Journal of the Cycad Society of South Africa

ENCEPHALARTOS

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CYCAD SOCIETY OF SOUTH AFRICA
BROODBOOM VERENIGING VAN SUID-AFRIKA

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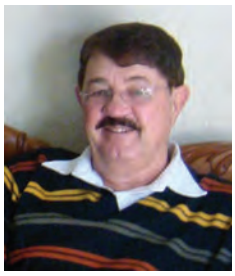

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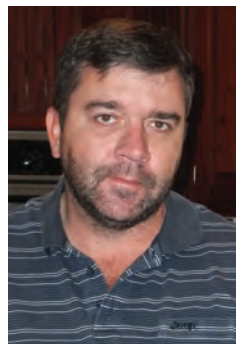

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Journal of the Cycad Society of South Africa

ENCEPHALARTOS

Tydskrif van die Broodboom Vereniging van Suid-Afrika

ON THE COVER:

Willie and Limei Tang at Modjadji during the pre-conference tour earlier this year. Photo: Prof. Liu Nian.

CONTENTS

No. 133 **September 2018** **ISSN 1012-9987**

FROM THE COUNCIL / VAN DIE RAAD

VAN DIE REDAKTEUR / FROM THE EDITOR

CYCAD 2018 is agter die rug en het baie suksesvol verloop. As voorsitter van die komitee wat dit behartig het wil ek graag almal wat gehelp het, betrokke was en bygewoon het, bedank; Fanie en Ina Vermaak en Edward Berry van die Laeveld Streektak; John Kloppers, John Evert, Tilania du Preez en haar eggenoot van die Sentraal Streektak; die komitee van die Wes-Kaap Streektak.

Die volgende mense is egter 'n spesiale woord van dank verskuldig; Vicki Venter was die konferensiesekretaresse en het 'n reuse taak baie makliker gemaak; Aletta Page het die registrasies behartig met entoesiasme en akkuraatheid en Frikkie Conradie, tesourier, het seker gemaak ek spandeer nie teveel nie.

Baie dankie ook aan die donateurs wat ons ondersteun het, Departement Omgewing Sake, The Cycad Society, The Cycad Society of Colombia en Mongomery Botanical Center.

Lees gerus Piet Vorster se verslag op bladsy XX in hierdie uitgawe. Ek hoop om al die bekendes in Kuba te sien in 2021! Moet dit nie misloop nie.

Ons eerste webblad is gedeeltelik deur John Kloppers befonds toe dit in 2002 gepubliseer is. John is nou weer betrokke en het die reuse taak onderneem om dit weer 'n goeie vernuwing te gee. Lede sal voortaan op die webblad kan betaal en die streektakke kan help om inligting op datum te hou. Baie dankie John vir die tyd en werk wat jy ingesit het.

Ons huidige president, John Kloppers, is tans ernstig siek. John, ons wens jou voorspoed toe met die behandeling. Ons dink aan jou en jou familie.

Beste groete
Wynand van Eeden

Cycad 2018 is now behind us and was a successful event. As chair I would like to thank everybody who helped and attended the conference; Fanie and Ina Vermaak and Edward Berry of the Lowveld Regional Branch; John Kloppers, John Evert, Tilania du Preez and her husband of the Central Regional Branch and the committee of the Western Cape Regional Branch.

The following people need a special word of thanks, Vicki Venter was the conference secretary and put in a huge effort to help with the organisation, Aletta Page managed the registrations with great enthusiasm and precision and Frikkie Conradie, the treasurer, made sure I did not spend too much.

A word of thanks to our sponsors who supported us, the Department of Environmental Affairs, The Cycad Society, the Cycad Society of Colombia and Montgomery Botanical Center.

Please read a more complete report by Piet Vorster on the conference on page XX of this issue. I hope to see everybody in Cuba in 2021. Do not miss it!

Our very first website was partly funded by John Kloppers and he again got involved to upgrade and improve the site. Members can now join and pay online and branches can help keep information updated. This was a huge task and we like to thank John for his hard work to oversee the overhaul and improvement of the website.

Our current president, John Kloppers, had a serious setback with his health. John, we want to wish you all the best with the treatment. You and your family are in our thoughts.

Kind regards
Wynand van Eeden

NB: BANKING DETAILS

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Account name:	Cycad Society of South Africa
Account number:	011 943 300. (cheque)

NEWS FROM THE CENTRAL BRANCH

CYCAD GARDEN VISIT IN RUIMSIG, ROODEPOORT

Christo Page

Figure 1. Admiring the good selection of large cycad plants at the entrance to Viviette du Plessis' property. Photograph: Christo Page.

On Saturday the 28th of July 2018, a record number of about 80 members of the Central Branch of the Cycad Society and a few guests paid a very informative and enjoyable visit to the cycad collections on the small holdings of respectively Johan Minnie and Viviette du Plessis in Ruimsig, Roodepoort. The gardens are within walking distance from each other.

This area lies north of a prominent quartzite ridge on the West Rand and has a very pleasant climate conducive to gardening and horticulture. The Walter Sisulu Botanical Garden is within a few kilometres from the gardens we visited.

The very extensive collection of cycads in Viviette's garden are planted interspersed with succulents and aloes in a large landscaped rockery around the house. A few tall cycads make excellent accent plants between the lower growing cycads and succulents. These include magnificent specimen of *Encephalartos longifolius*, *E. friderici-guilielmi* and an *E. latifrons*. Large tree aloes on the border of the property make a perfect back-

Figure 2. *Encephalartos latifrons* and other indigenous cycads in a large, sculptured rockery in front of Viviette's house. Photograph: Christo Page.

drop to the cycads. The ever-popular grey/blue leaved cycads *Encephalartos lehmannii*, *E. nubimontanus*, *E. eugene-maraisii*, etc, make an important component of the cycads in the garden. There are also some very well grown grey-green *Encephalartos cerinus* in the central area of the rockery. The garden and surroundings are

Figure 3. Dark green-leaved *Encephalartos longifolius* as a feature plant between many "blue-leaved" cycads – Viviette du Plessis' cycad collection. Photograph: Christo Page.

very neat and well-kept and is testimony of Viviette and her gardener's hard work. The lone ostrich in his camp adjacent to the garden kept a watchful eye on our activities while we were there and is probably a good deterrent to would-be cycad thieves.

Viviette, her very industrious daughter Nadene, and some other lady friends entertained us on freshly backed scones and liquid refreshments at tea time for which many thanks are due. Nadene seem to have been the chief baker of the scones. After the very enjoyable refreshments it was time to walk or drive to Johan and his wife Nelia's garden.

Signature to Johan's property is the large collection of beautiful rare and not so rare cycads and his colourful own bred and raised aloe hybrids. The cycads, aloes and other succulents are established in landscaped raised flower beds around the house, swimming pool and against the peripheral walls of the property. Everything is kept immaculately neat. There are many noteworthy cycads in the garden which include *Encephalartos hirsutus*, *E. heenanii*, *E. latifrons*, *E. nubimontanus* and *E. cupidus*, and a very striking "berg" *Encephalartos ghellinckii*. The *E. heenanii* in particular, but also some of the other rare cycads sucker readily and are marked by tags as to whom it was reserved on order. Some

Figure 4. The effective use of large tree aloes and other succulents between the cycads in Viviette du Plessis' cycad garden. Photograph: Christo Page.

Figure 5. Johan Mienie is a very skilled and successful hybridiser of aloes which he uses to contrast with the cycads. Photograph: Christo Page.

Figure 6. Large, tree-sized specimen of *Aloe barberae* (left) and a hybrid between this aloe species and *A. dichotoma* as background to cycads, other aloes and succulents. Photograph: Christo Page.

Figure 7. Johan has some plants of the blue-grey *Encephalartos munchii* in the garden. This lovely cycad has leaflets with spiny margins and comes from a small area in Central Mozambique. Photograph: Christo Page.

Figure 8. An unusual, very spiny, multi-stemmed, robusta type *Encephalartos nubimontanus* in Johan Mienie's garden. Photograph: Christo Page.

Figure 9. A selection of some rare indigenous Encephalartos cycads in front of Johan Mienie's house. These include (from left to right) *Encephalartos heenanii*, *E. hirsutus* and *E. latifrons.* Photograph: Christo Page.

Figure 10. *Cycas cairnsiana* is a very distinctive cycad from NE Queensland, Australia. In nature it grows under rather hot and arid conditions. Photograph: Christo Page.

Figure 11. Tilania du Preez, chairperson of the Central Branch of the Cycad Society, thanking Johan Mienie and Viviette du Plessis for allowing us to view their respective cycad collections and for providing refreshments and lunch to the visitors. Photograph: Christo Page.

other "Africa" *Encephalartos* species including some grey-green leaved *E. munchii* plants are also to be found in the garden. *E. munchii* is a striking cycad from a small area in Mozambique with somewhat thin leaflets which have numerous spines on both sides.

Two large tunnel green houses on the property are used to house respectively the cycad propagations and seedling aloe hybrids. The cycads in the garden are in a very good condition and grow exceptionally well. Johan ascribes his success to the fact that he fertilises his plants on a regular basis with organic feed – cattle manure and bone meal, and occasionally soluble chemical fertiliser.

After everybody had a good look at all the beautiful cycads and the aloes in full flower, Johan and Nelia, family and other helpers treated us on liquid refreshments and a delicious lunch. It can be safely stated that we all had a very informative and interesting day in Ruimsig with lively social interaction between the society members. We all wish to thank the Mienies and Viviette du Plessis for allowing us to visit their gardens and for all the delicious refreshments. It is much appreciated.

Figure 12. Visitors enjoying lunch in Johan and Nelia Mienie's entertainment area. Photograph: Christo Page.

THE CYCAD SOCIETY OF SOUTH AFRICA
ANNUAL FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2016

The report and statements set out below comprise the annual financial statements presented to the members of the Society.

Contents

Approval of annual financial statements

The annual financial statements for the year ended 31 December 2016 recorded on pages 3 to 9 have been approved and signed on 24 January 2018.

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TREASURER

Alan Soley
Chartered Accountant (S.A.)

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THE CYCAD SOCIETY OF SOUTH AFRICA

REPORT OF THE AUDITOR TO THE MEMBERS

I hereby declare that I am not a member of the Cycad Society of South Africa, and I have no interest in its financial affairs. These financial statements have been compiled from information and explanations received from the Treasurer and Officials of the Society.

I hereby certify the the Annual Financial Statements for the year ended 31 December 2016 are in accordance with the accounting records.

ALAN SOLEY B COMPT CA (SA)

Pretoria
24 January 2018

THE CYCAD SOCIETY OF SOUTH AFRICA

STATEMENT OF FINANCIAL POSITION AT 31 DECEMBER 2016

	Notes	2016 R	2015 R	2014 R
ASSETS				
Non-current assets				
Property, plant and equipment	2	6	6	6
Current assets				
Inventories	3	75 264	76 645	72 865
Cash and cash equivalents	4	610 781	615 901	665 161
		686 045	**692 546**	**738 026**
Total assets		**686 051**	**692 552**	**738 032**
EQUITY AND LIABILITIES				
Capital and reserves				
Accumulated reserves		638 619	645 760	698 703
Current liabilities				
Trade and other payables	5	47 432	46 792	39 329
Total equity and liabilities		**686 051**	**692 552**	**738 032**

THE CYCAD SOCIETY OF SOUTH AFRICA

DETAILED INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2016

	Notes	2016 R	2015 R	2014 R
Income		**243 772**	**242 853**	**312 252**
Subscriptions		165 642	165 449	225 716
Donations received	6	16 904	16 645	23 033
Sales	7	11 530	8 959	19 316
Interest received on bank balances		46 946	44 850	40 137
Advertisements		2 750	6 950	4 000
Other income		-	-	50
Less: Expenses		**250 913**	**295 796**	**306 081**
Advertising		-	-	9 029
Assets under R7 000		1 700	-	3 000
Auditor's remuneration		500	500	500
Bank charges		4 631	3 851	3 654
Banners		-	-	5 005
Board meeting costs		19 104	25 518	20 513
Branch transfers		3 815	15 750	10 510
Cost of sales	8	8 104	4 086	3 602
Donation - Vink se Tuin		20 000	-	-
Encephalartos' publication and printing costs		97 201	109 366	89 646
Flowers		-	375	-
Honorarium		30 000	30 000	32 500
Import duties		-	254	-
Internet costs		2 607	2 376	3 911
Orchid show		-	-	40 500
Postage and photo copies		47 049	56 443	36 600
Repairs		4 493	4 550	3 500
Sponsorships		-	35 000	-
Stationery		7 202	3 292	1 738
Telephone		3 267	3 102	2 516
Travel expenses		-	-	2 649
Web design		1 240	1 333	36 708
Net (deficit)/surplus for the year		**(7 141)**	**(52 943)**	**6 171**
Accumulated reserves at beginning of year		645 760	698 703	692 532
Accumulated reserves at end of year		**638 619**	**645 760**	**698 703**

THE CYCAD SOCIETY OF SOUTH AFRICA

ACCOUNTING POLICIES

1. Presentation of Annual Financial Statements

The annual financial statements have been prepared on the historical cost basis, and incorporate the principal accounting policies set out below. They are presented in South African Rands.

These accounting policies are consistent with the previous period.

1.1 Property, plant and equipment

Property, plant and equipment are tangible items that:

are held for administrative purposes, and
are expected to be used during more than one financial period.

Costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred to add to, replace part of, or service it. If a replacement cost is recognised in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognised.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses.

Depreciation is provided using the straight-line method to write down the cost, less estimated residual value over the useful life of the property, plant and equipment, which is as follows:

Item	Average useful life
Equipment	6 years
Computer software	2 years

The residual value, depreciation method and the useful life of each asset are reviewed at each annual reporting period if there are indicators present that there is a change from the previous estimate.

Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised in the income statement in the relevant financial period.

1.2 Financial instruments

Financial instruments at amortised cost

Financial instruments may be designated to be measured at amortised cost less any impairment using the effective interest method. These include trade and other receivables, loans and trade and other payables. At the end of each reporting period date, the carrying amounts of assets held in this category are reviewed to determine whether there is any objective evidence of impairment. If so, an impairment loss is recognised.

1.2 Financial instruments continued

Financial instruments at cost

Equity instruments that are not publicly traded and whose fair value cannot otherwise be measured reliably are measured at cost less impairment. This includes equity instruments held in unlisted investments.

All financial assets whose fair value cannot otherwise be measured reliably, and which do not meet the criteria to be designated as instruments measured at amortised cost, are measured at cost less impairment.

Financial instruments at fair value

All other financial instruments are measured at fair value through the income statement.

1.3 Revenue recognition

Subscriptions received from members are recognised in the income statement in the financial period to which they belong. Any amounts received in advance are carried over to the financial period to which they belong.

Revenue from donations, sales and advertisements are recognised in the income statement in the financial period in which they are received.

Interest is recognised, in the income statement, using the effective interest rate method.

	2016	2015	2014
	R	R	R

2. Property, plant and equipment

	2016			2015		
	Cost	Accumulated depreciation	Carrying value	Cost	Accumulated depreciation	Carrying value
Equipment	16 908	(16 904)	4	16 908	(16 904)	4
Computer software	9 765	(9 763)	2	9 765	(9 763)	2
Total	**26 673**	**(26 667)**	**6**	**26 673**	**(26 667)**	**6**

	2014		
	Cost	Accumulated depreciation	Carrying value
Equipment	16 908	(16 904)	4
Computer software	9 765	(9 763)	2
Total	**26 673**	**(26 667)**	**6**

Reconciliation of property, plant and equipment - 2016

	Opening balance	Additions	Disposals	Depreciation	Total
Equipment	4	-	-	-	4
Computer software	2	-	-	-	2
	6	**-**	**-**	**-**	**6**

Reconciliation of property, plant and equipment - 2015

	Opening balance	Additions	Disposals	Depreciation	Total
Equipment	4	-	-	-	4
Computer software	2	-	-	-	2
	6	**-**	**-**	**-**	**6**

Reconciliation of property, plant and equipment - 2014

	Opening balance	Additions	Disposals	Depreciation	Total
Equipment	4	-	-	-	4
Computer software	2	-	-	-	2
	6	**-**	**-**	**-**	**6**

FROM THE COUNCI

	2016	2015	2014
	R	R	R
3. Inventories			
Back issues	41 336	42 868	43 350
Cycads of Vietnam	2 411	2 553	2 564
Cycads of Central Africa	859	1 719	2 456
Cycads with specific reference to the SA species	1 200	1 200	-
DVDs	15 785	17 785	14 687
Grow clivias	203	407	711
Grow cycads	42	42	374
Identification of indigenius Cycads of SA	5 250	3 300	2 700
Identification of indigenius Cycads by Cones	6 650	-	-
Index	840	840	3 920
Plastic envelopes	-	4 776	1 778
Postage stamps	688	1 156	325
	75 264	**76 645**	**72 865**
4. Cash and cash equivalents			
Cash and cash equivalents consist of:			
Bank balance - Standard Bank	5 139	7 319	2 027
Fixed deposit	570 000	550 000	600 000
Money Market account	27 422	55 491	55 644
Market Link account	4 662	772	1 245
Trust account - Stratcol	614	614	614
Cash on hand	2 944	1 705	5 631
	610 781	**615 901**	**665 161**
Cash and cash equivalents are divided into the following funds:			
General fund	569 229	582 163	640 203
Research fund	41 552	33 738	24 958
	610 781	**615 901**	**665 161**
5. Trade and other payables			
Subscriptions received in advance	39 192	27 542	23 700
Audit fees	1 000	1 000	500
Branch transfers	7 240	15 750	15 129
Honorarium	-	2 500	-
	47 432	**46 792**	**39 329**

THE CYCAD SOCIETY OF SOUTH AFRICA

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER 2016

	2016	2015	2014
	R	R	R
6. Donations received			
General	9 090	7 865	14 590
Research	7 814	8 780	8 443
	16 904	**16 645**	**23 033**
7. Sales			
Back issues	2 360	2 148	3 176
Cycads of Vietnam	200	-	900
Cycads of Central Africa	950	880	1 470
DVDs	2 200	3 100	9 300
Grow clivias	140	280	565
Grow cycads	-	-	485
Identification of indigenius Cycads of SA	5 180	2 551	3 120
Identification of indigenius Cycads by Cones	500	-	-
Prints	-	-	300
	11 530	**8 959**	**19 316**
8. Cost of sales			
Cycads of Vietnam	142	12	570
Cycads of Central Africa	859	737	1 228
DVDs	2 000	-	1 296
Grow clivias	203	305	508
Grow cycads	-	332	-
Identification of indigenius Cycads by Cones	350	-	-
Identification of indigenius Cycads of SA	4 550	2 700	-
	8 104	**4 086**	**3 602**

NB: BANKING DETAILS

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Branch: Montana
Branch code: 011 545 although there is a special code for internet banking which appears automatically
Account name: Cycad Society of South Africa
Account number: 011 943 300. (cheque)

CYCAD 2018

PRE-CONFERENCE TOUR

Piet Vorster (pjvors@gmail.com)

Figure 1. The participants to the pre-conference expedition at Modjadji.***Left to right, back:*** Marjorie Ramos & Steve Sarner (Panama), George Sparkman (California, U.S.A.), Fanie & Ina Vermaak (organisers, South Africa), Ian Waters (Zimbabwe), Malcolm Thackray (Zimbabwe), Valerie Neuner & Greg Ginsburg (California, U.S.A.), Chip Jones (Florida, U.S.A.), Liu Nian (China), Gary & Debbie Keasler (California, U.S.A.). ***Front:*** Martin Nagel, our driver, John & Cynthia Evert (South Africa), Willie Tang (Florida, U.S.A.), Gary Roberson (California, U.S.A.), Dominique & Marie-Ange Cordonnier (France), Limei Tang (Florida, U.S.A.), & Piet Vorster (South Africa).

As customary, the CYCAD 2018 conference was preceded by one or more field expeditions to show visitors Cycads in nature. The following pictorial report highlights some sights from the pre-conference tour through the northern parts of South Africa, which took place from 12 to 19 August 2018. It was organised by Fanie and Ina Vermaak, assisted by John and Cynthia Evert, with Piet Vorster as guide.

Our first stop was in an area between Middelburg and the Olifants River. No traveller along that sector of the N4 highway would expect any cycads to grow in that rather bleak landscape, yet as one leaves the highway and starts losing altitude the landscape becomes broken, with a series of parallel ridges which often contain substantial cliffs, and this is where cycads are found, almost always associated with rock outcrops where the seedlings are protected from annual grass fires. Here two species occur: *Encephalartos middelburgensis* and *E. lanatus*. These two species do not hybridise, as they cone six months apart. *E. middelburgensis* occurs here as solitary plants which are widely separated, and do not set fertilized seed, though elsewhere the plants occur closer together and seedlings are evident.

Figure 2. *Encephalartos middelburgensis*: a truly magnificent plant.

Figure 3. *Encephalartos middelburgensis*: this is a single plant.

Figure 4. *Encephalartos middelburgensis* on a cliff – a dangerous place for fieldwork. Photo: Malcolm Thackray.

Figure 5. *Encephalartos middelburgensis*: – leaf detail. Note how opposing rows of leaflets are folded almost together.

Figure 6. *Encephalartos lanatus*: a plant producing cones of undetermined sex, typically wedged between rocks. Note the glaucous ("blue") fronds.

Figure 7. *Encephalartos lanatus*: a typical mature plant with basal offsets. Again, note the glaucous ("blue") leaves, and also charred trunk.

By contrast, at this site *E. lanatus* occurs in several large colonies, often forming dense thickets. Again most plants are associated with rocky places. We estimated several hundreds, if not thousands, of plants. Many of these had coned during the past season, and the ground was covered with seeds. Often these seeds were underneath rock overhangs whence they were carried by rodents which probably ate off the sarcotestas.

Figure 8. *Encephalartos lanatus*: leaf detail.

Figure 9. *Encephalartos lanatus*: a small group. Note green fronds.

Figure 10. *Encephalartos lanatus*: a dense group with green fronds, wedged amongst rocks.

Figure 11. *Encephalartos lanatus*: another group with green fronds, on a rocky ridge overlooking an otherwise desolate Highveld view.

Figure 12. *Encephalartos lanatus*: one more plant with green fronds, wedged yet again between rocks.

We were surprised at a second colony, where the fronds were decidedly green fronds.

Here I have to deliver a little sermon. We were hoping to show our guests *E. eugene-maraisii* but although we spoke to several landowners, we could not get permission to do so. All of them said that whenever in the past they allowed cycad people onto their land, plants vanished in short order. Who done it??

Figure 13. *Encephalartos lanatus*: an interesting phenomenon. On this otherwise rock-less grassland there runs a single linear rock outcrop culminating in a miniature cliff not more than a meter high. The cycads are restricted to this wall of rock where the cycad seedlings are obviously protected from the annual fires burning off the grassland to the left. These cycads are accordingly dispersed in a hedge-like row looking for all the world like an artificial planting. Note how this row stretches towards the horizon on the left, and also how the stem of the plant in the foreground is charred on the side of the adjoining grassland only.

Figure 14. *Encephalartos dolomiticus*. The last one in Nature? And for how long?

Figure 15. *Encephalartos dolomiticus*: leaf detail.

On the second day we saw something very special: a single plant of *E. dolomiticus*. This plant grows on dolomite on the Wolkberg range, and is arguably the last remaining one in nature.

Our next encounter with cycads was more optimistic: *E. transvenosus* at Modjadje. At this place these plants stand close together; hundreds or even thousands of them. Yet I seem to remember that the plants stood in rather open grassland when I visited the site in 1972. I cannot at this moment access the photos which I took then, yet a look at those in Dyer's work *The cycads of southern Africa* (*Bothalia* **8**: 405–515 (1965)) also shows the associated vegetation to be much more open than now. Can it be that conservation measures keeping grazing animals away and preventing grass fires are promoting bush encroachment? If so, the locality should be managed to combat bush encroachment. Still, many stems show evidence of fire. Dyer (p. 496) also wrote ""Another feature of *E. transvenosus* at Modjadje, and unrivalled in southern Africa, is its presence in forest formation". Yet neither his photographs nor my recollections support this, the current associated vegetation being scrub rather than forest.

Figure 16. *Encephalartos transvenosus*: the high density of plants at Modjadje is something seldom seen in South Africa.

Figure 17. *Encephalartos transvenosus*. This looks like a piece of abandoned paradise.

Figure 18. *Encephalartos transvenosus*: these plants can grow enormously big.

Figure 19. *Encephalartos transvenosus*: many plans form aerial suckers, but normally these do not develop into branches, and are also difficult to root after removal.

Figure 20. *Encephalartos transvenosus*: Many plants have charred stems from veld fires, so fire seems to be of regular occurrence. In site of what I suggested earlier, it seems probable that fire does not prevent bush encroachment. While by no means abundant, seedlings are evident, so the population has to be declared healthy, and fire does not entirely prevent regeneration from seed.

Figure 21. *Encephalartos transvenosus*: habitat loss is considered to be one of the major factors responsible for the decline of species. Although this colony of *E. transvenosus* still looks healthy, human expansions (as in the background) is coming uncomfortably close.

One of the mysteries of *E. transvenosus* is that no pollinating insects has (yet) been recorded; so much so that Nat Grobbelaar, who studied various aspects of *E. transvenosus*, categorically declared that it must be wind pollinated. The verdict is still out.

E. dyerianus, with about 600 plants crowded together on one hill, is another species shrouded in mystery. Its habitat consists of a row of similar granite hills curving away into the distance, yet only one of these harbour cycads. This habitat is not only relatively undisturbed, but has also to some extent been augmented with plants

Figure 22. *Encephalartos dyerianus*: there are no plants on this hill, but it is similar to that on which the cycads grow.

Figure 23. *Encephalartos dyerianus*: the hill on which the cycads grow, is fenced, with a permanent camp of armed guards on top. I know Xander de Kock, who joined this part of the expedition, as a man of integrity.

Figure 24. *Encephalartos dyerianus*: a large plant vigorously suckering from its base.

Figure 25. *Encephalartos dyerianus*: two relatively young plants.

Figure 26. *Encephalartos dyerianus*: a dense group of plants. In the foreground is a large plant which happened to fall over, but it survived and the apex of the trunk is once again growing upwards.

grown from seed in the late lamented Transvaal Division of Nature Conservation's nursery in Pretoria.

Encephalartos humilis occurs in mistbelt grassland, and as such is subject to annual grass fires which burn off the cycads' leaves. However, on the plantations such as where we viewed them, fires are discouraged for

Figure 27. *Encephalartos dyerianus*: another large clump, probably a single plant with suckers of various sizes. I's ultimate age is anyone's guess.Photography at this site was not easy. Firstly the terrain is strewed with huge boulders like an abandoned playground of Fasolt and Fafner's children, and secondly there are always other plants in the way. In summer, when the associated trees are in leaf, photography is likely to be very difficult.

Figure 28. *Encephalartos dyerianus*: leaf detail.

Figure 29. *Encephalartos humilis* in unburnt grassland, looking about as scruffy as one can get. The stem is almost completely underground.

obvious reasons. At the best of times their leaves are probably not designed to last more than one season, and as such they were particularly scruffy when we saw them. Still, there was excitement.

Then there was the matter of *E. lebomboensis* growing at the northern end of the Lebombo range. When we set out for the place where it is known to grow, we soon ran into a drizzling rain. Certainly we were not going to get put off by a spot of rain, but this rain became more serious as we drove eastwards. Eventually we had to turn off from the tarred rod onto a dirt track, and that was when we really ran into trouble. We did not know that there were enormous potholes in the track, because

Figure 30. *Encephalartos humilis*: another scruffy plant, with an emerging cone which appears to be female.

Figure 31. *Encephalartos humilis*: the emerging [female?] cone.

Figure 32. *Encephalartos humilis*: a sharp-eyed member of our team spotted both male and female desiccated cones from a previous season.

Figure 33. Stuck in the mud. Fanie's truck (seen through the windscreen of our bus) missed the mud hole, but our bus got thoroughly bogged down. Eventually we got it unstuck. Being brave explorers we were ready to walk to the cycads at any cost, but the mud was so slippery that we had to abandon that plan.

they were filled with muddy water and thus invisible. In no time at all our vehicle fell into one of these, and there we were stuck.

The last cycad which we visited, was the so-called Krokodilpoort form of *Encephalartos laevifolius*, to

Figure 34. *Encephalartos laevifolius*: cultivated plant of the "Krokodilpoort" form. Note the densely spaced leaflets with an angle of about 90° between opposing rows, and green rather than glaucous in colour.

the best of my knowledge known from a single plant. The original plant was removed from habitat to a farm garden within sight of the original locality, and a handful of suckers dispersed to other private collections.

All of us are eternally grateful to Fanie and Ina Vermaak, and John and Cynthia Evert, for the opportunity to see these plants in nature. We are unlikely to forget this, ever.

Figure 35. *Encephalartos laevifolius* "Krokodilpoort" form: leaflets in adaxial (upper surface) view (left), and abaxial (lower surface) view (right).

CYCAD 2018

REPORT

Piet Vorster

CYCAD 2018: the participants. Photo: Piet Vorster.

CYCAD 2018, the 11th International Conference on Cycad Biology, hosted by the Cycad Society of South Africa, took place from 20 to 23 August at the Ingwenyama Lodge outside White River. This venue was chosen because it is in a rural part of South Africa, with cycad habitat close by, with a splendid collection of cycads at the Lowveld Botanical Garden at Nelspruit, being close to the essence of the African Bush at the Kruger National Park, and the absence of the distracting attractions of a city or town.

The Conference hosted about 100 participants, from Australia, Brazil, China, Colombia, France, Indonesia, Hungary, Japan, Mexico, Netherlands, New Zealand, Panama, Portugal, Scotland, The U.S.A. including Hawaii, Uganda, Zimbabwe, and South Africa. A name list is presented at the end of this report.

Some 36 papers were presented, and it is noteworthy that no less than 20 of these were read in the symposium on Conservation. Particularly interesting was the application of DNA in a range of disciplines, including Conservation, taxonomy, evolutionary relationships, endophytic organisms, and pollinating insects. Arguably the most startling paper was read by Boglarka Erdei on the first fossil seedling cycad.

The following is a list of these papers. The name of the presenting author is in **bold**:

- **KGOPE**, Bartney: opening address to this symposium – The TOPS regulations for the conservation of South African species of *Encephalartos*. This was followed by presentations on various aspects of the TOPS regulations by members of his staff.
- **ARTURO ARISTIZABAL**, DINO JESUS DTUBERQUIA, & MARIA JOSE SANIN: Conservation genetics of two highly endangered and poorly known species of *Zamia* in Colombia.
- **ALICIA WAIN**: Survival outcomes of *Cycas megacarpa* across three translocation programmes.
- **JOSÉ SAID GUTIÉRREZ ORTEGA,** KAREN JIMÉNEZ-CEDILLO, MIGUEL PÉREZ-FARRERA, ANDREW P. VOVIDES, JOSÉ F. MARTÍNEZ, FRANCISCO MOLINA-FREANER, RYOSUKE IMAI, YOSHIAKI TSUDA, YU MATSUKI, YOSHIHISA SUYAMA, YASUYUKI WATANO, & TADASHI KAJITA: Considering evolutionary processes in cycad conservation: identification of evolutionarily significant units within *Dioon sonorense* in northwestern Mexico.
- **PATRICK GRIFFITH**, MICHAEL CALONJE, ALAN MEEROW, TRACY MAGELLAN, SEAN HOBAN, RUDY AGUILAR, LINDY KNOWLES, JAVIER FRANCOSCO-ORTEGA, BOB LACY, JEREMIE FANT, TAYLOR CALLICRATE, ANDREA KRAMER, KAY HAVENS, ABBY MEYER, MURPHY WESTWOOD, EMMA SPENCE, JOHN CLARK, SEANA WALSH, JORDAN WOOD, & MICHAEL DOSMAN: A cycad zoo - animal population management tools help conserve ex situ plant diversity.
- **JOHN DONALDSON** & SARAH FINDLAY: Answering a persistent question - how many cycads are there in collections in South Africa and can they all be regulated?

- **CRISTINA LOPEZ-GALLEGO**: Advances in the Conservation action plan for Cycads of Colombia.
- **ALBERTO TAYLOR**: From cycad research to an enlarged conservancy cycad garden (1994–2018).
- **IAN WATERS**: The challenges of cycad conservation and environmental preservation.
- **IAN WATERS**: The Zimbabwe Cycad Trust.
- **ARNOLD FRISBY**, NTUTHUKO MABUYA, & FRIEDRICH VERHOEF: Simulation of remote cycad seedling re-introductions utilising *Encephalartos senticosus* Vorster.
- **VANESSA HANDLEY,** JAMES CLUGSTON, & NATHALIE NAGALINGUM: From confiscation to conservation: molecular detective work in the University of California Botanical Garden cycad collection.
- **JANICE WILLIAMSON** & MICHELLE VAN DER BANK: DNA barcoding uncovers threatened *Encephalartos* species illegally traded at major South African traditional medicinal markets.
- **NAN LI**, PRITBAL SOORAE, & YIQING GONG: Guideline for reintroduction and other conservation translocation of cycads.
- **THEMBEKA MALWANE**, PHAKAMANI XABA, JILL FARRANT & JOHN S. DONALDSON: The establishment of desiccation sensitive *Encephalartos* species through tissue culture of embryos – preliminary findings on the best media for establishment.
- **PHAKAMANI XABA**, DENNIS KAMOGA, ANDERS LINDSTROM, MARIBEL G. AGOO, SIMON LUWEMBA, JOHN DONALDSON, DE WET BÖSENBERG, TERENCE S SUINYUY, & HUGH .W. PRITCHARD: Can the Critically Endangered *Encephalartos equatorialis* be saved from extinction?
- **SAMUEL OJELEL** & DESMOND ANYWAR: Status of *Encephalartos macrostrobilus* Scott Jones & Jeff Wynants in Agoro Agu Central Forest Reserve, Uganda. Dr.Ojelel could not attend the Conference in person, but his paper was read by Arnold Frisby.
- **MICHAEL CALONJE,** CLAUDIA CALONJE, GREGORY BARBER, & PATRICK GRIFFITH: Evaluating cycad pollen desiccation methods for long-term freezer storage.
- **ALAN MEEROW**: Evaluating cycad pollen desiccation methods for long-term freezer storage.
- **KARINA GUTIERREZ-GARCIA**, FRANCISCO BARONA-GOMEZ, ANTONIO CORONA-GOMEZ, PABLO CRUZ-MORALES, MIGUEL PEREZ-FARRERA AND ANGELICA CIBRIAN-JARAMILLO: The cycad coralloid root contains a diverse endophytic bacterial community.
- **NATHALIE NAGALINGUM**, JAMES CLUGSTON, PATRICK GRIFFITH, SHUGAUNG JIAN, JIBANKUMAR SINGH, ANDERS LINDSTROM, & RITA SINGH: Resolving cycad evolutionary relationships using genomics.
- **ISABEL CANDELARIA VELÁSQUEZ DE LA CRUZ**, JOSEFINA HERRERA SANTOYO, ESTELA SANDOVAL ZAPOTITLA, MARIA CONCEPCIÓN GUZMÁN RAMOS, OCTAVIO GONZÁLEZ CABALLERO, & JOSÉ ÁNGEL JIMÉNEZ RODRÍGUEZ, BÁRBARA ESTRADA GALVÁN, & VICTOR MANUEL CHÁVEZ ÁVILA: *In vitro* culture of Bamboo Cycad *Ceratozamia hildae*: A conservation and toxicity study.
- **JAMES CLUGSTON**, GREGORY KENICER, RICHARD MILNE, MURRAY HENWOOD, & NATHALIE NAGALINGUM: RADseq reveals intraspecific differentiation and genomic diversity of *Cycas calcicola*.
- **BOGLARKA ERDEI,** IAN MILLER, M. PATRICK GRIFFITH, & VICKIE MURPHY: The first fossil cycad seedling from the Paleocene of the Denver Basin, and inferences for cycad evolution.
- **WILLIAM TANG**, GUANG XU, THOMAS MARLER, JIBANKUMAR SINGH KHURAIJAM, RITA SINGH, ANDERS LINDSTROM, P. RADHA, & STEPHEN RICH: Cycad cone beetles of the northern hemisphere: origins and evolution.
- **ROSANE SEGALLA**, FRANCISCO LOBO, JOÃO MARQUES, LUCAS ROTHMUND, FÁBIO PINHEIRO, & PATRICIA MORELLATO: Thermogenesis pattern in *Zamia boliviana* (Brongn.) A. DC.
- **IRENE TERRY,** TERENCE SUINYUY, WILLIAM TANG, SHAYLA SALZMAN, JOHN DONALDSON, STEVE JOHNSON, CHRIS MOORE, & CLAUDIA CALONJE: Cycad cone volatile chemistry: a review. Prof. Terry could not attend in person, but William Tang read her paper.
- **ALAN MEEROW**, DAYANA SALAS-LEIVA, MICHAEL CALONJE, JANVIER FRANCISCO-ORTEGA, M. PATRICK GRIFFITH, & KYOKO NAKAMURA: Contrasting demographic history and population structure of *Zamia* on five islands of the Greater Antilles suggests a model for population diversification in the Caribbean clade of the genus.
- **JOSÉ SAID GUTIÉRREZ-ORTEGA**, TAKASHI YAMAMOTO, ANDREW P. VOVIDES, MIGUEL ANGEL PÉREZ-FARRERA, JOSÉ F.MARTÍNEZ, FRANCISCO MOLINA-FREANER, YASUYUKI WATANO, & TADASHI KAJITA: Aridification as a driver of biodiversity: A case study for the cycad genus *Dioon*.
- **JOSÉ SAID GUTIÉRREZ-ORTEGA**, MARÍA MAGDALENA SALINAS-RODRIQUES, JOSÉ F.MARTINEZ, FRANCISCO MOLINA-FREANER, MIGUEL ANGEL PÉREZ-FARRERA, ANDREW P. VOVIDES, YU MATSUKI, YOSHIHISA SUYAMA, TAKESHI A.OHSAWA, YASUYUKI WATANO, & TADASHI KAJITA: The phylogeography of the cycad genus *Dioon* clarifies its Cenozoic expansion and diversification in the Mexican transition zone.
- **MIGUEL ANGEL PÉREZ-FARRERA**, ANDREW VOVIDES, & JOSÉ SAID GUTIÉRREZ-ORTEGA: Morphological variation of *Dioon merolae*.

TWO POSTERS WERE PRESENTED:

- **BRIAN DORSEY:** Phylogeography and species boundaries in *Dioon* Lindl.
- **WILLIAM TANG:** Handbook of Cycad Cultivation and Landscaping, Edition 2.0 for the Internet.

An important and appreciated aspect was the Society desk, manned by our President John Kloppers. Here new members were recruited for the Society, and some delectable publications were sold at affordable prices.

During the Conference the **CYCAD SPECIALIST GROUP of the I.U.C.N.** held their meeting. These Conferences provide ideal occasions for these meetings, as members are scattered all over the world. Piet Vorster, who served in this group since its inception, announced his retirement from this group, and Wynand van Eeden was elected in his place.

The Conference was organised by Wynand van Eeden and Piet Vorster, ably assisted by Patrick Griffith, Aletta Page, John & Sintia Evert, Fanie & Ina Vermaak, and Frikkie Conradie.

APPENDIX: LIST OF REGISTRANTS

One of the important aspect of such Conferences is the opportunity to meet likeminded people. The following is a list of registrants. Names of people who read papers are in **BOLD.**:

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CYCAD 2018

PRE-CONFERENCE ONE DAY NURSERY OUTING FOR FOUR AMERICAN TOURISTS

By Tilania du Preez

Would you rather spend a warm Sunday in a hotel or guest house in Kempton Park than visit two beautiful nurseries in Pretoria and enjoy a few cold beers with a nice lunch at a Portuguese Restaurant? While some tourists chose to rest after long flights, Prof Piet Vorster and four American tourists, namely George Sparkman from Fallbrook California, Gary Roberson from San Marino California and Gary and Debbie Keasler from Cucamonga California chose the second option.

On short notice, my husband, Pierre, and I were given the task (and I am always open to visiting cycad nurseries) to take Prof Piet and the tourists on a day outing to some cycad nurseries. I hastily arranged a guided tour of Cycads Unlimited with Michael van Breda.

On Sunday 12 August 2018 at approximately 09:00 we left Kempton Park for the Pretoria-area and the impressive Cycads Unlimited nursery. Michael welcomed us and showed us around and our guests were quite impressed with the variety and sizes of the cycads. Michael then took us to their farm and showed us the hothouses and the propagation area as well as the propagation methods.

George, a nursery owner, told Michael of a fire that destroyed 3000 cycads in his nursery and said that the intense heat was just too much for some of the cycads. He also indicated that huge fires are a common occurrence in California.

We then visited Exclusive Cycads where Matian Barnard welcomed us and took us on a tour of the nursery. Once again the tourists were very impressed with the varieties and sizes of the plants and were amazed to hear from Matian that certain plants changed sexes during their lifetime.

By 15:00 the tourists were hungry and thirsty and Matian recommended the Toureiros Restaurant nearby for a late lunch. Unfortunately, we were not aware that it was Prof Piet's birthday - otherwise we would have toasted him!

After a nice lunch and some cold beers and soft-drinks, we went to the Safari Nursery in Lynnwood Road where George informed us that he has more or less all the Safari plants in his nursery, but that Safari's infrastructure with the man-made waterfalls etc. was something else.

Before returning to Kempton Park, we did a quick tour of the LC de Villiers Stadium of the University of Pretoria.

We dropped our guests off at the guest house at approximately 18:30 by which time the previous day's long trip from the USA was catching up with them.

THE IMPACT OF TRADITIONAL MUTHI HARVESTING ON *ENCEPHALARTOS NATALENSIS* POPULATIONS

Alison Young (UKZN Botanical Gardens)

When I was invited in February 2018 to visit a population of very old *Encephalartos natalensis* plants that people had been raving about for several years I was very excited to be given the opportunity to go along. We were warned that there was on-going harvesting by muthi collectors on some of the plants. *Encephalartos natalensis* R.A.Dyer & I.Verd. is declared a Red Data Species with a Near Threatened (NR) status because it is estimated that 30% of the population has declined over the last 60 years. Much of this loss is due to an insatiable horticultural trade but also a great deal from local harvest for traditional medicine or muthi as it is known in South Africa. Plants typically grow on steep forested and rocky outcrops and cliffs quite close to the eastern side of South Africa extending inland about 90km or more but where they are protected from heavy frosts.

A HISTORY OF HARVESTING CYCADS.

There are scientific references going back to the late 1800's of the use of cycads for traditional medicine. *Stangeria eriopus*, *Encephalartos woodii, natalensis* and *ngoyanus* were all recorded as used. When in 1895 the curator of the Durban Botanical Gardens, John Medley Wood first discovered what was later named as *Encephalartos woodii* in the Ngoye Forest it had evidence of being harvested. Several return trips by Medley Wood and James Wylie over the next 12 years recorded continuing harvest of this clump of magnificent plants. Between 1907 and 1914 horticultural pillaging contributed largely to its final extinction.

The dry leaf scales on the stem are harvested because there is a belief in traditional Zulu culture that they serve magical purposes. Crouch in 2002 suggests that *E. woodii* may have been depleted by this same unsustainable harvest for muthi because they were thought to be the same as *E. natalensis* so used the same way. It was only found and described by botanists when the last few male plants remained. It is not well documented how else they are used but I am told that if one is planted outside your house it will chase evil spirits and also protect you from lightning strikes. (Personal correspondence with traditional Zulus.) Plants are also known to be planted on the grave of chiefs. The leaf scales are harvested and burned as an antisorcery or protective emetic. Traditional healers (the diviner or *sangoma*, and the herbalist or *inyanga*) also plant cycads outside their houses.

There are two Zulu names for *Encephalartos*. Personal correspondence with our Zulu plant name specialist, Prof Adrian Koopman was able to enlighten us with some more on the meaning and the possible context of these names. One name is *umhlungulo* which "is derived from the verb *hlungula* which means to separate…" so "perhaps meaning the separator" from evil spirits. The other one is *isigqiki-somkovu* which is talking about "the 'wooden headrest (*isigqiki*) of the zombie (*umkhovu*).' An *umkhovu* is a resurrected corpse, brought back to life by an *umthakathi* (witch) for the purpose of creating fear in potential victims. This would undoubtedly link to the use of the cycad to prevent evil spirits." Adrian adds that this may be "a reference to evil spirits appearing to victims in a dream while they are asleep (and resting their heads on their *isigqiki*)."

Muthi harvest of *Encephalartos natalensis* has been described as "a tragedy largely unnoticed". We know that cycads have been used by people for food for many centuries. The flesh around the seeds and the pith from the stems have been used for food because they contain starch: they also contain toxins which are removed in pre-cooking treatments. However outside South Africa not much has been documented about the use of cycads for muthi. Ethnobotanical studies have revealed that there are no compounds with therapeutic properties, so any use of cycads is for magical purposes. Photographs taken between 1944 and 2014 have shown the harvest of cycads for the muthi market is decimating populations so much that it is the major cause of population decline after illegal collection for the horticultural trade. Cycad removal on private and conserved land is higher than on communal land. Habitat loss (for cultivation or by alien plant invasions) can account for the reduction in some species populations but is not the case for *E. natalensis*. Only recently barcoding techniques have helped to give researchers a more accurate study of six confirmed different species found on the muthi markets. Another study revealed that 25 species of cycad contributed 9 metric tonnes sold on the Durban market in 2009 alone.

Muthi harvest of *Encephalartos natalensis* around Thekwini is devastating. Cousins quotes Okubamichael who "emphasized improved regulatory framework achieved through consultation and collaboration with traditional medicine practitioners is urgently needed to reduce cycad harvesting… to more sustainable levels."

THE OUTING

The farm we visited in February was sold to the government for a land claim lodged by the chief on behalf of the local community. Much of the original farm has been leased back to the neighbouring farmers for sugar cane production but the conservation land is used at the moment for light grazing by cattle and

Figure 1. Typical habitat of rocky cliffs. Photograph: Alison Young.

game. The population of *E. natalensis* we went to visit is well protected from animal predation because the site is inaccessible. Harvest of the cycads has been taking place sporadically for many years however it seems to have increased substantially in the last two years.

This population had some of the oldest plants I have ever seen: some estimated to be up to 3000 years old. They were remarkably well hidden in the surrounding vegetation. As it turns out they were not hidden enough. Perhaps this is what has kept the harvesters returning because their visits would remain undetected. As previously stated, this type of harvest can be described as "a tragedy largely unnoticed". However I personally don't think the harvesters are quite so devious and I think that there is just complete ignorance about sustainable harvesting. As we climbed further into the population we were dismayed when it became clear that the annihilation of the population of these majestic plants was almost total. Post doctorate student Terence

Figure 2. Hopewell Community now owns the land. Photograph: Alison Young.

Figure 3. The death of a giant – the first casualty that we came across. Photograph: Alison Young.

Suinyuy who was with us said it is probably the third most decimated population that he had ever seen. (Personal correspondence.)

In the images one can see all the leaf scales or 'bark' appears to be hacked off with a panga. The scales had been removed around each trunk completely, similar to how trees are "ring barked" from ground level to as high up as a person can reach. The cambium is left exposed to the elements and to fungus infection. Over the next several months the tree dries up and collapses. The trunk does not behave like a truncheon; they do not root like dicotyledonous plants. Only pups (side shoots) removed from the side of the stem will root.

Figure 4. Harvesters reach as high up the stem as they can. They are likely unaware that this action kills the plant. Photograph: Alison Young.

Figure 5. Post-doc student Terence is devastated by the damage to these old giants in the three years since his last visit. Photograph: Alison Young.

Figure 6. Some fresh and older harvests. Photograph: Alison Young.

Figure 7. Fresh harvest. Photograph: Alison Young.

Figure 8. Beads of exudent after recent harvest. Photograph: Alison Young.

Figure 9. The plant has died and collapsed but the hard-to-reach scales are abandoned. Photograph: Alison Young.

Figure 10. One very old tree died three years ago as a result of ring barking. Photograph: Alison Young.

Several lithophytes (plants that grow on bare rock normally) were growing just under the leaf canopy at the top of the stem. They grow in the leaf litter that has collected in the leaf scales. Below in one cycad is a small community of *Crassula perforata*. Ferns are common, also wild *Peperomia* and an orchid called *Stenoglottis fimbriata*.

Growing around the cycads were a lot of stinging nettle trees which also like these steep rocky outcrops. The botanical name for stinging nettle tree is *Obetia tenax*

Figure 11. Lithophytes (*Crassula perforata*). Photograph: Alison Young.

Figure 12. Ferns, *Peperomia* and *Stenoglottis*. Photograph: Alison Young.

Figure 13. *Encephalartos* growing in close proximity to *Obetia tenax*, a feed plant of the Leopard Moth. Photograph: Alison Young.

Figure 14. Close-up of *Obetia tenax* showing the stinging hairs. Photograph: Alison Young.

in the Urticaceae family. *Obetia* are an alternate food plant for the cycad moth caterpillar, *Zerenopsis lepida*.

SO WHAT ARE WE TO DO ABOUT THIS?

Since it is my belief is that this type of unsustainable harvest is as a result of ignorance about what type of activities are not good for cycad plants, this will direct the way we approach the problem. At first the farmer who leases the property from the community was approached to report the problem. His immediate reaction was to call the chief and explain the problem. The chief was understanding and promised to do something about it. Then contact was made with the local National Botanical Gardens (SANBI) staff to request their input and suggestions. They also were very willing to help out by approaching the community to do an awareness campaign within the community. However perhaps we are rather naïve in thinking that this is enough. The roots of local tradition can be as established as the hills that the cycads grow in and private growers who may be convinced that the population is 'finished' may be hard pressed to change their thinking when their sincere belief is that they are 'rescuing' the remains of a population. Harvest will only stop when it is no longer profitable to do so. Have we come full cycle to where *E. woodii* was a hundred years ago? That in the end it is pillaging by the collectors who contribute to the final extinction in the wild?

I would like to thank Prof. Neil Crouch, Dr. Terence Suinyuy, Ian Kiepiel and Avis Merrimen for advice given during the writing of this article.

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JOHN JACOB LAVRANOS (1926-2018)

THE END OF AN ERA — THE END OF A LEGEND!

Tom McCoy

It is with the heaviest of hearts that I must report here the passing of botanist extraordinaire, author, and dear friend, John Lavranos. John was born on the Greek island of Corfu in 1926 and it was there that he spent his youth and as he grew into manhood, rose to the rank of lieutenant in the Greek Navy. It was in part due to John's proficiency in several different languages that his translation abilities were called into service. This was influenced by growing up in a multi-lingual household where his Swiss-German mother spoke German to him and his Greek father conversed in Greek and English to the young John. This linguistic skill grew; at the time of passing John was accomplished in ten languages ranging from English and Greek to even Arabic.

Once he had completed his time in the navy, John went on to study law and economics in Athens where he achieved his B.Sc. in economics and then after emigrating to South Africa in 1952 he continued his education earning a B.Sc. in natural science.

John Lavranos holding a extraordinary Yemeni antiquity of carved marble depicting two Ibex that he acquired in the early 1960's during one of his explorations of that country.

John's interest in botany and plants in general began early in no small part due to the encouragement of his mother and innate love of gardening. However, even though John's pursuit of plants began in his childhood it was once he was established in South Africa that his attraction towards xerophytes flourished, and in this endeavor he excelled. While this group of plants drew his greatest attention John had a very wide-ranging knowledge in many plant groups. Nevertheless, several families held particular places of devotion for John and these included aloes and stapeliads. His studies of these plants brought him into association and collaboration with such notable persons as, GW Reynolds, Darrel Plowes, Larry Leach, and a person he often spoke of and held in high regard for the tutelage and support he offered was Dr. RA Dyer. John also researched cycads and he even commemorated Dr. Dyer in his co-authorship of the description of *Encephalartos dyerianus* Lavranos & DL Goode.

As John's passion grew, so did his wanderlust, and beginning in the early 1960's he began traveling to exotic locales in an never-ending search for botanical curiosities. From the very beginning of his travels he was infatuated with the flora of Arabia to which he contributed much needed knowledge. Some of his most notable findings resulted in not only the discovery of a multitude of undescribed species, but solving the mysteries surrounding the identities of *Aloe squarrosa* Baker and *A. forbesii* Balf.f. These two riddles were solved during an expedition to the Yemeni island of Socotra undertaken by the British military in 1967. John was invited to join senior botanist Alan Radcliffe-Smith on a survey of the island. One of my favorite stories relayed to me over the years by John is that he took a cutting of a long-cultivated plant known as "*Aloe zanzibarica*" Milne-Redhead, or "*A. concinna*" Baker which he suspected was in fact actually *A. squarrosa* to compare in the event he had the chance to locate that species in habitat. He was successful and was able to establish that both of the other names were synonymous and that Socotra was the true origin of the plant. Not only did John undertake a great number of trips to all of the succulent-rich countries of Arabia: the Yemen, Oman, and the Kingdom of Saudi Arabia, but he also traveled widely in east and southern Africa with a special effort placed upon investigating the plant life of Somalia and Madagascar. The results of these labors lead to him amassing a collecting record of both live and herbarium specimens that at the time of his death numbered over 32,000. Many of these collections represented the primary collection or introduction of scores of noteworthy plants now grown in botanic gardens as well as public and private collections around the world.

As is deserving, there are many species of plants with epithets that commemorate John. Some of the most notable are *Aloe lavranosii* Reynolds of Yemen, *Crinum lavrani* Lehmiller of Madagascar, *Echidnopsis lavraniana* from Ethiopia, Plowes, *Huernia lavrani* LC Leach of Somalia, the genus *Lavrania* Plowes a very interesting group of stapeliads with species found in both Namibia and South Africa and *Dorstenia lavrani* TA McCoy & M Massara which is Somalian in origin.

During his illustrative career, John had the opportunity to author or coauthor nearly 300 species of new plants. This began with his description of *Huernia leachii* that Lavranos published in 1959 and carried on until just months before his passing. John also published scores of papers on succulents and contributed to books on pachypodiums and aloes in "*Pachypodium* (*Apocynaceae*)" 1999. SHJV Rapanarivo, JJ Lavranos, AJM Leeuwenberg, and "*Aloes: The Definitive Guide*", 2011 S Carter, JJ Lavranos, LE Newton, CC Walker. John also had the role as Editor-in–Chief of the forthcoming monograph "*The Aloes of Arabia*" written by this author.

Throughout his life John was associated with many of the world's organizations involved with succulent plants and he was a frequent speaker at their various events often providing exciting and interesting presentations on his life's passion. He was a fellow of the Cactus and Succulent Society of America where he maintained many long lasting friendships.

John was recently predeceased by his third wife of many years, Mireille, who was a frequent companion of John's on collecting trips especially in his beloved Namaqualand region of South Africa and Namibia. As can be imagined, even there story of meeting is one of interest as John met Mireille in the tiny Horn of Africa country, Djibouti, where she was serving as a nurse at the time. John had stopped in Djibouti on his way to Yemen with the intent of exploring that country's succulent flora and ended up meeting what proved to be a lasting relationship. Despite having been married twice previously John's marriages never produced any children. But rare was the time in his life when there wasn't a dearly loved dog by his side as John was a true "dog person."

My own friendship dates back a great while and I have to take this opportunity to state how fortunate I was to have had this chance. Without his mentorship and guidance I would have been a very different person. We shared so many of the same interests beyond plants such as collecting seashells particularly the members of Cypraeidae, commonly known as cowries, as well as fossil and geologic specimens. Other interests we shared were political history, geography, languages, and general humor. During our friendship we had the opportunity to undertake numerous collecting trips together and these journeys will long remain highlights of my life. My family and I were frequent guests in the Lavranos household and my daughter has always referred to him as "Grandpa John," a term he heartily embraced. While John's passing will leave a large void in my daily activities and heart, we can all take solace in the knowledge that his life was well lived and has made the annals of science and the world of cultivating and collecting botanical curiosities much richer.

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