Box 7262, WELTEVREDEN PARK, 1715
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2844	GREENWAY, Neill	P O Box 2806, PINETOWN, 3600
2845	DU PLESSIS, Mnr Shane	Posbus 3305, DURBANVILLE, 7551
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2848	MYBURGH, Mnr M J	Posbus 100, RANDPARKRIDGE, 2156
2849	NIEUWOUDT, Mnr Chris L	Posbus 3388, PAARL, 7620
2850	WILSON, Sharon	29 Milkwood Circuit, KARAMA, N.T. 0812, AUSTRALIA

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Fax: 033 845 1748  
Cell: 082 898 5364  
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[To all Provincial Nature Conservation Agencies: Are your particulars correct? Please check whether your officials' names, addresses, phone numbers, and E-mail addresses are correctly cited. If not, please notify me. Thank you. (I received a rather indistinct fax copy). – Editor.]

## **JODY HAYNES JOINS MONTGOMERY BOTANICAL CENTER**



Jody Haynes joined the Montgomery Botanical Center (MBC) as the Cycad Biologist on January 6, 2003. Jody earned a Bachelor of Science degree in biological sciences from the University of Nebraska in 1989 and a Master of Science degree in biology from the University of New Orleans in 1992. His broad-ranging experience includes seven years of scientific research in molecular and evolutionary biology and systematics, and 14 years teaching a variety of biological sub-disciplines at the college and university level. He has led scientific collecting expeditions, developed a network of international cooperative relationships in the botanical arena, and currently serves as Secretary on the Board of Directors of The Cycad Society. Jody is also Webmaster for the Palm & Cycad Societies of Florida, whose site, [www.plantapalm.com](http://www.plantapalm.com), includes the world-renowned *Virtual Palm Encyclopedia* and *Virtual Cycad Encyclopedia*.

As MBC's Cycad Biologist, Jody will direct the development and expansion of the cycad collection—with the ultimate goal of enhancing the scientific, education, and conservation value and usefulness of MBC's cycad collection and the associated database. His tasks will include planning and undertaking

collecting expeditions, writing scientific and popular articles on cycads, hosting visiting cycad researcher at MBC, and providing support to the IUCN Cycad Specialist Group in a professional capacity. Finally, Jody will promote Montgomery's cycad collection, and its usage, to societies, organizations, and individuals involved or

associated with cycad conservation, research, and education. Jody can be reached by e-mail at jodyhaynes@bellsouth.net, by phone at +01-305-667-3800 x27, or by regular mail at Montgomery Botanical Center, 11901 Old Cutler Road, Miami, Florida 33156-4242 USA.

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## SHORT COMMUNICATIONS AND ARTICLES KORT MEDEDELINGS EN ARTIKELS

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### NEWS FROM THE LOWVELD BRANCH OF THE CYCAD SOCIETY OF SOUTH AFRICA.

**Alice de Beer**

P.O. Box 1107, 1240 White River, R.S.A.

*Received 9 October 2002*

#### REPORT ON RECENT ACTIVITIES:

#### **ENCEPHALARTOS LEBOMBOENSIS EXCURSION**

The Lowveld Branch of the Cycad Society recently held their annual field trip. It was decided to re-visit the *Encephalartos lebomboensis* on the Lebombo Mountains at Mananga as last year only four people made it to the top of the mountain due to the conditions and time allowed for the walk. This year we allowed the whole day for the walk. This ensured that everyone could go at their own pace. Sixteen nature lovers completed the walk and only one person had to turn back.

The privilege to view the *E. lebomboensis* was once again made possible by the help and assistance of Mr Gerhard Strydom from the Mpumalanga Nature Conservation. He also arranged a guide for us. The guide had a good knowledge of the mountain and showed us many new areas which we did not see last year.

The sight of the *E. lebomboensis* in their natural habitat was breathtaking (Front cover, Colour Figures 1–6). One of the unusual sightings observed was a mature cycad which may have been damaged by either fire or "Muthi-men". The stem had virtually snapped and was now growing horizontally. Surprisingly, it seemed to maintain a healthy growth rate with a minimum of seven heads (Colour Figure 1).

Another example of the resilience shown by one particular cycad was the survival after extreme damage illustrated in Colour Figure 2. The original stem was barely connected to the base/root of the cycad but it had managed to support two stems.

This remains a healthy population of cycads, but even with all the protection measures and controls in place, there is still apparent pressure on the colony. The main pressure at the moment appears to be from cycads being damaged for medicinal uses and vandalism by herdboys.

This particular walk was not only unique for cycad lovers, but also for other groups sharing an interest in a large variety of indigenous flora. We were accompanied by Mr Troos van der Merwe who pointed out many interesting and sometimes rare species of flora, such as *Acacia natalia*, *Bersama lucens* (Glossy white ash), *Ficus natalensis* (Natal fig), *Strychnos usambarensis* (Blue bitterberry), *Cussonia natalensis* (Rock cabbage tree), *Aloe spicata* (Lebombo aloe), *Aloe arborescens* (Krantz aloe), *Xerophyta retinervis*, *Combretum woodii*, *Ficus sur* (Broom cluster fig), *Tetradenia riparia* (Iboza or Misty plume bush), *Euphorbia tirucalli* (Rubber euphorbia), *Acocanthera schimperi* var. *rotundata* (Round-leaved poison-bush), *Maerua rosmarinoides* (Needle-leaved bush-cherry), *Erythrina lysistemon* (Common coral tree), Orchids – *Polystachya transvaalensis*, *Cyrtorchis arcuata* and *Ansellia africana* (Leopard orchid). The combination of rock pools, flora and endless views over the Lowveld made this a very interesting and beautiful outing.

Although the walk was tough, everyone said it was well worth the discomfort of "jittery and sore muscles". The annual walks have proved to be a great success with good participation from old and new members.

[See advertisement in the back of this issue in which the Lowveld Branch invites the public to participate in an intended excursion (walk) to Mananga. - **Editor.**]



Colour Figure 1 Alice de Beer sitting next to a damaged *Encephalartos lebomboensis* with a crown of seven heads. Photo: Charles de Beer.



Colour Figure 4 View of mature *E. lebomboensis* looking over the Lowveld. Photo: Alice de Beer.



Colour Figure 2 Damaged *E. lebomboensis* with two stems. Photo: Alice de Beer.



Colour Figure 5 Group of *E. lebomboensis*. The second cycad from the left has had a piece of the stem cut out for "muthi" purposes. Photo: Alice de Beer.



Colour Figure 3 Rock pool and *E. lebomboensis* on top of the mountain. Photo: Alice de Beer.



Colour Figure 6 *E. lebomboensis* growing on a rocky outcrop.



Colour Figure 7 *Encephalartos horridus* x *Encephalartos longifolius*: a natural hybrid. Photo: Piet Vorster.



Colour Figure 8 *Encephalartos horridus* x *Encephalartos longifolius*: leaf detail. Photo: Piet Vorster.



Colour Figure 9 *Encephalartos trispinosus* x *Encephalartos altensteinii*: a particularly nice specimen. Photo: Piet Vorster.



Colour Figure 10 *Encephalartos trispinosus* x *Encephalartos altensteinii*: leaf detail. Photo: Piet Vorster.



Colour Figure 11 *Encephalartos umbeluziensis* x *Encephalartos lehmanii*. Photo: Piet Vorster.



Colour Figure 12 *Encephalartos cerinus*  
Photo: Piet Vorster.



Colour Figure 13 *Encephalartos transvenosus* x *Encephalartos woodii*: leaf detail. Photo: Piet Vorster.

## GROWING CYCADS AT 34° S (3)

Piet Vorster

Botany Department, University of Stellenbosch, Private Bag X1, 7602 MATIELAND

Received 14 January 2003

In the last issue we looked at how species of *Encephalartos* fare here near the southern tip of Africa. Let us look at some more unusual plants.

"Is that vigorous and profusely suckering plant (Colour Figure 11) *Encephalartos cerinus*?" No, in spite of its looks it is not. It is one of those improbable hybrids between *Encephalartos umbeluziensis* and *Encephalartos lehmannii* made by Isabella Claassen, and given to us as a small seedling in 1980. It is really a very striking, grateful, and pleasing plant, expanding its territory year by year. [I would like to add that, at that time, when my female *E. umbeluziensis* coned I only had *E. lehmannii* pollen at my disposal. – Editor.]

"Does real *Encephalartos cerinus* grow here?" Yes, for us it is a very strong grower. That plant (Colour Figure 12) was grown from one of the first seeds which became available soon after the discovery of the species. It produced its first cone, a female, this year. We grow ours in full sunlight, where it thrives. So far it has not suckered.

"Shame on you for growing such a monstrosity as that hybrid. Really you are messing up nature". Not quite. This garden is not a natural ecosystem, but a highly artificial place which is carefully managed and maintained through human intervention. It can not continue on its own. If we all just grow the available wild species, it becomes rather boring because in the end we all have just the same species, and the only way to one-up your neighbour is to poach or purchase at vast expense a bigger plant; or invent some novel treatment to make your plants look better. By hybridising, you have the opportunity of creating for yourself unique plants which no-one else has, and some of these hybrids can be very striking and beautiful indeed, not to say interesting. It is also true that some, but not all, hybrids are unusually vigorous, dramatically cutting the time from seedling to mature plant. Finally, keep in mind that a garden is not a nature reserve, and can never be. We grow these plants to brighten up our lives, and for conducting various experiments. Certainly no garden plants should find their way back to nature, a point about which I feel very strongly. Do write in if you disagree.

"Show me how you have messed up nature!" We do have several other natural or artificial hybrids in the garden, but none of them are particularly vigorous. For them "hybrid vigour" doesn't apply; in fact, some of them are slower growing than their parents. An exception is the *Encephalartos natalensis* x *Encephalartos woodii* hybrids which we have already seen, and which are really very vigorous by any standard. Let me tell you about some of these hybrids. Unfortunately most of them grow in

situations where they are difficult to photograph.

This one is a natural hybrid of *Encephalartos horridus* and *Encephalartos longifolius*, from a site where the two parent species used to come into contact. It is marginally larger than *Encephalartos horridus*, with attractive soapy green leaves but otherwise looks like *Encephalartos horridus* (Colour Figures 7 & 8).

This here plant (Colour Figures 9 & 10) is an artificial hybrid between *Encephalartos trispinosus* and *Encephalartos altensteinii*. It is a particularly fine specimen, looking like a very nice *Encephalartos trispinosus* but with the bright green colour of *Encephalartos altensteinii*. You would know that this hybrid combination also occurs in nature, and I am sure that this is the explanation of the so-called green *Encephalartos trispinosus*. Interestingly, plants with this appearance are rare. We have another one, created by Isabella Claassen, which really does look like an intermediate between the parents; and those of you familiar with the natural hybrids in Kirstenbosch would know that they are quite different: large plants with laxly spaced leaflets longer and broader than either parent, and with the teeth on the leaflets not particularly large. Isabella also bred a hybrid between *Encephalartos senticosus* and *Encephalartos trispinosus*.

Another interesting, but not particularly showy hybrid, is *Encephalartos trispinosus* x *Encephalartos villosus*, more or less intermediate in size with straight and dull grey foliage without teeth, and an emergent stem.

*Encephalartos trispinosus* x *Encephalartos ferox* is interesting because it involves one of the very few successful hybrids involving *Encephalartos ferox*. Its has very much crowded leaflets of a dark green colour like *Encephalartos ferox*, with numerous smallish teeth.

Particularly interesting is a hybrid made between *Encephalartos umbeluziensis* and *Encephalartos villosus*, which is intermediate between the parents.

A hybrid for which I have high hope, is *Encephalartos transvenosus* x *Encephalartos woodii*. It is particularly vigorous, has the lovely bright green and glossy foliage of *Encephalartos woodii*, and especially the lower leaflets are very broad and look just like those of *Encephalartos woodii* (Colour Figure 13).

One of the most beautiful hybrids in this garden is *Encephalartos natalensis* x *Encephalartos arenarius*, made again by the tireless Isabella Claassen. The leaf colour is dark green, more or less intermediate between the parents,

and in shape and dentation the leaflets are also intermediate. Because of the beauty of this plant, a future ambition is to hybridise *Encephalartos arenarius* with *Encephalartos transvenosus*, firstly to try and get the bright green and glossy colour of *Encephalartos transvenosus*, and secondly because the wide and overlapping leaflets of *Encephalartos transvenosus* may give a plant not unlike a hybrid between *Encephalartos latifrons* and *Encephalartos altensteinii* of which a few natural examples are known, but probably even nicer. Amongst the most improbable hybrids, we have crosses between *Encephalartos transvenosus* and *Encephalartos horridus*, using both species as female parent. This hybrid was made hoping to get either an *Encephalartos transvenosus*-sized plant with blue foliage looking like *Encephalartos horridus*, or an *Encephalartos horridus*-like plant with green leaves. We found that, in this case, the identity of the female parent made no difference to the result. What we did get, were a few dwarf, very compact plants amongst the others. These are rather slow-growing and it is impossible to predict how they will look eventually, but my guess is that we will have a compact dwarf with wide, *Encephalartos transvenosus*-like leaflets of a dark dull green colour. The others are still immature and I cannot predict their eventual size, except

to say that they will definitely be larger than *Encephalartos horridus*. The leaflets are (disappointingly) widely spaced, dull dark green rather than bright green, with huge teeth but as yet not as big as in *Encephalartos horridus* or as the natural hybrid *Encephalartos horridus* x *Encephalartos longifolius* led us to expect. This may sound uninteresting, but in fact this plant has a very arresting appearance and will certainly provide welcome contrast in the garden.

"Have you crossed *Encephalartos ferox* with *Encephalartos arenarius*?" No. We tried more than once, using both species as female parent, but so far without success. *Encephalartos ferox*, like *Encephalartos inopinus*, does not readily hybridise with any other species. I may mention that in the nursery I have a young hybrid, not made by myself, of *Encephalartos ferox* x the "false *Encephalartos woodii*". My example is not vigorous at all, but has fairly wide and bright green leaflets with an amazing number of small teeth on both margins.

I see some visitors wandering off, obviously purists who are not interested in hybrids. In the next issue we can look at how some plants in other genera fare so far south.

(to be continued)

## CYCADS OF THE WORLD FOR THE LAYMAN

Leon Pienaar<sup>1</sup> and Pieter Janse van Rensburg

<sup>1</sup>626 Jan Visse Avenue, 0084 Roseville, South Africa

Received 24 January 2003

### *Bowenia*

1. *B. serrulata* [Queensland, Australia]
2. *B. spectabilis* [Queensland, Australia]

### *Ceratozamia*

1. *C. alvarezii* [Chiapas, Mexico]
2. *C. euryphyllidia* [Oaxaca and Veracruz, Mexico]
3. *C. hildae* [San Luis Potosi and Queretaro, Mexico]
4. *C. kuesteriana* [Tamaulipas, Mexico]
5. *C. latifolia* [San Luis Potosi, Queretaro and Hidalgo, Mexico]
6. *C. matudae* [Chiapas, Mexico]
7. *C. mexicana* [Hidalgo, Puebla, San Luis Potosi and Veracruz, Mexico]
8. *C. microstrobila* [San Luis Potosi, Mexico]
9. *C. miqueliana* [Chiapas and Veracruz, Mexico]
10. *C. mirandae* [Mexico]
11. *C. mixeorum* [Oaxaca, Mexico]
12. *C. morettii* [Veracruz, Mexico]
13. *C. norstogii* [Chiapas, Mexico]
14. *C. robusta* [Oaxaca and Veracruz, Mexico; Belize and Guatemala]
15. *C. sabatoii* [Hidalgo and Queretaro, Mexico]
16. *C. whitelockiana* [Oaxaca, Mexico]
17. *C. zaragozae* [San Luis Potosi, Mexico]

18. *C. zoquensi* [Chiapas, Mexico]

### *Chigua*

1. *C. bernalii* [Colombia]
2. *C. restrepoi* [Colombia]

### *Cycas*

1. *C. aculeata* [Vietnam]
2. *C. angulata* [Northern Territory, Australia]
3. *C. apoa* [New Guinea; Indonesia]
4. *C. arenicola* [Northern Territory, Australia]
5. *C. armstrongii* [Northern Territory, Australia]
6. *C. arnhemica* subsp. *arnhemica* [Northern Territory, Australia]
7. *C. arnhemica* subsp. *muninga* [Northern Territory, Australia]
8. *C. arnhemica* subsp. *natja* [Northern Territory, Australia]
9. *C. badensis* [Queensland, Australia]
10. *C. balansae* [Vietnam; China]
11. *C. basaltica* [Western Australia]
12. *C. beddomei* [India]
13. *C. bifida* [China and Vietnam]
14. *C. bougainvilleana* [New Britain; Solomon Islands]
15. *C. brachycantha* [Vietnam; Laos; Thailand and China]

16. *C. brunnea* [Northern Territory and Queensland, Australia]
  17. *C. cairnsiana* [Queensland, Australia]
  18. *C. calcicola* [Northern Territory, Australia]
  19. *C. campestris* [Papua New Guinea]
  20. *C. canalis* subsp. *canalis* [Northern Territory, Australia]
  21. *C. canalis* subsp. *carinata* [Northern Territory, Australia]
  22. *C. chamaoensis* [Thailand]
  23. *C. chamberlainii* [Philippines]
  24. *C. changjiangensis* [China and Vietnam]
  25. *C. chevalieri* [Vietnam]
  26. *C. circinalis* var. *circinalis* [South India]
  27. *C. circinalis* var. *swamyii* [India, Hassan district of Karnataka]
  28. *C. clivicola* subsp. *clivicola* [Thailand]
  29. *C. clivicola* subsp. *lutea* [Thailand]
  30. *C. collina* [Vietnam]
  31. *C. condaoensis* [Con Dao Islands]
  32. *C. conferta* [Northern Territory, Australia]
  33. *C. couttsiana* [Queensland, Australia]
  34. *C. cupida* [Queensland, Australia]
  35. *C. curranii* [Philippines]
  36. *C. debaoensis* [China]
  37. *C. desolata* [Queensland, Australia]
  38. *C. diannenensis* [China]
  39. *C. dolichophylla* [China and Vietnam]
  40. *C. edentata* [Philippines]
  41. *C. elephantipes* [Thailand]
  42. *C. elongata* [Vietnam]
  43. *C. falcata* [Sulawesi and Kabaena Island, Indonesia]
  44. *C. ferriginea* [China]
  45. *C. fugax* [Vietnam]
  46. *C. furfuracea* [Western Australia]
  47. *C. guizhouensis* [China]
  48. *C. hainanensis* [Hainan Island, China]
  49. *C. hoabinhensis* [Vietnam]
  50. *C. hongheensis* [China]
  51. *C. inermis* [Vietnam]
  52. *C. javana* [Java; Indonesia]
  53. *C. lane-poolei* [Western Australia]
  54. *C. lindstromii* [Vietnam]
  55. *C. litoralis* [Myanmar; Thailand; Malaysia; Sumatra and Vietnam]
  56. *C. maconochiei* subsp. *maconochiei* [Northern Territory, Australia]
  57. *C. maconochiei* subsp. *lanata* [Northern Territory, Australia]
  58. *C. maconochiei* subsp. *viridis* [Northern Territory, Australia]
  59. *C. macrocarpa* [Malaysia; Thailand]
  60. *C. media* subsp. *media* [Queensland, Australia]
  61. *C. media* subsp. *banksii* [Queensland, Australia]
  62. *C. media* subsp. *ensata* [Queensland, Australia]
  63. *C. megacarpa* [Queensland, Australia]
  64. *C. micholitzii* [Vietnam; China]
  65. *C. micronesia* [Mariana Island; Guam]
  66. *C. multipinnata* [China]
  67. *C. nathorstii* [Sri Lanka]
  68. *C. nongnoochiae* [Thailand]
  69. *C. ophiolitica* [Queensland, Australia]
  70. *C. orientis* [Northern Territory, Australia]
  71. *C. pachypoda* [Vietnam]
  72. *C. panzhihuaensis* [China]
  73. *C. papuana* [Papua New Guinea]
  74. *C. parvulus* [China]
  75. *C. pectinata* [S.E. Asia; N.E. India; China]
  76. *C. petraea* [Thailand]
  77. *C. platyphylla* [Queensland, Australia]
  78. *C. pranburiensis* [Thailand]
  79. *C. pruinosa* [Western Australia & Northern Territory]
  80. *C. revoluta* [China; Japan]
  81. *C. riuminiana* [Philippines]
  82. *C. rumphii* [S.E. Asia; Pacific Island]
  83. *C. scratchleyana* [New Guinea]
  84. *C. schumanniana* [Papua New Guinea]
  85. *C. seemannii* [Fiji; Tonga; Vanuata & New Caledonia]
  86. *C. segmentifida* [China]
  87. *C. semota* [Australia]
  88. *C. sexseminifera* [China; Northern Vietnam]
  89. *C. siamensis* [S.E. Asia; China]
  90. *C. silvestris* [Queensland, Australia]
  91. *C. simplicipinna* [S.E. Asia]
  92. *C. spherica* [North-eastern India]
  93. *C. taitungensis* [Taiwan; China]
  94. *C. taiwaniana* [China]
  95. *C. tanqingii* [China]
  96. *C. tansachana* [Thailand]
  97. *C. thouarsii* [Madagascar; Africa]
  98. *C. tropophylla* [Vietnam]
  99. *C. tuckeri* [Queensland, Australia]
  100. *C. wadei* [Philippines]
  101. *C. xipholepis* [Queensland, Australia]
  102. *C. yorkiana* [Queensland, Australia]
  103. *C. yunnanensis* [China]
  104. *C. zeylanica* [Sri Lanka; Andaman Islands; Nicobar]
- Dioon**
1. *D. califanoi* [Oaxaca, Mexico]
  2. *D. capitoi* [Puebla, Mexico]
  3. *D. edule* var. *edule* [Mexico]
  4. *D. edule* var. *angustifolium* [Nuevo Leon and Tamaulipas, Mexico]
  5. *D. holmgrenii* [Oaxaca, Mexico]
  6. *D. mejiae* [Honduras]
  7. *D. merolae* [Chiapas, Mexico]
  8. *D. purpusii* [Oaxaca, Mexico]
  9. *D. rzedowskii* [Oaxaca, Mexico]
  10. *D. sonorensis* [N.W. Coast, Mexico]
  11. *D. spinulosum* [Vera Cruz and Oaxaca, Mexico]
  12. *D. tomasellii* [S.W. Coast, Mexico]
- Encephalartos**
1. *E. aemulans* [KwaZulu-Natal, South Africa]
  2. *E. altensteinii* [E. Cape, South Africa]
  3. *E. aplanatus* [Swaziland]
  4. *E. arenarius* [E. Cape, South Africa]
  5. *E. barteri* subsp. *barteri* [Benin; Ghana; Nigeria; Sudan; Togo]
  6. *E. barteri* subsp. *allochrous* [Nigeria]
  7. *E. brevifoliolatus* [Northern Province, South Africa]

8. *E. bubalinus* [Tanzania; Kenya]
9. *E. caffer* [E. Cape, South Africa]
10. *E. cerinus* [KwaZulu-Natal, South Africa]
11. *E. chimanimaniensis* [Mozambique; Zimbabwe]
12. *E. concinnus* [Zimbabwe]
13. *E. cupidus* [Northern Province, South Africa]
14. *E. cycadifolius* [E. Cape, South Africa]
15. *E. delucanus* [Tanzania]
16. *E. dolomiticus* [Northern Province, South Africa]
17. *E. dyerianus* [Northern Province, South Africa]
18. *E. equatorialis* [Uganda]
19. *E. eugene-maraisii* [Northern Province, South Africa]
20. *E. ferox* [KwaZulu-Natal, South Africa; Mozambique]
21. *E. friderici-guilielmi* [E. Cape, South Africa]
22. *E. ghellinckii* [KwaZulu-Natal, South Africa]
23. *E. gratus* [Malawi; Mozambique]
24. *E. heenanii* [Swaziland; Mpumalanga, South Africa]
25. *E. hildebrandtii* [Kenya; Tanzania]
26. *E. hirsutus* [Northern Province, South Africa]
27. *E. horridus* [E. Cape, South Africa]
28. *E. humilis* [Mpumalanga, South Africa]
29. *E. inopinus* [Northern Province, South Africa]
30. *E. ituriensis* [Dem. Rep. Congo (the former Zaire)]
31. *E. kisanbo* [Kenya]
32. *E. laevifolius* [Mpumalanga, South Africa; Swaziland]
33. *E. lanatus* [Mpumalanga, South Africa]
34. *E. latifrons* [E. Cape, South Africa]
35. *E. laurentianus* [Angola; Dem. Rep. Congo]
36. *E. lebomboensis* [KwaZulu-Natal & Mpumalanga, South Africa; Swaziland; Mozambique]
37. *E. lehmannii* [E. Cape, South Africa]
38. *E. longifolius* [E. Cape, South Africa]
39. *E. macrostrobilus* [Uganda]
40. *E. manikensis* [Mozambique; Zimbabwe]
41. *E. marunguensis* [Dem. Rep. Congo; Tanzania]
42. *E. middelburgensis* [Mpumalanga, South Africa]
43. *E. msinganus* [KwaZulu-Natal, South Africa]
44. *E. munchii* [Mozambique]
45. *E. natalensis* [KwaZulu-Natal, South Africa]
46. *E. ngoyanus* [KwaZulu-Natal & Mpumalanga, South Africa; Swaziland]
47. *E. nubimontanus* [Northern Province, South Africa]
48. *E. paucidendatus* [Mpumalanga, South Africa; Swaziland]
49. *E. poggei* [Angola; Dem. Rep. Congo]
50. *E. powysii* [Kenya]
51. *E. princeps* [E. Cape, South Africa]
52. *E. pterogonus* [Mozambique]
53. *E. relictus* [Swaziland]
54. *E. schaijesii* [Dem. Rep. Congo]
55. *E. schmitzii* [Dem. Rep. Congo; Zambia]
56. *E. sclavoi* [Tanzania]
57. *E. senticosus* [Mpumalanga & KwaZulu-Natal, South Africa]
58. *E. septentrionalis* [Sudan]
59. *E. striatus* [Swaziland, Mozambique]
60. *E. tegulaneus* [Kenya]
61. *E. transvenosus* [Northern Province, South Africa]
62. *E. trispinosus* [E. Cape, South Africa]
63. *E. turneri* [Mozambique]
64. *E. villosus* [E. Cape, KwaZulu-Natal & Mpumalanga, South Africa]

65. *E. whitelockii* [Western Uganda]
66. *E. woodii* [KwaZulu-Natal]

#### *Lepidozamia*

1. *L. hopei* [Queensland, Australia]
2. *L. peroffskyana* [N.S.W. & Queensland, Australia]

#### *Macrozamia*

1. *M. cardiacensis* [Queensland, Australia]
2. *M. communis* [N.S.W., Australia]
3. *M. concinna* [N.S.W., Australia]
4. *M. conferta* [Queensland, Australia]
5. *M. cranei* [Queensland, Australia]
6. *M. crassifolia* [Queensland, Australia]
7. *M. diplomera* [N.S.W., Australia]
8. *M. douglasii* [Queensland, Australia]
9. *M. dyeri* [Western Australia]
10. *M. elegans* [N.S.W., Australia]
11. *M. fawcettii* [N.S.W., Australia]
12. *M. fearnsidei* [Queensland, Australia]
13. *M. flexuosa* [N.S.W., Australia]
14. *M. fraseri* [Western Australia]
15. *M. glaucophylla* [N.S.W., Australia]
16. *M. heteromera* [N.S.W., Australia]
17. *M. humilis* [N.S.W., Australia]
18. *M. johnsonii* [N.S.W., Australia]
19. *M. lomandroides* [Queensland, Australia]
20. *M. longispina* [Queensland, Australia]
21. *M. lucida* [Queensland, Australia]
22. *M. macdonnellii* [Northern Territory, Australia]
23. *M. macleayi* [Queensland, Australia]
24. *M. miquelii* [N.S.W. & Queensland, Australia]
25. *M. montana* [N.S.W., Australia]
26. *M. moorei* [Queensland, Australia]
27. *M. mountperriensis* [Queensland, Australia]
28. *M. occidua* [Queensland, Australia]
29. *M. parcifolia* [Queensland, Australia]
30. *M. pauli-guilielmi* [Queensland, Australia]
31. *M. platyrachis* [Queensland, Australia]
32. *M. plurinervia* [N.S.W. & Queensland, Australia]
33. *M. polymorpha* [N.S.W., Australia]
34. *M. reducta* [N.S.W., Australia]
35. *M. riedlei* [Western Australia]
36. *M. secunda* [N.S.W., Australia]
37. *M. serpentina* [Queensland, Australia]
38. *M. spiralis* [N.S.W., Australia]
39. *M. stenomera* [N.S.W., Australia]
40. *M. viridis* [Queensland, Australia]

#### *Microcycas*

1. *M. calocoma* [W. Cuba]

#### *Stangeria*

1. *S. eriopus* [E. Cape & KwaZulu-Natal, South Africa]

#### *Zamia*

1. *Z. acuminata* [Nicaragua; Panama]

2. *Z. amazonum* [Brazil; Colombia; Peru; Venezuela]
3. *Z. amblyphyllidia* [Cuba; Jamaica; Puerto Rico]
4. *Z. amplifolia* [Colombia]
5. *Z. angustifolia* [Bahamas; Cuba]
6. *Z. boliviana* [Bolivia]
7. *Z. chiqua* [Colombia; Panama]
8. *Z. cremnophila* [Mexico]
9. *Z. cunaria* [Panama]
10. *Z. disodon* [Northern Colombia]
11. *Z. dressleri* [Panama]
12. *Z. elegantissima* [Panama]
13. *Z. encephalaroides* [Colombia]
14. *Z. fairchildiana* [Costa Rica; Panama]
15. *Z. fischeri* [Mexico]
16. *Z. furfuracea* [Mexico]
17. *Z. gentryi* [Ecuador]
18. *Z. herrerae* [Mexico; Guatemala]
19. *Z. hymenophyllidia* [South-eastern Amazonian Colombia]
20. *Z. inermis* [Mexico]
21. *Z. integrifolia* [Florida, Georgia (U.S.A.); Bahamas Cuba; Caiman Islands]
22. *Z. ipetiensis* [Panama]
23. *Z. lacandona* [Eastern Chiapas, Mexico]
24. *Z. lecointei* [Brazil]
25. *Z. lindleyi* [Panama]
26. *Z. loddigesii* [Mexico]
27. *Z. lucayana* [Bahamas]
28. *Z. manicata* [N. Colombia; S. Panama]
29. *Z. melanorrhachis* [North-central Colombia to Amazonian Colombia]
30. *Z. montana* [Colombia; Venezuela]
31. *Z. muricata* [Venezuela]
32. *Z. neurophyllidia* [Panama]
33. *Z. obliqua* [Colombia; S. Panama]
34. *Z. paucijuga* [W. Mexico]
35. *Z. poeppigiana* [Peru; Ecuador]
36. *Z. polymorpha* [Mexico; Belize]
37. *Z. portoricensis* [Puerto Rico]
38. *Z. pseudoparasitica* [Panama; Costa Rica]
39. *Z. prasina* [Southern Belize]
40. *Z. pumila* [Dominican Rep.; Florida (U.S.A.); Cuba]
41. *Z. purpurea* [Mexico]
42. *Z. pygmaea* [Cuba]
43. *Z. roezlii* [Colombia]
44. *Z. skinneri* [Panama]
45. *Z. soconuscensis* [Mexico]
46. *Z. spartea* [Mexico]
47. *Z. splendens* [Mexico]
48. *Z. standleyi* [Honduras]
49. *Z. tuerckheimia* [Guatemala]
50. *Z. ulei* [Brazil]
51. *Z. urep* [Peru]
52. *Z. variegata* [Guatemala; Belize; Mexico]
53. *Z. vazquesii* [Mexico]
54. *Z. wallisii* [Colombia]

The following species are excluded from the list due to the following reasons:

***Encephalartos umbeluziensis***

Synonym of *E. striatus* which was overlooked for decades.

***Zamia amazonia***

Duplication of *Z. amazonum*.

***Zamia lacondonis***

Duplication of *Z. lacandona*.

***Zamia pseudomonticola***

Now regarded as conspecific with *Z. fairchildiana* according to Loran Whitelock.

## THE VIETNAM CYCAD EXPEDITION (Part 2)

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On day 5 we travelled from Qui Non to Da Nang, and near Nui Thran found *Cycas pectinata* to be common (Colour Figure 25 on p. 20). These were large plants, with stems up to 4 m tall, but unlike those which I previously saw in China they were not conspicuously branched. The area appeared to be very dry apart from the lush irrigated rice fields. The cycads grew on granite, against steep slopes, in secondary scrub in association with *Pandanus* and *Dracaena cochinchinensis* but fully exposed to the sun. This species has a wide distribution in Myanmar, Thailand, north-eastern India and adjacent Nepal and Bhutan, Laos, and China. It is yet another of those species having a corky bark rather than a chain mail of old leaf bases. It tends to grow tall (up to 12 m of stem, see *ENCEPHALARTOS* 48: 21 (Figure 17), December 1996), and is often branched to

an unusual degree. The leaves are up to 2.4 m long and the leaflets (Colour Figure 21 on p. 20) up to 10 mm wide. Searching as we may, we could not find any cones.

On day 6 we were scheduled to investigate *Cycas inermis*, but these plants grow in a military training area and at the last moment access was refused. However, there was a compensation. Directly north of Da Nang there is a very steep pass, winding through what looked to me like pretty natural forest. Here, high on the cliffs, we saw from afar plants which we took to be *Cycas inermis*, but they were rather inaccessible and only the intrepid Stan Walkley was brave and tough enough to climb up to a plant to retrieve a leaf for Elsa to draw. However, it did not match *Cycas inermis*, having 40 cm long leaflets with wavy margins.

Later, as we disconsolently strolled along the roadside looking for plants which may be within easier reach, two locals on the obligatory motorcycle pulled up and asked what we were doing. At the inspiration of the moment we showed them Stan's leaf sample, at which they promptly lit up and offered to take us to some plants. We followed them up a winding path through some scrubby but lush secondary forest full of interesting plants including a dwarf *Dracaena*, *Sterculia lanceolata* which has large blood-red flowers, and numerous Zingiberaceae. Soon we came to the first *Cycas*, and indeed it was not *Cycas inermis* but Stan's plant (Colour Figure 18 on p. 19). It turned out to be a totally unknown and probably undescribed species. It grows in quite dense shade, has an underground stem, only a few leaves but these are up to 2.5 m long, and leaflets up to 45 cm long with wavy margins (Colour Figure 14 on p. 19). Even better: we found a female cone (Colour Figure 28 on p. 21) so that a respectable herbarium specimen could be prepared.

We overnights in Hue, our base for two nights. This is quite a large and historical city and is justly famous for its enormous palace/temple complex built in the late 18<sup>th</sup> Century, eventually fell into disrepair, and is now being restored to its former glory at huge effort and expense. Here also we experienced the incredible fury of a tropical thunderstorm.

At Hue we had another interesting encounter. We arrived in the late afternoon, and soon scattered on foot to explore before nightfall. As Elsa and myself strolled along the sidewalk, we were passed by a cyclist literally weighed down by *Cycas* plants. We had no way of following him, but subsequently learnt that he stopped further along the road and set up shop on the kerb. Here Roy Osborne found him, and purchased for Hiep a splendid plant for the sum of three U.S. dollars. While Hiep was obviously pleased, he berated Roy for spoiling the local economy by paying so much for the plant. It turned out to be none other than *Cycas lindstromii*, but where could the plant have come from? The next day the mystery was solved in a somewhat high-handed way. As we travelled along in our little bus, someone spotted the same *Cycas*-festooned cyclist. Promptly he was given chase, forced off the road, and interrogated (Colour Figure 15 on p. 19). It turned out that he had picked up these plants near Ca Na, fully 700 km further south, and transported them by bus to Hue to sell for his benefit. Which shows in what esteem cycads are held in Vietnam.

On day 7 we travelled alongside the Da Krong River towards Khe San in the former "demilitarized zone". This is again granite hill country, very broken and covered with lush, more or less evergreen bush. One can imagine how difficult it must have been to wage a counter-insurgency war in such terrain. Here our quest was for *Cycas chevalieri*, which grows in closed evergreen forest on the steep mountain slopes above the river. Unbelievable as it may sound, we were not in a mood to enter those forests to try and locate the plants. However, they also grow in cracks in granite boulders right at the river's edge where they must surely get inundated during floods. It is a

particularly decorative species. The stems have been reported to be up to 1.2 m tall, but the plants which we saw all had underground stems. The leaves are up to 2.4 m long, of which the petiole accounts for 45 to 60%, and the lamina is held almost horizontally. The leaflets may be more than 40 cm long and 14 to 20 mm wide, with flat margins (Colour Figure 22 on p. 20). By contrast the male cone is only 15 to 25 mm long and 4 to 7 cm thick – it is strange that so many large tropical cycad species tend to carry absurdly small cones. The road to Khe San follows the left bank of the river, but not a single plant is to be found on the left bank, probably because it is such a decorative species. However, Ken and Hiep had previously established that they still occur on the right bank. The problem was how to get there, because there are no bridges. Luckily there was one spot where the river could be forded when the level is low. It was a somewhat hair-raising crossing, consisting of a steel cable strung between the left shore and an island along which one shuffled gingerly while holding on for dear life to a second cable strung above the first (Colour Figure 23 on p. 20). So eager were we to make the acquaintance of *Cycas chevalieri* that every one in our party braved the crossing. The rest of the way to the far shore meant boulder-hopping where a single misjudgement would surely have resulted in a watery death in the swift-flowing river. What we found was a bit disappointing. Because the site is accessible, almost all the plants had been removed, and all we saw were a few immature plants wedged into rock crevices where they were safe against even the most determined collector (Colour Figure 26 on p. 20). Predictably no cones were found. Later in the day we did see, with binoculars, some splendid specimens on the far bank. These probably survived because they were far from any bridge, and we had no means of getting close to them. Even with the 300 mm lens on my camera and a tripod, there was too much vibration for a decent photo. Nevertheless I bring you my fuzzy photo, just to give some idea of the setting and the splendour of the plant (Figure 1).



**Figure 1** *Cycas chevalieri*: fuzzy but informative photo of a group of mature plants on the bank of the Da Krong River.



Colour Figure 14 *Cycas* sp.: leaf detail of unnamed plant near Da Nang, showing wavy leaflet margins. Photo: Piet Vorster.



Colour Figure 15 *Cycas lindstromii* being hawked on the streets of Hue. Photo: Piet Vorster.



Colour Figure 16 *Cycas fugax*: leaf detail, showing wavy leaflet margins. Photo: Piet Vorster.



Colour Figure 17 *Cycas bifida*: a single leaflet, divided not twice but thrice. Photo: Piet Vorster.



Colour Figure 18 *Cycas* sp.: an unnamed plant near Da Nang. Photo: Piet Vorster.



Colour Figure 19 *Cycas fugax*: Elsa Vorster staring in disbelief at a cultivated plant. Photo: Piet Vorster.



Colour Figure 20 *Cycas bifida*: the bamboo-like foliage. Photo: Piet Vorster.



Colour Figure 21 *Cycas pectinata*: leaf detail. Photo: Piet Vorster.



Colour Figure 22 *Cycas chevalieri*: leaf detail. Photo: Piet Vorster.



Colour Figure 23 Crossing the Da Krong River in quest of *Cycas chevalieri*. Photo: Piet Vorster.



Colour Figure 24 *Cycas dolichophylla*: leaf detail, showing wavy leaflet margins. Photo: Piet Vorster.



Colour Figure 25 *Cycas pectinata*: an unbranched plant near Nui Thran. Photo: Piet Vorster.



Colour Figure 26 *Cycas chevalieri*: an immature specimen wedged into a crevice on the bank of the Da Krong River. Photo: Piet Vorster.



Colour Figure 27 *Cycas fugax*: an immature female cone. Photo: Piet Vorster.



Colour Figure 28 *Cycas* sp.: Female cone of unnamed plant near Da Nang. Photo: Piet Vorster.



Colour Figure 29 *Cycas bifida*: a cultivated plant in undignified surroundings. Photo: Piet Vorster.



Colour Figure 30 *Cycas bifida*: a female cone. Photo: Piet Vorster.



Colour Figure 31 Brian with *Cycas multipinnata*. Photo: Ian Turner.



Colour Figure 32 *Encephalartos altensteinii*, planted  $\pm$  35 years ago when it was the height of the seeds on the *Jatropha* plant (next to it on the right). Photo: Ian Turner.



Colour Figure 33 Australian *Cycas* grow very well here, see the one on the foreground pushing new leaves. Photo: Ian Turner.



Colour Figure 34 *Encephalartos natalensis*, planted 30 years ago when it was soccer ball size. Photo: Ian Turner.



Colour Figure 35 *Ceratozamia* were pushing cones. Photo: Ian Turner.



Colour Figure 36 Digging progressing. Photo: Ian Turner.



Colour Figure 39 A Zululand healer garden within 15 km of Ngoye, with an *Encephalartos* sp. in cultivation for both its medicinal and protective charm value. Plants of *Stangeria eriopus* may also be seen to the left. Photo: Neil Crouch.



Colour Figure 37 The cycad collection of the Orto Botanico in Naples, Italy, which includes a specimen of *Encephalartos woodii*. Photo: Neil Crouch.



Colour Figure 40 *Muthi* harvesting damage to *Encephalartos laevifolius*, Mpumalanga. Photo: Neil Crouch.



Colour Figure 38 Ian Garland at Mtunzini in 1994, alongside the *E. woodii* earlier presented to him by the Durban Botanic Gardens in recognition of his contribution towards the conservation and exploration of Ngoye Forest. The plume of leaves shown was the first to emerge, taking a full year to do so following its transfer from Durban. Photo: Neil Crouch.

Being people of cultural bent, we used the morning of day 8 to visit the architecturally splendid and historically rich palace/temple complex at Hue previously alluded to, and in the afternoon flew to Hanoi because no cycads are known to grow between Hue and Hanoi.

Hanoi, a large and lovely city, is Hiep's home territory. Here we stayed at the Military Guesthouse, and were treated by DR. Tran Minh Hoi, Deputy Director of the Institute of Ecology and Biological Resources with which Hiep is affiliated, to a 5-star dinner complete with a splendid local band using indigenous instruments.



**Figure 2** Our fleet of Russian-made jeeps, without which travel in northern Vietnam would have been impossible.

On day 9, having abandoned our little bus for a fleet of Russian-made jeeps (Figure 2), we aimed for Thai Nguien. On the way we stopped at Phu Tho for the sake of *Cycas fugax*. Now, *fugax* means "fleeting", and alludes to how narrowly this species missed getting known to science. It is known from a handful of cultivated specimens only, and though Ken and Hiep have combed the surrounding forested hills, they failed to locate any wild plants. Yet, the cultivated plants do spontaneously set seed which germinate where they fall, indicating the presence of a healthy population of pollinating insects. One can only hope that, somewhere up in the bush, there still are populations of wild plants missed by even the untiring Ken and Hiep.

*Cycas fugax* is a splendid species, with stems completely underground. It bears only one or two leaves, but each of these are up to 4.5 m long of which the petiole accounts for more than half (Colour Figure 19 on p. 19). The leaflets have wavy margins and are up to 50 cm long and 3 cm wide (Colour Figure 16 on p. 19). We found a plant with a female cone (Colour Figure 27 on p. 20), but (of course) the seeds were too immature to harvest. One of the owners had a photograph of his plant bearing a male cone (these are serious enthusiasts), and I judged this cone to be at least 60 cm long.

Not long afterwards we started seeing numerous plants of *Cycas dolichophylla* in roadside gardens (Figure 3). This is another species which we did not see in the wild, but again so beautiful that one would have liked trying to grow it,



**Figure 3** *Cycas dolichophylla*: Ken Hill lending scale to a cultivated plant.

against all odds. The sturdy stems are reported to grow up to 1.5 m tall, but those which we saw were all less than a metre long. The crowning glory of this species literally is its foliage. This constitutes a dense crown of straight and rigid leaves, up to 4.5 m long. The leaflets are bright glossy green, overlapping, covered with rust-brown hairs when emerging, canal-shaped (i.e. U-shaped in cross section), with wavy margins, and up to 40 cm long and 2.5 cm wide (Colour Figure 24 on p. 20). To our chagrin no cones could be found, but under one plant seedlings from the previous season were discovered. As beautiful as this species is, so difficult it is likely to be outside the tropics. To witness, an *Amorphophallus*, usually considered to be a symbol of the tropics, grew as a roadside weed at this place.

Later that afternoon, while drowsily passing through a village, Ken suddenly brought our convoy to a stop. Sleepily following his pointing finger, we could at first see nothing but a small clump of bamboo, but then it dawned: that was no bamboo, but *Cycas bifida* (Colour Figure 29 on p. 21). These plants, even from close-up, uncannily resemble a clump of bamboo to all but Ken and Hiep (Colour Figure 20 on p. 19). It belongs to the same group of species as *Cycas micholitzii*, *Cycas multipinnata*, and *Cycas debaoensis*, characterised by once or more times divided leaflets, and for which collectors are willing to pay a dowry and a ransom. This first specimen grew on a piece of rubbish-strewn derelict land between two buildings, a

most inappropriate setting for such a noble plant. It carried a female cone (Colour Figure 30 on p. 21), though the seeds were too young to be stolen and carried off. This is another species with an underground stem. The leaves are few (six in this specimen, which is significantly more than the one

or two borne by wild plants, but these are 2 to 5 m long with a petiole alone 1.1 to 1.6 m long. In this species the leaflets are divided twice (Colour Figure 17 on p. 19), hence the specific epithet.

## CYCADS AND THE LAND REFORM ACT IN ZIMBABWE

Ian Turner

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Received December 2002

Where I lived in Zimbabwe on Springs Farm the climate is very good for growing many kinds of cycads (Colour Figures 31–32 on p. 21) with the exception of a few of the very tropical *Zamia*s which I grew in a green-house, virtually all other cycads could be grown in the garden.

We have a hot wet season and a cool dry winter which is the same as most *Cycas*, *Ceratozamia*, *Encephalartos* and *Macrozamia* species, etc. enjoy in their habitat.

Over the past 45 years I have been growing cycads from seed, exchanging with other collectors and travelling to other countries to try to build up a pretty comprehensive collection.

Anyone who grows cycads from seed knows that patience is needed to see a plant grow to coning size. Fortunately for me my love of cycads started when I was quite young so I am now seeing the results of the plants I started growing years ago.

Many species of *Ceratozamia* were coning and producing lots of seeds (Colour Figure 35 on p. 21). If I did not collect the seeds in time they could be carried away and frequently when the rains came I would find seedlings sprouting up quite far from the parent plant. The same also happened with some species of *Cycas*, not so, however, with *Encephalartos* where any seedling found was always near the mother plant.

All was going well until the Zimbabwe government started to take farms owned by white Zimbabweans and give them to indigenous people. I had been living on Springs Farm for 53 years. I tried my best to get permission to carry on living in my house but the man who had been given the farm wanted the house so there was no way I could stay there any longer. When I walked around my garden and looked at the cycads I thought it would be just impossible to dig them all up. What could I do? Another big question was where could I take them if I dug them up? Anyway, I employed extra labourers and got digging. Many plants had new flushes of leaves and all the coning size *Ceratozamia*s were pushing cones. It was a tragic sight indeed to see all the plants with their leaves cut off and lying on top of the ground (Figure 1–2 and Colour Figures



Figure 1 This is the *Cycas* which was originally named *C. baguanheensis* but later thought to be the same as *C. panzihuaensis*. They do not look the same and the male cones are not alike.



Figure 2 Waiting to be moved.

33–34 on p. 21 and 36 on p. 22). Any plant small enough to be put into bags were planted and left dry so the damaged roots would not rot. They will start to make new roots even in the dry soil.

I was very lucky to find an ideal plot of land in the suburbs of Harare with a small house on it. Transporting the plants was also a big task. Some were very heavy indeed but all went quite well. I am now wondering if the biggest job was digging the plants up or replanting them. At least it is a pleasure to see them in the ground again. I labelled a lot of

the plants and left a leaf on some for identification. It did, however, not work. Many of the labels were lost and leaves broken during transport so it is going to be hard to plant them in a systematic way, but just to see them push up new leaves will be a pleasure no matter which plant is next to the other. Although it is of course easy to keep the genera in their own areas, i.e. *Cycas*, *Encephalartos*, *Zamia*, etc.

It is to be many years before the plants recover and I doubt if they will ever look the way they did on Springs Farm but at least they are on their way.

## ENCEPHALARTOS WOODII – THE FIRST HISTORICALLY DOCUMENTED ETHNOMEDICINAL PLANT CASUALTY IN SOUTHERN AFRICA

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### WOOD'S CYCAD OR NATAL GIANT CYCAD?

Most cycad enthusiasts will claim that it is rather easy to identify positively specimens of *E. woodii*. However, some forms of *E. natalensis* can be confused with *E. woodii*, as argued by Goode (2001). He refers to plants known in cultivation that look uncannily like *E. woodii* specimens, especially in respect of their foliage characters. However, the origin of these plants remains a mystery. Vegetative morphological characters that appear to be fairly reliable for identifying mature specimens of *E. woodii* include, most prominently, its fairly robust, blunt-tipped leaflets that mostly have smooth edges. But take care! In young plants, the margins of the leaflets tend to carry small to large, irregularly shaped teeth. A further, reasonably reliable character useful for distinguishing *E. woodii* from *E. natalensis* is the rather long leaves of the former, which are most gracefully recurved, giving tall, mature specimens a more palm-like appearance than most other species of *Encephalartos*.

Not everyone recognises *Encephalartos woodii* as being distinct from *E. natalensis* - some authors consider it as only a particularly robust form of the latter species. But should it ultimately be proven unique, then one might reasonably ask why this species was on the verge of extinction when first discovered by botanists in the late 19<sup>th</sup> Century?

### ORIGINAL FIND

In 1895, in the northeast corner of Ngoye Forest on a steep

south-facing slope, John Medley Wood discovered a solitary clump of a spectacular cycad. He wrote that whilst "on a botanical collecting trip with wagon and oxen in Zululand, and having reached a spot where the country was very rough, I stayed for several days botanising in the vicinity, and in doing so found a solitary clump of *Encephalartos*, consisting of four stems, the tallest of which was about 18 feet high, with proportionate girth of stem, and with a few offsets at base; the stems were all male, and not another plant of the species could be found in the vicinity..." (Wood, 1908).

One offset was removed and sent by Wood from Durban to Kew, which received it in 1899 (Desmond, 1995). The records in the Living Collections database of Kew reflect this valuable accession (H. Long personal communication). However, it remains unclear whether this specimen was collected by Wood at the time of his first finding the plants, or by James Wylie, Wood's assistant, who in March of 1899 travelled to Zululand on a collecting trip (Wood, 1900). In the course of this excursion Wylie certainly visited Ngoye for he gathered the first collection of *Pentas micrantha* subsp. *wyliei* at this site. This novelty was subsequently named *P. wyliei* in his honour, by N.E. Brown in the *Kew Bulletin*. The *Encephalartos woodii* specimen in question was kept initially in the world-renowned Palm House, until being transferred more recently to the south end of the Temperate House where it is still on display (N.P. Taylor personal communication). Perhaps justifiably, *Encephalartos woodsii* (sic) has been described as the "rarest plant in cultivation at Kew" (Desmond, 1995: 375), even though private collections and botanical gardens across the globe today boast specimens (Goode, 2001).

A number of other species of *Encephalartos* are in cultivation at the Royal Botanic Gardens Kew. Perhaps the most famous one of these is *Encephalartos altensteinii*, a specimen of which has the honour of being the oldest glasshouse plant in the world (Griggs, 1990). This species occurs naturally in the Eastern Cape Province of South Africa (Goode, 2001) and it must have been from here that the celebrated plant collector Francis Masson (1741-1805) collected a specimen to send to England in 1775 (Griffiths, 2000). This specimen, like the important *E. woodii* accession, still thrives at Kew (Musgrave *et al.*, 1999). In view of the horticultural popularity of cycads and their ongoing decimation in the wild, it is likely that no plant family of similar size to the Zamiaceae can lay stronger claim to being preserved better *ex situ* than *in situ*... (Colour Figure 37 on p. 22).

Three offsets of *E. woodii* were later collected by Wylie in 1903, and planted in the then Natal Botanic Gardens in Durban (today the Durban Botanic Gardens, which incidentally has adopted *E. woodii* as its official logo) (Osborne, 1993). One of these specimens is figured as a photograph in Wood's annual report for the year 1906-1907 (Wood, 1907), and captioned "*Encephalartos altensteini*, Lehm. var. *bispinosa*." They reportedly remained dormant in the ground for more than two years before finally sprouting fresh leaves. These leaves are characteristically up to 2.5m in length, and gracefully arched in an umbrella-shaped canopy (Colour Figure 38 on p. 22). In mature leaves the median leaflets are up to 20cm long, often with entire margins and a dark glossy green. Within a few years, and based on material that reached England via Wood, the new cycad was named *E. woodii* in honour of its scientific discoverer (Sander, 1908). Before this though, Wylie was again, in March of 1907, tasked with collecting plants of this rare cycad. He successfully returned from Zululand with two of the four large trunks.

#### **E. WOODII AS MUTHI IN ETHNOMEDICINE**

However, Wood (1907) recounted that "*It was our intention to have, if possible, the largest trunk brought down, but during the late rebellion the natives had so damaged it, presumably using it as medicine, that it was quite unfit for our purpose...*" (Figure 1). He lamented shortly thereafter: "*I regret very much that such fine specimens as I saw should have been wantonly destroyed by the natives*" (Wood, 1908). The use of cycads in traditional medicine had earlier been observed by Wood, who in his 1896 account of local ethnomedicine, reported on the use of *Stangeria eriopus* (Natal Grassland Cycad). The general harvesting of plants from Ngoye Forest has long been documented (Huntley, 1965), and the cycads of the area are no exception. In a recent search of Ngoye for further *E. woodii* plants, Van Jaarsveld and Welsh (1995), in the vicinity of the type locality, recorded "...*passing various Zulu dwellings where we were struck by the many Encephalartos ngoyanus and Aloe bainesii plants cultivated near homesteads.*" In fact, after a fairly thorough search of the forest, these authors observed only a single wild *E. ngoyanus* specimen, though several were seen in cultivation nearby. The Zulu name *isigqiki-somkovu*, used for a



**Figure 1** Badly damaged stems of *E. woodii* *in situ* in Ngoye, circa 1907. The stem to the right appears ringbarked, and is clearly damaged by unsustainable *muthi* harvesting. Photo: John Wylie.



**Figure 2** Sections of *Encephalartos* trunks traded in the Ezimbuzini *muthi* market, Umlazi. Photo: Neil Crouch.

number of *Encephalartos* species, is applied to subjects rated as antidotes to evil spirits (Hutchings *et al.*, 1996). The name translates as 'seat of the familiar' (Doke *et al.*, 1958). In this context, *Encephalartos* plants are planted near to homes such that when the *imikhovu* (witches' familiars [often exhumed corpses] or fabulous hairy dwarfs) arrive to cause mischief, they are thwarted through having to spend their time sitting on the plant outside! Colour Figure 39 on p. 22 illustrates how cycads are often grown in healer gardens as protective charms, although they may be used further for purposes medicinal rather than magical (Crouch and Hutchings, 1999; Crouch *et al.*, 2000a). Ethnomedicinal uses sometimes require the harvesting of cycad bark, which is often removed in an unsustainable manner (Colour Figure 40 on p. 22) (Giddy, 1995). In the medicinal plant markets of Durban sections of cycad stem-bark can always be observed in open trade (Figure 2); cone sections may also occasionally be found, as may intact

young plants sold to be grown on as charms. The use of *Encephalartos* species in traditional medicine appears quite generic, in which case *E. woodii* plants may not have been specifically targeted above other similar-looking taxa such as *E. natalensis*. In the Durban marketplace both *E. natalensis* and *E. ghellinckii* have been observed in trade. A recent checklist of ethnomedicinal species in the *Flora of Southern Africa (FSA)* region (Arnold et al., 2002) lists seven Zamiaceae as so used, to which *E. woodii* could be added as an eighth and *E. ghellinckii* as a ninth. The Zamiaceae are exceptional - in no other moderately-sized family from our region are a full third of the representatives used ethnomedicinally, and simultaneously Red Data Listed.

### WHO SNUFFED *E. WOODII*?

The large damaged stem observed by Wylie at Ngoye died by 1912, leaving only the fourth one remaining in the wild. This stem, almost 4m tall, was removed from Ngoye by an Eshowe Forester named Prior in 1916 and translocated via Dr Pole Evans to the Union Buildings in Pretoria. It was subsequently transferred to the Pretoria National Botanical Garden in 1964, where it survived until the early 1970's (Goode, 1989). A number of the original offsets removed by Wylie, and further pups from the large Durban-based plants were subsequently sent abroad to several overseas gardens (Jones, 1993). A recent worldwide count of 'woodiis' has revealed 37 specimens known in cultivation today, distributed in six countries (Osborne and Paschke, 1994). Forestry Officer Prior who sent the last stem to Pretoria can thus be credited for its final extinction in the wild, but its historic use in Zulu medicine almost certainly helped it to the precipice. In fairness to Prior, he had moved the plant on account of real *muthi* harvesting and veld fire threats (Osborne, 1986). *E. woodii* thus gains the dubious distinction of being the first documented ethnomedicinal plant to go extinct in the wild in KwaZulu-Natal, and in fact the whole *FSA* region for that matter. Interestingly, this record is notwithstanding the documented oral record of an insect-eating ceremonial plant (not a cycad!) reputed to have been harvested to extinction in Venda and surrounds about that time (Dicke, 1926). *E. woodii* likely just pipped *Siphonochilus aethiopicus* to the extraordinary honour of 'first provincial extinction', probably by a decade or so (Crouch et al., 2000b). More recently, *Encephalartos laevifolius* has also been driven regionally extinct in KZN (Scott-Shaw, 1999); this species too was being harvested for *muthi* (Goode, 1989) (Colour Figure 40 on p. 22), but ultimately succumbed to exhaustive pillaging by cycad enthusiasts.

### TAILPIECE

In looking at a single province in South Africa - Mpumalanga - one notes that the cycads have not escaped the prevailing *muthi* culture there either. Four of the province's eight recognised species have been observed by Mpumalanga Parks Board (MPB) to have been harvested for ethnomedicine: *Encephalartos cupidus*, *E. humilis*, *E. laevifolius* and *E. lebomboensis*. A further two

Mpumalanga species (*E. heenanii* and *E. paucidentatus*) are recorded in the literature as additionally used, albeit in Swaziland (Dlamini, 1981). These observations bring to 11 the total number of regional *Encephalartos* species in ethnomedicine. Besides these subjects, the MPB has further monitored a single known clump of an undescribed *Encephalartos* species within the White River area; one obviously threatened with extinction. Although lodged in what was deemed an inaccessible spot along a cliff face, the plants were recently accessed by unknown persons who threw the plants to the cliff base below, leaving behind a single small sucker. It is not known for certain what the motivation for the cycad theft was, although it is suspected that the plants were harvested for use in traditional medicine. Thus, much like Wood's Cycad over a century ago, the few known individuals have seemingly been reduced to a single surviving sex before even being named! Effectively, this renders the species functionally extinct.

The real threat of *muthi* harvesting was highlighted a few years ago when an estimated 300 stems of the dwarf, Critically Endangered *Encephalartos cupidus* were chopped up for *muthi* on the Blyde River Canyon Nature Reserve - this before the Inyanga and his two accomplices could be apprehended. The confiscated boles were so severely damaged that only 26 of these plants ultimately survived. Clearly, such focused utilisation could result in the extinction in the wild of this species within a few short years, for only 1000-odd plants are thought to remain in habitat. Our experiences in field and market lead us to conclude that the collecting pressures on South African *Encephalartos* populations are both ongoing and unsustainable. One may reasonably ask - what will be the underlying cause of the next cycad extinction in South Africa? Its *muthi*, or its horticultural value? Perhaps both...

### ACKNOWLEDGEMENTS

Dr Roy Osborne kindly provided leads to the literature. We are grateful to Dr. Nigel P. Taylor, Deputy Director: Living Collections, and Ms Helen Long, Plant Health Officer, for kindly providing information on the historical specimen of *Encephalartos woodii* grown at the Royal Botanic Gardens, Kew.

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## NUUS OOR DIE GAUTENG STREEKTAK VAN DIE VERENIGING

**Derik Minnaar**

Privaatsak X8, 0047 Elardus Park, R.S.A.

*Ontvang 15 Januarie 2003*

Daar is besluit om die naam "Transvaalse Streektak" te verander na "Gauteng Streektak". Sedert die Provinsie Transvaal in vier afsonderlike provinsies verdeel is, het lede in Mpumalanga en die Noordelike (Limpopo) Provinsies hul eie streektakke gestig en het die naam "Transvaalse Streektak" onvanpas geraak.

### **Verslae oor onlangse aktiwiteite:**

#### **Tuinuitstappie by dr. Martin Bruwer**

Saterdag 5 Oktober 2002 het 'n groot groep belangstellers laatoggend by die tuin van dr Martin Bruwer vergader. Derik het die groep verwelkom en Lynette gevra om 'n biltongruiker aan Martin te oorhandig namens die Broodboomvereniging. Daarna het Derik die nuwe broodboomboek van prof. Nat Grobbelaar aan die publiek voorgestel. 'n Detail beskrywing van die inhoud en hoogtepunte van die boek is bespreek en 'n kopie is uitgestal vir besigtiging.

Martin is gevra om die groep weer deur sy unieke tuin te lei. Die tuin het redelike verandering ondergaan sedert ons vorige besoek. Verskeie skaars spesies het intussen goed gevestig geraak en dit word nou moontlik om meer van hulle eienskappe te bestudeer, veral gedurende keëlvorming (Kleurfigure 41–44 op. p. 29). Die Koi-dam (Kleurfiguur 41 op p. 29) is vergroot en verleen 'n rustige atmosfeer met die reuse broodbome daaromheen.

Die groep het later verdaag na 'n lekker debat en met nuwe idees vir hul eie tuine.

#### **Jaareindfunksie**

Die middag van 26 Oktober 2002 het die Gauteng Streektak hul jaareindfunksie gehou by Velchich-huis in die Botaniese Tuin te Pretoria.

Die opkoms was redelik swak en die vergadering is binne



**Kleurfiguur 41** Die Koi-dam omring deur broodbome, in Martin Bruwer se tuin. Foto: Derik Minnaar.  
**Colour Figure 41** The Koi pond surrounded by cycads, in Martin Bruwer's garden. Photo: Derik Minnaar.



**Kleurfiguur 42** Vroulike keëls van die Tugela Ferry *Encephalartos laevifolius*, in Martin Bruwer se tuin. Foto: Derik Minnaar.  
**Colour Figure 42** Female cones of the Tugela Ferry *Encephalartos laevifolius*, in Martin Bruwer's garden. Photo: Derik Minnaar.



**Kleurfiguur 43** Fanie Avenant (links) en Derik Minnaar (regs) geniet die uitstappie in Martin Bruwer se tuin. Foto: Lynette Minnaar.  
**Colour Figure 43** Fanie Avenant (left) and Derik Minnaar (right) enjoying the walk in Martin Bruwer's garden. Photo: Lynette Minnaar.



**Kleurfiguur 44** 'n Prageksempelaar van die "The Downs" *Encephalartos laevifolius* in Martin Bruwer se tuin. Foto: Derik Minnaar.  
**Colour Figure 44** A magnificent specimen of the "The Downs" *Encephalartos laevifolius* in Martin Bruwer's garden. Photo: Derik Minnaar.



**Kleurfiguur 45** Die Gauteng Streektak se uitstalling tydens die onlangse kongres van die Suid-Afrikaanse Genootskap van Plantkundiges en die "International Society for Ethnopharmacology" by die Universiteit van Pretoria.  
**Colour Figure 15** The Gauteng Regional Branch's exhibition during the recent conference of the South African Association of Botanists and the International Society for Ethnopharmacology at the University of Pretoria.



Colour Figure 46 Female cone of *Cycas siamensis* in Mr. Shri Dahr's Calcutta (India) garden. Photo: Shri Dahr.



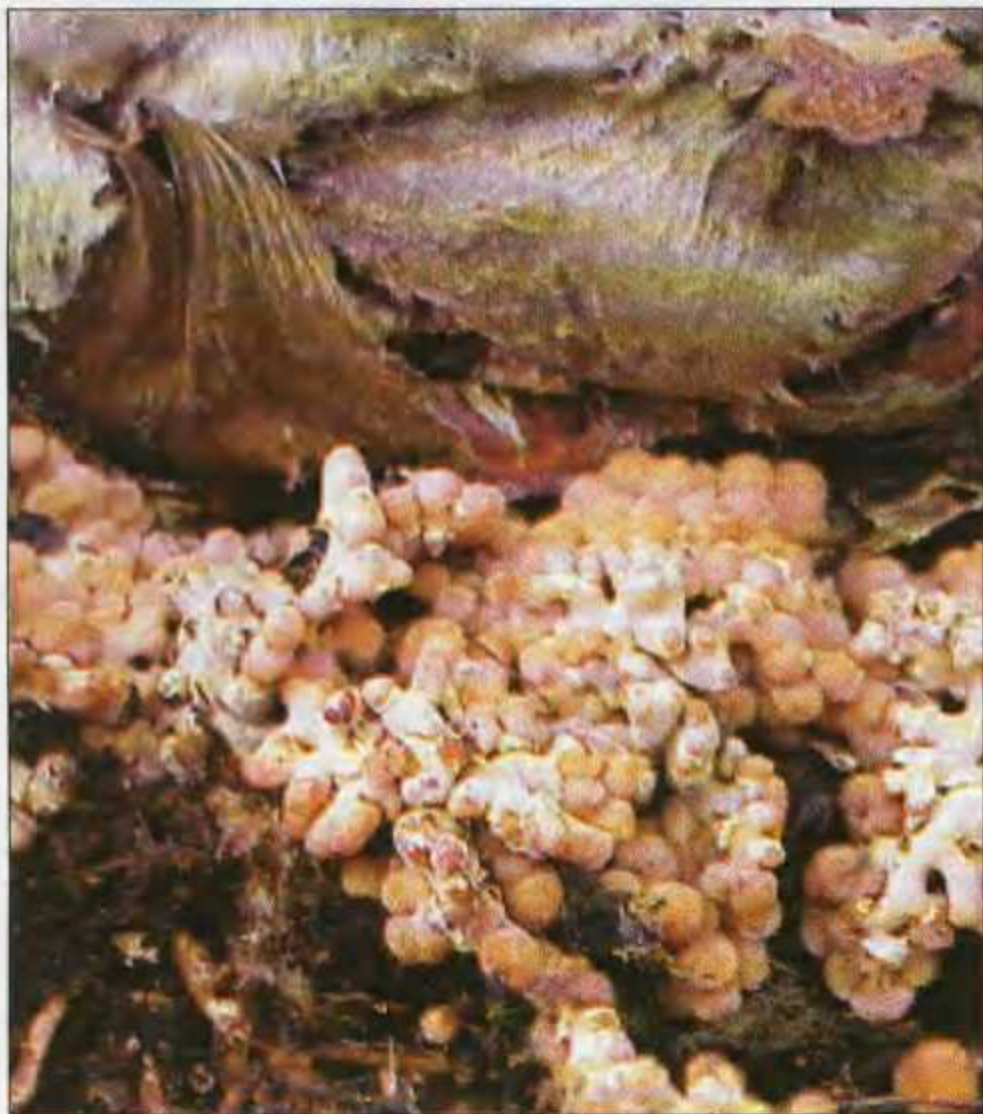
Colour Figure 47 *Cycas siamensis*, close-up of the female cone. Photo: Shri Dahr.



Colour Figure 48 Leaf/stem cutting of *Encephalartos woodii*, with an established root system and incipient trunk/stem. Photo: Chris Dalzell.



Colour Figure 49 The surviving specimen of *Encephalartos woodii*, seven years after cuttings were taken from a lateral growing head on the mother plant in the Durban Botanic Gardens. Photo: Mark Mattson.



Colour Figure 50 *Encephalartos woodii*: coralloid roots near the leaf base cutting. Photo: Mark Mattson.

30 minute afgehandel. Derik het almal verwelkom en die vergadering geopen. Die komitee is eenparig herkies en daar is na 'n blitsdebat besluit om die stuifmeelbeampte se pos te termineer en vakant te verklaar. Daar is ook besluit om 'n tentatiewe program in die begin van die jaar te publiseer, aangesien slegs sekere uitstappies vroegtydig geadverteer kan word. Hopelik sal dit die bywoning verbeter.

#### Toekomstige aktiwiteite

24 Mei 2003: Botchabello om *Encephalartos lanatus* in die natuur te besoek.

**26 Julie 2003:** Lekgalameetse Natuurresewaat in die Wolkberg (kontakpersoon: John Kloppers, 083 701 3482).

**6 September 2003:** Monte Casino tuine.

**11 Oktober 2003:** Tuinuitstappie (kontakpersoon: Ita van der Walt, 012 548 0223 tydens kantoorure).

**1 November 2003:** Jaareindfunksie.

Tree gerus na-ure in verbinding met Derik of Lynette by selfoonnommers 0824131025 of 0834177608 vir meer inligting met betrekking tot die relevante uitstappies.

Uitstalling by die kongres van die Suid-Afrikaanse Genootskap van Plantkundiges (SAGP) en die International Society for Ethnopharmacology (ISE).

Op versoek van die organiseerders is 'n uitstalling van die Broodboomvereniging opgerig (Kleurfiguur 45 op p. 29) by die bogenoemde kongres wat plaasgevind het vanaf 6 tot 11 Januarie 2003 by die Universiteit van Pretoria. Die doel van die uitstalling was om van die inheemse plantegroei van Suid-Afrika aan die kongresgangers, veral buitelanders, bekend te stel.

Die SAGP kongres word jaarliks gehou, hierdie jaar was dit die organisasie se 29ste kongres. Die ISE kongres is eers 2 jaarliks gehou, maar word nou ook jaarliks gehou en hierdie was die 6de kongres.

"The South African Association of Botanists (SAAB) was established for the advancement of Botany, to promote and uphold the status of this profession in all sectors of the population, and to perform such function as may be desirable for the attainment of these objectives. A total of 29 conferences have been held at all participating universities and academic institutions in South Africa. In January 2003 the 29<sup>th</sup> annual assembly of the SAAB was held in combination with the ISE.

## PROPAGATION OF ENCEPHALARTOS WOODII FROM LEAF/STEM CUTTINGS – REPORT BACK ON A PROJECT AT THE DURBAN BOTANIC GARDENS

**Mark Mattson and Christopher Dalzell**

Durban Botanic Gardens, P.O. Box 3740, 4000 Durban, South Africa

*Received December 2002*

In 1994, Roy Osborne and Chris Dalzell attempted to propagate *Encephalartos woodii* from leaf cuttings. This possibility has been occasionally explored by cycad enthusiasts, as reported by Grobbelaar (1995, 2002) for several species of *Encephalartos* but not including *E. woodii*. Similarly, Loran Whitelock (2002) has reported personal success with the propagation of *E. villosus* from partially-decomposed leaf bases. Generally speaking, *Encephalartos* leaves root easily, but the development of meristematic tissue which gives rise to new plants is infrequent.

The International Society for Ethnopharmacology (ISE) has held six international conferences mostly in Europe but also in Beijing and Hawaii and this year in South Africa."

In totaal was 310 persone geregistreer vir die kongres vanuit 31 lande.

### Summary

#### NEWS OF THE GAUTENG REGIONAL BRANCH

It has been decided to change the name "Transvaal Regional Branch" to "Gauteng Regional Branch". Since the Transvaal Province was divided into four separate provinces, members in Mpumalanga and the Northern (Limpopo) Province instituted their own regional branches and therefore, the name "Transvaal Regional Branch" is now inappropriate.

#### Report on recent activities

On 5 October 2002 a large group of keen members visited Martin Bruwer's garden (Colour Figures 41–44 on p. 29).

At the annual function on 26 October 2002 it was decided to publish a tentative program of intended activities in the first issue of ENCEPHALARTOS each year (see "Toekomstige aktiwiteite" above).

From 6 to 11 January 2003 the "South African Association of Botanists" and the "International Society for Ethnopharmacology" held their congresses at the University of Pretoria. Our Society took part in an exhibition (Colour Figure 45 on p. 29) with the aim to introduce the conferees, especially the foreigners, to some of South Africa's indigenous flora.

Osborne and Dalzell (1996) recorded that, after a nine month period, eight of the twelve cuttings had maintained their leaflets in a healthy condition, and had developed vigorous root systems at their bases. Additionally, one or two callus nodules (ca. 5 mm in diameter) had formed at each of the cut surfaces. This was most marked where original stem material had remained attached to the leaf base. Where a stem section from the mother plant is removed together with the leaf base, such cuttings are referred to as "leaf/stem cuttings" (Jones 2002). After fifteen months, only one of these eight specimens had survived, a number having been infected by fungi. The callus material on the remaining specimen was tentatively described as having differentiated into organised, and possibly meristematic tissue zones. Photographs of these callus nodules, as well as callus material showing signs of differentiation appeared in Osborne and Dalzell's (1996) article in "Encephalartos". The authors speculated that these zones could give rise to adventitious stem apices and, ultimately, new plants. 24 months after the leaf/stem cuttings were removed from the mother plant, this speculation proved, in the case of the single surviving cutting, to be well-founded. Colour Figure 48 on p. 30 show the leaf/stem cutting with an established root system, and an incipient trunk, or stem.

In summary, morphological development unfolded as follows;

0 months	Growing head removed from parent plant, cuttings taken
9 months	Root system and callus nodules
15 months	Root system and differentiated callus
24 months	Emerging trunk & developed root system



**Figure 1** The stem of *E. woodii*, with a basal width of approximately 150 mm.



**Figure 2** The original leaf base cutting, still visible after seven years, surrounded by coraloid roots.



**Figure 3** Coraloid roots at the base of the pot-bound root mass.

The story of this single, remaining experimental subject was re-examined in August 2002, seven years after the experiment began. The surviving specimen (Colour Figure 49 on p. 30) was re-potted, and photographs were taken to describe its development.

The emergent stem apex has formed a stem measuring approximately 150 mm at its base (Figure 1). The original leaf base cutting is still visible at the base of this stem (Figure 2) and is surrounded by coraloid roots (Colour Figure 50 on p. 30). A well-developed root system has

formed in the pot and coralloid roots are also visible at the base of the pot-bound root cluster (Figure 3). The cycad appeared to be in good condition and was moved to a larger pot. The "cautious optimism" of Osborne and Dalzell (1996) now appears to have entered the realm of orthodoxy. Jones (2002) describes this technique, noting that a healthy leaf is trimmed to about a third of its original length, and that a small stem section is removed with the "sheathing leaf base". Jones recommends that the basal portion be buried in sand and peat moss in a bottom-heat propagating unit and treated as a cutting. Jones states that "small outgrowths often arise from the stem region, and if nurtured carefully can be grown as separate plants". According to Jones this approach has been successful with *Encephalartos* and *Cycas*. Based on our experience with *E. woodii*, we conclude that this method, with possible refinements, will become a valuable technique for the propagation of *E. woodii* in particular and for rare species of cycads generally.

#### ACKNOWLEDGEMENTS

Many of the Garden's current efforts to improve standards of curation including that of the the Cycad collection have been supported through generous funding from the Unilever Foundation for Education and Development.



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## MONTGOMERY BOTANICAL CENTER'S CCC WORKSHOP

Terrence Walters<sup>1</sup> & Roy Osborne<sup>2</sup>

<sup>1</sup>Montgomery Botanical Center, 11901 Old Cutler Road, Miami, Florida 33156-4242, U.S.A.

<sup>2</sup>P.O. Box 244, Burpengary, Queensland 4505, Australia

Received June 2002

On 7 April 2002, the Cycad Classification Concepts (CCC) Workshop was convened at Montgomery Botanical Center in Miami, Florida. Fourteen of the world's leading authorities on cycad systematics participated in the workshop. John Donaldson, from the National Botanical Institute, and Piet Vorster, from the University of Stellenbosch, were the workshop's representatives from South Africa. The other CCC participants were Paul Forster, Ken Hill, Roy Osborne (Australia), Chia-Jui Chen (China), Paolo Caputo (Italy), Andrew Vovides (Mexico), Jeff Chemnick, Tim Gregory, Bart Schutzman, Dennis Stevenson, Loran Whitelock (USA), Anders Lindstrom (Thailand), many of whom are members of the Cycad Society of Southern Africa (Figure 1).

The purpose of the CCC Workshop was to develop a suite of classification guidelines in support of the advancement of an internationally-accepted and stable evolutionary classification system for the Cycadales. Increased research activity in the field of cycad systematics has led to

increased confusion. As researchers across the globe pursue the many new lines of inquiry provided by technological advances of the past two decades (e.g. DNA sequencing, random amplified polymorphic DNA analysis, etc.), focus on a consensus for how the approximate 300 species of cycads should be classified has become clouded. We are in urgent need of guidelines that all cycad systematists can follow in the designation of species, species boundaries and species groupings.

Although workshops with a similar purpose have been held to examine critically the systematics of other plant groups, the CCC Workshop was uniquely designed, using progressive business methodologies. Five arenas were identified as necessary for the planning and management of the event. The Personnel Arena was formed to deal with the subject of who would be involved as CCC Participants, who would be on the CCC Support Team (Figure 2), and who would undertake leadership roles during the Workshop process. The Site Arena dealt with everything concerning



**Figure 1** Participants seated from left to right: Dr. Andrew Vovides, Dr. Ken Hill, Prof. Chen Jia-Rui, Prof. Roy Osborne, Dr. Paolo Caputo, Dr. John Donaldson, Mr. Loran Whitelock, Dr. Paul Forster, Dr. Dennis Stevenson, Mr. Jeff Chemnick, and Dr. Piet Vorster. On the floor in front: Mr. Anders Lindström, Dr. Bart Schutzman, and Dr. Tim Gregory.



**Figure 2** Support team seated from left to right: Dr. Terrence Walters, Ms. Jean Stark, Mr. Don Decker, and Dr. Katherine Kron.

the facilities required for the Workshop – such as rooms for the various events and work sessions, transportation, housing, furniture, catering requirements, and audio-visual equipment. The Operations Arena dealt with identifying and taking the actions required to produce the major product of the Workshop – a volume on cycad systematics. The Planning Arena dealt with determining the tasks required their flow and their sequence – from the overall purpose and concept of the Workshop to the minute details associated with the organization and objectives of the

Workshop sessions themselves. Finally, the Management Arena dealt with how all of the above would be led and managed.

The first step was to bring in a management consultant, Don Decker, to support the Management Arena objectives and to oversee development of the other four arenas. The next steps were to articulate the purpose, or reason, for having the CCC Workshop, and to determine the products, or results, required to meet the purpose successfully. The overall process of actions that would be required to obtain the products was outlined and then the functioning capabilities, or resources, required for the process were identified. These processes and the development of the above five arenas provided the overall planning and execution structure for the CCC Workshop.

Bringing together a group of world-renowned cycad systematists representing several countries, cultures, and languages for consensus building can be difficult. That this event was successful is a tribute to the considerable work that took place prior to, during, and after the Workshop by the CCC Support Team and the CCC Participants.

The first session of the CCC Workshop, which was held on 7 April, created the opportunity for each CCC Participant to give a 20-minute oral presentation of their professional views on cycad classification concepts, systematics and

taxonomy. This one-day work session was organized as a symposium (CCC Symposium) that included invited guests. The second work session, conducted on day two, focused on elucidating the beliefs and philosophies that the participants held to be true concerning cycad systematics. Also on day two, during work session three, Dr. Katherine Kron of Wake Forest University, North Carolina, U.S.A. presented a discussion on a relatively new and somewhat controversial approach to plant nomenclature called "Phylocode." On the third day of the Workshop, the fourth and fifth work sessions required that the CCC Participants come to alignment on a suite of classification concepts or guidelines that they, as a group, would support and encourage the use of presently and in the future.

Prior to the Workshop, each CCC Participant submitted a

manuscript to the editors. These manuscripts were detailed discussions of the oral presentations presented by the participants during the CCC Symposium (work session one). These manuscripts will constitute Chapters 2 – 14 for a future reference volume, tentatively called *Cycad Systematics: Guidelines for Classification* due out in 2003 and based on the CCC Workshop. Chapter 1 will present the beliefs, or working hypotheses and assumptions, that the CCC Participants held to be true for cycad classification. The final chapter of the volume will summarize the classification guidelines that the CCC Participants agreed to follow, support and encourage in the attempt to produce a universally-accepted stable classification system for the Cycadales. The availability of this important text will be announced in a future issue of *Encephalartos*.

## CONSERVATION OR CONSTERNATION ?

**Marius Helm**

P.O. Box 9612, 5320 Queenstown, R.S.A.

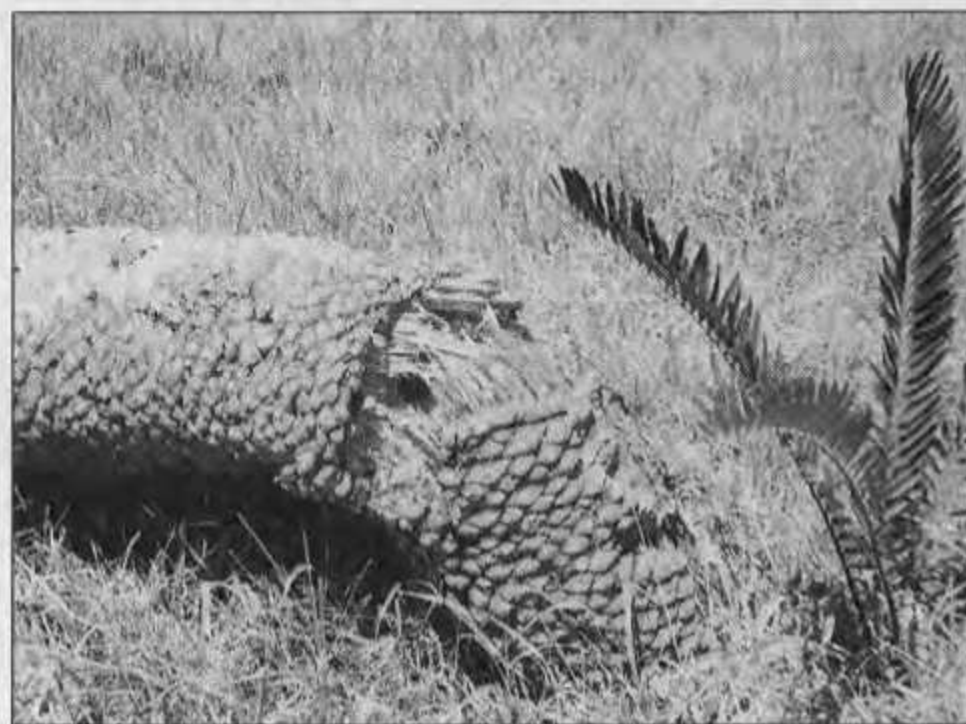
*Received 15 January 2003*

I am deeply concerned about the seriousness of the Eastern Cape Nature conservation officials with regard to the protection and conservation of our floral heritage. As a member of the Cycad Society of South Africa and a tax payer I do not think that these people have conservation as a priority on their every day agenda.



**Figure 1** The *Encephalartos altensteinii* that was blown over by wind.

On 11 November 2002, I was travelling on the road from King Williams Town to East London, when I noticed that a very old, 4m long, specimen of *Encephalartos altensteinii* (Eastern Cape Cycad) has been blown over by the wind (Figures 1–2). This plant is highly endangered and protected on CITES app 1 (An international body for the protection of wildlife world-wide). As I am a cycad grower and collector, I knew that this plant can be saved if the



**Figure 2** Close-up of the *E. altensteinii* showing the damage to the stem.

necessary care is taken. (Cycads are quite easy to re-establish if you know what to do).

I immediately phoned Mr Jaap Pienaar (Assistant Director Special Investigations Unit – Eastern Cape Nature Conservation) to report what I have noticed and that they need to send someone from close by to collect the plant for re-establishment. He said that he will contact someone to attend to the matter.

When I travelled on the same road again on the 21<sup>st</sup> of November 2002, I was surprised to see that the cycad was still there untouched!! I phoned Mr Pienaar to enquire and

he replied that they do not intend to collect the plant as they can do nothing for it, it was dead according to him. At this stage I asked him whether I can obtain a permit to collect the specimen and re-establish it if they do not intend to do so, as not let a plant that has survived the last 200+ years go to waste due to the seemingly unwillingness of someone who is responsible for conservation, to conserve it.

When I explained to him that the plant can be saved, and that I can help him, I was accused as a member of the Cycad Society of South Africa that we as members have never made ourselves available to assist Nature Conservation in the conservation of cycads. I immediately made myself available for assistance to the department in any way that I could be of assistance. He then told me that he will phone Mr Ricky Hannen from their East London branch, and that he will phone me back as soon as possible.

I received the call about 15 minutes later. Mr Hannen told me that I am not to be concerned and that they will be sending a truck that day still to collect the plant, and that they will contact me to assist them to re-establish the plant. Two weeks have passed since these promises and I have not

been called nor have the plant been collected.

This is totally unacceptable to me and I am sure to the rest of the public, with a heart for conservation. If these people do not have the manpower, as that might be their excuse, then why did they not allow me to collect the plant and re-establish it? I am not concerned with keeping the plant, as I will be more than willing to give it to a botanical garden after it has been established.

I feel that these gentlemen are not doing what the taxpayers are paying them for. What has conservation come to if a department has become too incompetent to do the job and is obviously unwilling to accept an offer of assistance.

The main reason seems to be that the officials are mainly interested in their pay cheque at the end of the month and not in protecting our heritage.

I am including some photographs (Figures 1–2) of this old giant that will most probably go to waste in the coming months.

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## NEW CYCAD PUBLICATIONS

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ASH, S. 2001 **New cycadophytes from the Upper Triassic Chinle Formation of the southwestern United States.** *PaleoBios* 21(1): 15–28.

[The Upper Triassic formations in the southwestern United States contain a large number of cycadophyte fossils representing a variety of species. In this report two new species of cycadalean leaves, *Pseudoctenis stewartii* and *Nilssonia lewisii*, and a new species of bennettitalean leaves, *Zamites tidwellii* are described from the Upper Triassic Chinle Formation in Utah and New Mexico. These fossils bring the total number of cycadophytes based on megafossils found in the Chinle Formation to 12, including five cycads and seven bennettitaleans. The occurrence of such a variety and number of cycadophytes in the Chinle Formation indicates that these plants were an important component of the Upper Triassic flora of the southwestern United States. They also demonstrate that many of the key vegetative and at least some reproductive characters of the cycadophytes were established by this time.]

*Author's address: Department of Earth and Planetary Sciences, University of New Mexico, Albu-*

*querque, New Mexico 87120, U.S.A.*

WILSON, G.W. 2002. **Insect pollination in the cycad genus *Bowenia* Hook. ex Hook. f. (Stangeriaceae).** *Biotropica* 24(3): 438–441.

[All confirmed records of entomophilic pollination in cycads are for species in the Zamiaceae. This paper presents details of entomophily in both species of *Bowenia* in the Stangeriaceae. Seed set in female cones from which wind and water borne pollen, but not insects, was excluded, indicates that pollination is obligately entomophilous. The pollination vectors are *Miltotrane*s weevils and the relationships are species-specific and possibly coevolutionary.]

*Author's address: Department of Tropical Plant Sciences, James Cook University, Cairns, Queensland 4870, Australia.*

*Compiled by Nat Grobbelaar, P.O. Box 15357, 0039 Lynn East, South Africa.*

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## LETTERS / BRIEVE

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Dear Editor

### IDENTIFICATION OF A CYCAD

Thank you for the September 2002 issue of "Encepha-

*lartos*". On page 20 you have printed a photo of an *Encephalartos* sp. sent by me of which I wanted the correct botanical name. I wonder if you have received any name? However, when Mr Michael Ferrero of Nong Nooch Botanical Garden visited me, I showed him this

*Encephalartos* and he gave the name of it as *E. laurentianus*. After studying the description and measuring the length of matured leaves which are around 12 feet long I felt that the name given by Michael Ferrero was correct. I thought this might be of interest to you.

In the same issue on p. 39 there is a photo of *Cycas siamensis*. I am not too sure if it is *C. siamensis* because it does not show the abruptly swollen base, which is a special characteristic of that species.

*Shri Dahr, 20 Ballygunge Park Road, Calcutta 700 019, India.*

*Received 13 November 2002*

[No one responded to Mr Dahr's request to name his *Encephalartos*. With regard to Piet Vorster's photo of *Cycas siamensis* on p. 39 of the September issue: the base of the stem is not shown in the photo because it is hidden behind a rock formation in the foreground.

Mr. Dahr also submitted an article "An interesting experiment in cross pollination between cycads". Several years ago he pollinated the female cone of *Cycas siamensis* using pollen of *C. rumphii*. However, the article already appeared in *Encephalartos* 46: 22-23, June 1996 with the photographs printed in black and white. Nevertheless, I decided to include the beautiful colour photographs of the female cone in this issue (Colour Figures 46-47 on p. 30).  
-Editor.]

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Dear Dr. Vorster

**RE: MR. JACK VAN DER MERWE'S "CALL FOR A LEGAL EAGLE"** (*Encephalartos* 71: 31, September 2002)

The question posed by Mr. Jack van der Merwe is a very common question posed, especially when it comes to Cycads. In my opinion the common law principle (*Accessio* [accession]) of what is attached to ground (i.e. immovables) belongs to the (new) property owner applies quite clearly.

And as you correctly state, unless something was specifically mentioned in writing (i.e. in the deed of sale or offer to purchase) to the contrary then the new property owner is the owner of what is attached to the property, and by virtue of that fact, the cycads (and wall, gates, swimming pools, etc.)

Mr. Van der Merwe's second question is thankfully simpler to answer. In my opinion, the law was originally broken by the sender (we assume) without the knowledge of the recipient or the courier service, and hence the sender has run foul of the law. Depending on whether this was done knowingly or not would also come into play. But then again, I am sure you know the adage of ignorance of the law, etc., etc.

I hope I have shed some light on this issue. Please let me

know should you have any further queries.

*Deon, L. Hignett, Section Head: Permits (Fauna, Flora, CITES & Hunting), Western Cape Nature Conservation Board, Private Bag X100, Vlaeberg, South Africa 8018.*

*Received November 2002*

Dear Piet

## MY CYCADS IN ZIMBABWE

Well believe it or not I am no longer on Springs Farm, and every cycad was dug up. I never thought I would have to move from that place but it goes to show that in Africa these days things can change quickly. It is going to take me a long time to get everything put in place on the new plot but it is going on slowly and with the rains soon coming the plants will recover.

I have enclosed an article (see p. 24-25 in this issue) and some photos which if you think would be of interest to the readers of "ENCEPHALARTOS" please send on to the editor.

It was hard to have to leave all those big palms and I just hope they will continue to thrive.

*Ian Turner, P.O. Box CH613, Chisipite, Harare, Zimbabwe.*

*Received December 2002*

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### E-mail letters:

From: Pieter van der Walt  
To: sacycad@yahoogroups.com and pjvor@sun.ac.za  
Sent: November 05, 2002; Subject: [sacycad] Chapter Activities of the SA Cycad Society

Yesterday I received my copy of *Encephalartos* # 71 in the mail and it was as usual packed with very interesting articles - -thanks Prof Piet for sharing some of your garden with us - looking forward to the next edition!! But I was a bit disappointed to read about the various report backs on activities held by the different chapters of the society. Especially when you read about the notification of the event after it has taken place! Furthermore, I see there are a number of outings to gardens or cycad sites. However, I always seem to hear or read about them after the fact.

My question is can the Society not publish a list of activities by the different chapters on the Society's web site? I do realise not everyone has web access or e-mail, but at least that is a start.

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From: Morne Ferreira [mailto:cycad@lantic.net]  
To: sacycad@yahoogroups.com

Sent: 05 November 2002; Subject: Re: [sacycad] Chapter Activities of the SA Cycad Society

Pieter, I agree that it would be nice to get information on these activities before the event. Derik Minnar from the Transvaal branch is not on our group, but I'll ask him or Ita van der Walt to inform us when events take place so that we can also sent out information on the group about upcoming events.

I think there are many members of this group who will join events and I would personally like to meet the Pretoria area members from our group. Now that I'm back in Pretoria it would certainly be nice to put faces to the names.

\*\*\*\*\*

From: Vorster, P.J. Dr.  
To: sacycad@yahoogroups.com ; Sent: 06 November 2002; Subject: Chapter Activities of the SA Cycad Society

To Morne and all others who recently expressed concern/interest in the Cycad Society of South Africa's chapter activities.

The way the messages were expressed, created the impression that this group has ownership of the Society, or at least is affiliated to it. That is not the case: this group is entirely autonomous. However, the Society also has a website which includes facilities for exchanging ideas (though it has temporarily been shut down because of abuse). That would be a better place to voice such opinions. Furthermore, Morne, I don't want to steal your excellent E-group (though I am very jealous of its success); but may it not be more productive and simpler for all concerned if we link it to the S.A. Cycad Society rather than maintain two separate E-facilities which basically have the same aim? Do let us hear what you think.

Piet Vorster, President: The Cycad Society of South Africa, Botany Department, University of Stellenbosch, Private Bag X1, 7602 Matieland, South Africa.

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From: PJVOR@SUN.AC.ZA  
To: sacycad@yahoogroups.com  
Sent: 5 November 2002; Subject: [sacycad] Chapter Activities of the SA Cycad Society

Hello Pieter!

I cannot agree more with you. However, it is up to the branches to send in news items. Similarly, it is up to the members to send in items about their plants, their gardens, and what they have been doing; to "Encephalartos" as well as the website.

Piet Vorster.

\*\*\*\*\*

From: Pieter van der Walt [mailto:pvdwalt@altron.co.za]  
To: pjvor@sun.ac.za  
Sent: 05 November 2002; Subject: RE: [sacycad] Chapter Activities of the SA Cycad Society

Hi Prof – thanks for the speedy reply! In other societies I've seen that events usually get published in the first newsletter or publication for the year – attempting to give members an idea of the activities lying ahead – however that assumes that all activities have already been planned and mostly finalised upfront. This could be a bit more trickier especially considering changes in weather or other circumstances for open site visits, etc. But at least some indication either on the website, email newsletter or in "Encephalartos" would surely entice more people to come to the planned events!

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From: Michael Hurly [mailto:michaelh@packnstack.co.za]  
To: sacycad@yahoogroups.com  
Sent: 05 November 2002; Subject: Re: [sacycad] Chapter Activities of the SA Cycad Society

I couldn't agree more. These outings seemed to be planned for a select "click". How about advertising these outings BEFORE they happen. Isn't this what the society is supposed to be about?

Michael.

\*\*\*\*\*

From: PJVOR@SUN.AC.ZA  
To: sacycad@yahoogroups.com  
Sent: November 05, 2002; Subject: [sacycad] Chapter Activities of the SA Cycad Society

Hello Michael!

Both you and Pieter are wrong.

Society outings are certainly not planned for a select "click". If you join any regional chapter, you will always be notified of planned chapter activities.

We allow regional chapters a large degree of autonomy. True, there are certain things which we ask them such as submitting financial reports on time; but their activities is an autonomous activity for those members who chose to be affiliated with that regional chapter, and there is no way in which the central committee can force the regional chapters to publicise their activities in advance.

If you two have no objection, I will ask the Editor to publish this exchange of ideas in the March 2003 "Encephalartos", then we can see what the reaction is.

Piet Vorster.

\*\*\*\*\*

From: Pieter van der Walt [mailto:pvdwalt@altron.co.za]  
To: sacycad@yahoo.com  
Sent: 07 November 2002; Subject: RE: [sacycad] Chapter Activities of the SA Cycad Society

Prof, I have to agree with Michael – I was under the impression that when I joined the Society, I would 'automatically' be affiliated with the regional branch and had no impression of autonomous existence or even the existence of clicques. Surely the mission statement and objectives of the Society applies to all branches?

Anyway, it was not my intention to open a can of worms or hit a nerve, but merely to be informed of any particular outings, seminars, talks - before they take place.

I would love to see constructive debate on this issue if so desired.

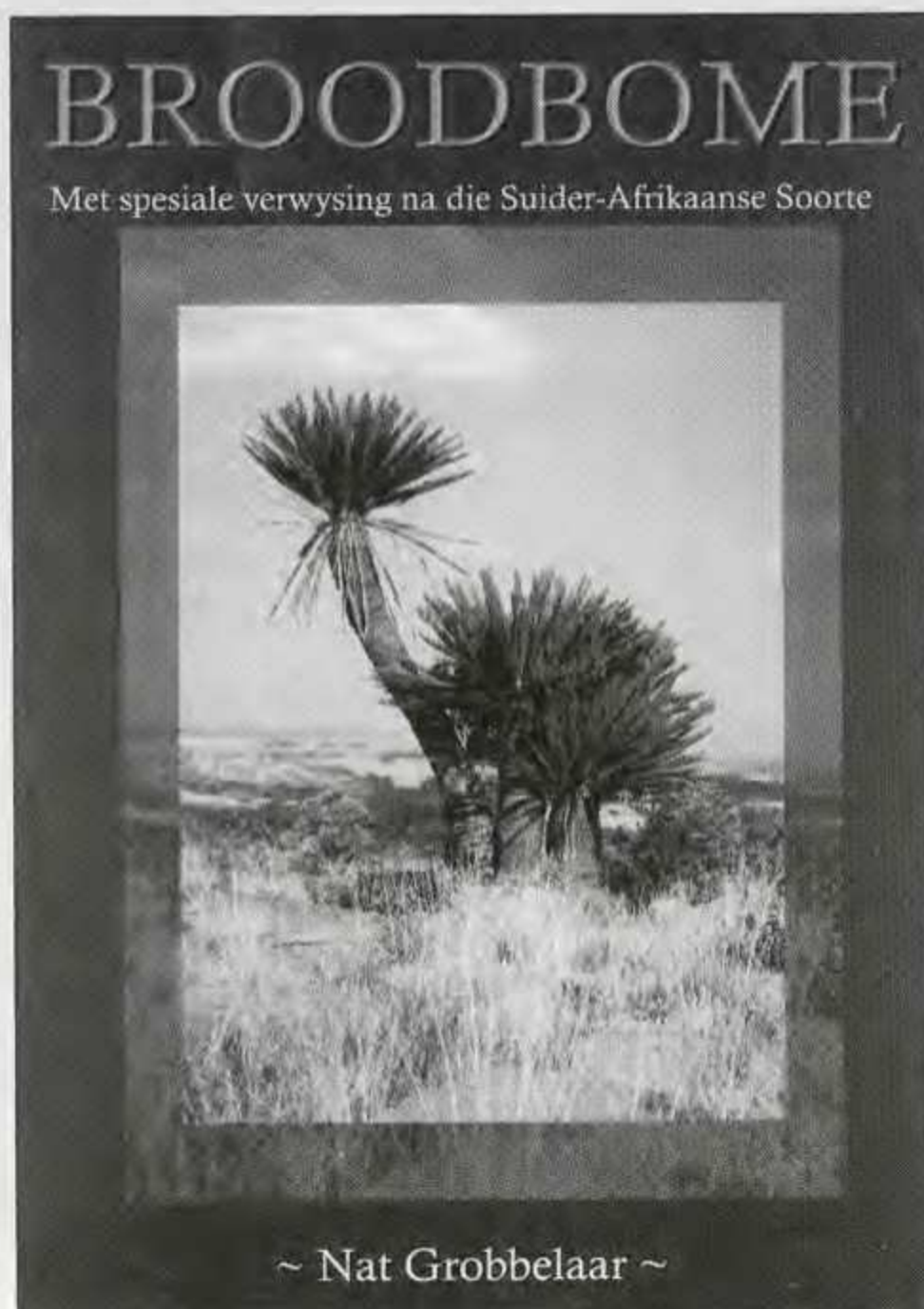
[Formerly when persons in Transvaal joined the Society they were automatically affiliated with the Transvaal Regional Branch, even after the Transvaal Province was divided into four provinces. Nowadays three of these

provinces have their own regional branches, but the name "Transvaal Regional Branch" has only quite recently (at their end of year function on 26 October 2002) been changed to "Gauteng Regional Branch". When persons in Gauteng and the Northern (Limpopo) Province join the Society they are still automatically affiliated with the relative regional branch of their province, but this does not apply to the Lowveld Regional Branch. I don't know whether Kwazulu-Natal still has a regional branch or not. For some years the Transvaal Regional Branch published a list of their planned activities for the relative year in the March issue of "Encephalartos" and I don't know why this was suddenly discontinued. I also received complaints about this matter from several of our members. I am pleased to let you know that the Gauteng Regional Branch has decided to continue to publish a list of intended activities in the March issues of our journal and the list for 2003 appears in this issue (see "Toekomstige aktiwiteite" under "Nuus van die Gauteng Streektak van die Vereniging" elsewhere in this issue). I call on all the other regional branches to do likewise. [See the intended excursion (walk) advertised by the Lowveld Regional Branch in the back of this issue. – Editor.]

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## BOOK REVIEW / BOEKBESPREKING

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**GROBBELAAR, NAT. *BROODBOME*, met spesiale verwysing na die suider-Afrikaanse soorte, ed. 2.**

PRETORIA: The author, 2002. x + 333 pages, numerous colour and monochrome photographs and diagrams. Hard cover, gold-blocked lettering on spine, and pictorial dust jacket. Price: R470 + R30 postage and packing within the R.S.A., available only from Prof. Nat Grobbelaar, P.O. Box 15357, 0039 Lynn East (see advertisement on page iv for more contact details and overseas agents). There is also an English edition with the title *CYCADS, with special reference to the southern African species*, available at the same price. A leather bound, encased, and numbered edition with the names of the purchaser inscribed (50 Afrikaans and 50 English copies) is available from the author at R1500 per copy plus R60 postage within the R.S.A.

This book is important because it is in Afrikaans. Readers outside South Africa probably neither know that Afrikaans is the language of the majority of South Africans, nor that it is currently under siege in favour of English. There was a time when important books on plants came out in separate Afrikaans and English editions, but currently Afrikaans books are not in fashion, ostensibly for economic reasons. This book is likely to expose the fallacy of that view. For many years the South African Academy for Arts and Science prepared thesauri of Afrikaans technical terms, and Nat Grobbelaar has been very active in developing Afrikaans botanical terminology. It is therefore fitting that he should put this terminology to use by writing this book in Afrikaans. In deference to prospective readers outside

South Africa, there is also an English edition. Apart from his involvement with developing Afrikaans botanical terminology, the author also has many years' research experience on cycads, initially investigating nitrogen fixation by the symbiotic Cyanobacteria in the coralloid roots, but later researching a wide variety of physiological phenomena. Since his retirement as Professor of Botany from Pretoria University, he has been doing free-lance research, established a cycad nursery, and also served as president of this society. This book summarises his intellectual property concerning cycads.

This review covers the second Afrikaans edition. The first was a very limited edition, and sold out within days. The second edition is printed on a more attractive and glossy paper, the dust cover is trimmed to the correct size, a number of design changes have been implemented as explained on page ix, and a number of errors have been rectified. The English edition, which I haven't seen, is said to be identical to the second Afrikaans edition in lay-out, but with even more minor errors corrected.

This book covers virtually all aspects of the living species of *Encephalartos*. The first chapter, **Introduction**, introduces the layman to the *position of cycads in the plant kingdom*, some *taxonomical and nomenclatural conventions and terminology*, and *conservation aspects*. It does not cover fossil history, chromosome number, or anatomy.

Chapter 2 describes **general morphology** under the headings *terminology, leaves, stem, roots, cones, and seeds*. The section on *terminology* is essential reading, firstly because these terms are used in the next chapter, and secondly because it is here that terms which may be unfamiliar to many readers, are explained. It is unfortunate that the use of the term *boela/bulla* is perpetuated for the exposed face of a sporophyll: *bulla* means *bubble, knob, or swelling*, and this would not be true for female cones of *Encephalartos lebomboensis*. Also here are some novel terms which the author invented, like *korruptule/corruptule, omnuul/omnule*, and *korruptel/corruptel*. Professional botanists need not scorn this chapter, because a bane of taxonomy is poor and undiagnostic description due to poor use of terminology.

Chapter 3 deals with **reproduction**. A rather brief overview of *insect pollination* provides the general principles but not specifics. I was surprised at the statement (page 45) that beetles of the genera *Amorphocerus* and *Antliarhinus* may play a part in cycad pollination: I have studied *Amorphocerus* and could as yet find no proof that they effect pollination even though their behaviour makes it seem likely; and *Antliarhinus* is not known to visit male cones. Readers will find the treatment of *artificial pollination* very useful, and unlike some other authors Grobbelaar here writes from long experience and experimentation. He even (page 48) provides hints on treating allergy to cycad pollen. Readers will also find the section on *vegetative propagation* useful. This part contains the technique of rooting leaves, first discovered by Grobbelaar his wife Hanneke. In short, this chapter is a very important summary of the reproductive biology of cycads.

Chapter 4 deals with **cultivation**, under headings including *light, soil, water, organic feeding, competition from trees, cycads as pot plants, moving plants, removal of old leaves, cold resistance, weed control, and insect pest control*. I am somewhat surprised that the use of Temik is promulgated: it certainly works, but is one of the most poisonous substances known to me and extremely dangerous to use, for which reason it is not available to the general public. The problem of *fungal, bacterial, and viral infections* is also discussed. The phenomenon illustrated on page 92 and ascribed to a virus infection has also cropped up in the Western Cape in recent winters, on cycads, *Clivia*, and *Dracaena draco*, but here it vanished subsequently. This chapter covers such a wide field that it even provides advice against thieves, barbets (woodpecker-like birds), and (quaintly) dogs.

Chapter 5 deals with **various other aspects of cycads** under the headings *maturation, age determination, sex, heat and odour production by cones, masking, slime exudation, toxins, market value, historical aspects* (more correctly anecdotes, which perhaps would have been better placed earlier in the book), and the *times at which pollen and seeds are released* in the Pretoria area.

Chapter 6, dealing with **identification of living cycads**, is likely to be the most frequently used chapter by impatient readers. Apart from placing the genus *Encephalartos* in perspective, 40 species of *Encephalartos* and *Stangeria eriopus* are treated by means of an *historical overview, description, habitat description* (which includes geographical distribution), hints on *cultivation*, and *notes* on topics like variation and diagnostic features, as well as several *photographs* taken in gardens as well as habitat. Unfortunately the species are arranged alphabetical instead of according to the similarities, so that it is difficult to identify nameless plants with this chapter. There is, however, a *key to identification of species* based on leaf characteristics.

The book ends with a **bibliography**, and a general **index**, and references to cycad societies and sources of information. Jones' new book (2002) (see *ENCEPHALARTOS* 71: 5–7 (September 2002)) is not listed, nor is Hodel's *Palms & cycads of Thailand*.

Gripes? It would be ungrateful to pick on a few spelling errors or differences of opinion, but the photographs are not what they could be. Most are very washed-out. Colours are often not true, for instance that of *E. arenarius* on page 140 don't show the lovely soapy green colour, while those of *E. latifrons* (page 224) doesn't convey the characteristic bright green colour. On page 3 Linnaeus travels back a century in time.

A very useful book, likely to be used far beyond the borders of South Africa. It is a privilege and pleasure to congratulate Nat Grobbelaar on its publication.

**Piet Vorster**

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