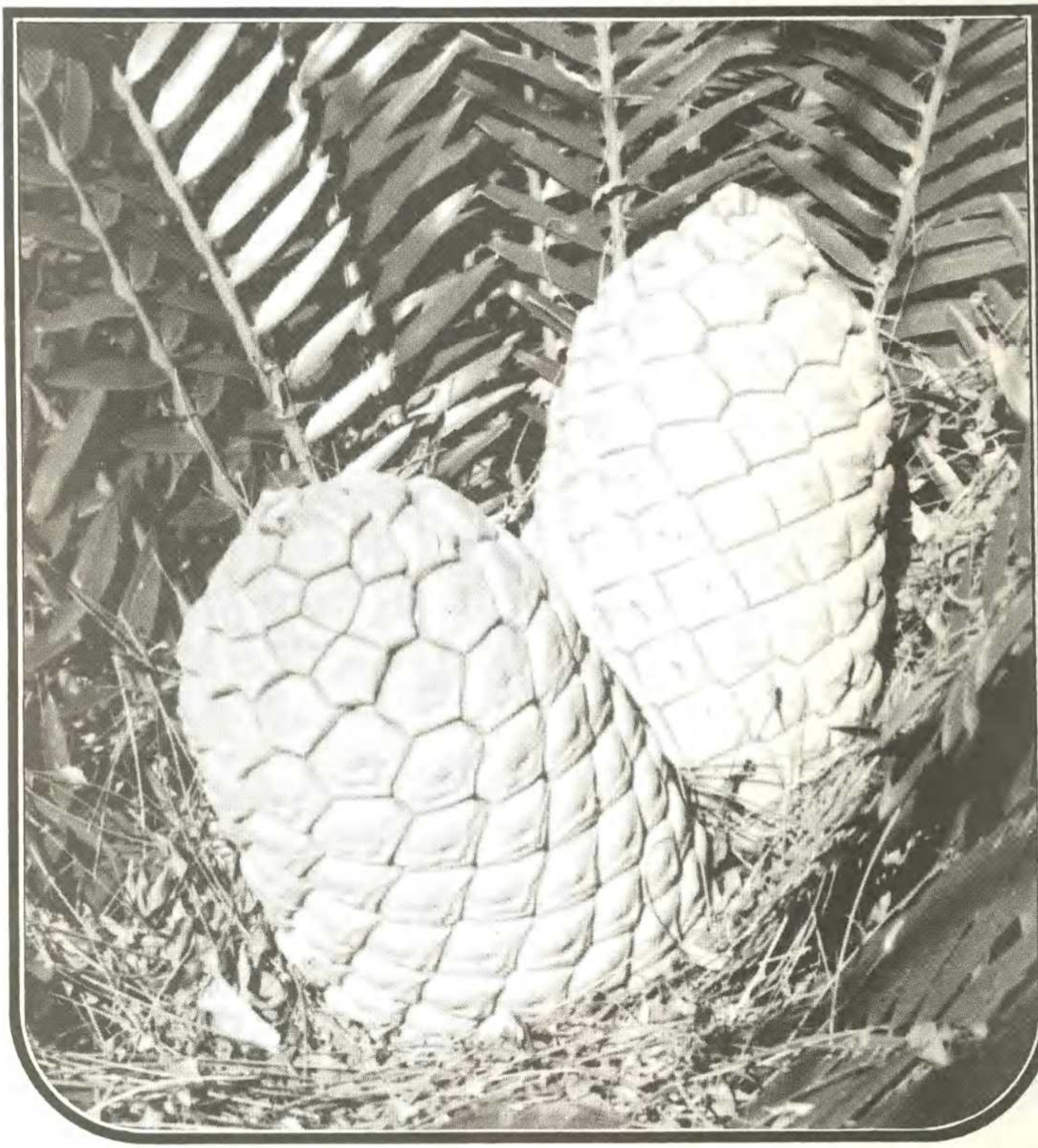
ENCEPHALARTOS

JOURNAL OF THE CYCAD SOCIETY OF SOUTHERN AFRICA

TYDSKRIF VAN DIE BROODBOOMVERENIGING VAN SUIDELIKE AFRIKA

NO. 15

SEPTEMBER 1988



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EDITOR/REDAKTEUR

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VOORBLAD/COVER

Encephalartos lebomboensis

EDITORIAL

We live in a world characterised by rapid change. Circumstances that prevailed five or ten years ago, are no longer applicable. We have come to accept it as a fact of modern life that we have to adapt to new circumstances.

The same applies to the conservation of our cycads. When the mature plants in the collections of many of our members were removed from their natural habitat (legally, we assume), it may well have been true to say that there were so many plants in nature that removing a few did not make a difference. That situation has changed, however. A number of our South African cycad species are for all practical purposes extinct in nature or are unable to reproduce because of their small numbers. Most of the other species are in serious danger. Only a few can be said to still occur in fair numbers, and then usually in restricted and sometimes isolated localities.

REDAKSIONEEL

Ons leef in 'n wêreld wat deur vinnige verandering gekenmerk word. Omstandighede wat vyf of tien jaar gelede gegeld het, is nie meer van toepassing nie. Ons het dit as 'n feit van die moderne lewe aanvaar dat ons by nuwe omstandighede moet aanpas.

Dieselfde geld ook vir die bewaring van ons broodbome. Toe die volwasse broodbome in die versamelings van baie van ons lede uit hulle natuurlike habitat verwyder is (wettiglik, so aanvaar ons), mag dit wel waar gewees het om te sê dat daar so baie plante in die natuur is dat die verwydering van 'n paar nie 'n verskil gemaak het nie. Daardie situasie het egter verander. 'n Aantal van ons Suid-Afrikaanse broodboomspesies is vir alle praktiese doeleindes uitgesterf in die natuur of kan nie meer voortplant nie, as gevolg van hulle klein getalle. Die meeste ander spesies is in ernstige gevaar. Net in 'n paar gevalle kan gesê word dat hulle in redelike getalle voorkom en dan gewoonlik in beperkte en soms geïsoleerde lokaliteite.

EDITORIAL
- CONTINUED -

We are of the opinion that, whatever the circumstances may have been in the past, it is time to accept that removing cycads from nature should be something of the past. Only in very exceptional cases should the removal of plants be considered, and then they should be relocated in nature, if at all possible.

Let us concentrate our efforts on the successful propagation of cycads from seed and suckers, obtained from the numerous specimens already in public and private collections. Research on the acceleration of growth rates in seedlings and suckers could lead to the availability of mature plants in sufficient quantities to satisfy the needs of collectors who want bigger plants.

Would it not be satisfying to know that we have left a few viable populations of cycads in habitat for future generations to admire?

REDAKSIONEEL
- VERVOLG -

Ons is van mening dat, wat die omstandighede in die verlede ook al mag gewees het, dit nou tyd is om te aanvaar dat die verwydering van broodbome uit die natuur iets van die verlede behoort te wees. Slegs in baie uitsonderlike gevalle behoort die verwydering van plante oorweeg te word, en dan behoort hulle in die natuur hervestig te word, indien enigsins moontlik.

Laat ons ons pogings toespits op die suksesvolle propagering van broodbome van saad en suiers, wat verkry kan word van die groot getalle plante wat reeds in openbare en privaat-versamelings is. Navorsing oor die versnelling van die groeitempo van saailinge en suiers kan lei tot die beskikbaarheid van volwasse plante in voldoende hoeveeldhede om te voorsien in die behoeftes van die versamelaars wat groter plante verlang.

Sal dit nie bevredigend wees om te weet dat ons 'n paar lewensvatbare bevolkings broodbome in die natuur laat staan het vir toekomstige geslagte om te bewonder nie?

Opinions which are expressed in the editorial are those of the Editor and do not necessarily represent the policy of the Cycad Society. Likewise are opinions expressed in articles published in ENCEPHALARTOS those of the authors and not necessarily those of the Cycad Society or the Editor.

Menings wat in die redaksionele artikel uitgespreek word, is dié van die Redakteur en verteenwoordig nie noodwendig die beleid van die Broodboomvereniging nie. Ingelyks is menings uitgespreek in artikels wat in ENCEPHALARTOS gepubliseer word, dié van die skrywers en nie noodwendig dié van die Broodboomvereniging of die Redakteur nie.

BITS AND PIECES STUKKIES EN BROKKIES

CYCAD BOOK AND VIDEO

Dr Knut Norstog, research associate at Fairchild Tropical Garden and member of the Society, has begun two ventures to bring up-to-date information about cycads to university students, professionals and lay persons. His work is especially timely because cycads have recently received considerable attention in connection with discoveries about their toxicity to humans and about their ability to fix atmospheric nitrogen.

Dr Norstog spent August and September of 1987 at the University of Bristol, England, collaborating with Dr T.J. Nicholls on a book to be entitled "Biology of Cycads". The book will cover all cycad groups, present accounts of the species and their distributions, and provide a general discussion of anatomy, morphology, reproduction, physiology, ecology and toxicity.

Dr Norstog has also begun producing a video cassette which will serve as a companion to the "Biology of Cycads" volume. The video will summarize his recent research on the complex mechanisms of cycad pollination and fertilization (the later involving micro-cinematography), and will survey the cycads group by group, using the extensive collection at FTG. It is hoped that the video eventually will be available for classroom use.

(Adapted from FTG Bulletin 43(2), April 1988)

LOWVELD BOTANIC GARDEN

The Lowveld Botanic Garden, picturesquely situated on the outskirts of Nelspruit in the Eastern Transvaal, is part of the National Botanic Gardens programme. Officer-in-charge Johan Kluge tells us that he is actively concerned with the local cycads and has been growing fair quantities of Encephalartos lebomboensis, E. humilis, E. paucidentatus, E. ngoyanus, E. umbeluziensis and Stangeria eriopus. These will be planted in groupings of at least 50 plants with a view to establishing a long-term seed reservoir for these species.

Apart from this long-term project, the gardens presently offer a limited number of cycad seedlings to the public. A visit to the gardens to see some of the cycad specimen plants is well worth while. The telephone number of the Lowveld Botanic Gardens is 01311-25531.

LEOPARD MOTH DAMAGE

Durban cycad enthusiasts have been particularly plagued this year by the activities of the larvae of the Leopard Moth. The photograph shows the damage done overnight on a young leaf of Encepahalartos villosus. Note the gummy exudate secreted by the damaged tissues.

Damage by Leopard Moth larvae

NEW ENCEPHALARTOS SPECIES

A new species of Encephalartos has been described in the botanical literature by authors John Lavranos and Douglas Goode. The plant is Encephalartos turneri and occurs near Nampula in north-eastern Mocambique, a locality from which cycads have not previously been reported. The new species differs from other Encephalartos species in having a pink bloom to the cones and possessing leaflets with a distinctive hooked end and a characteristic boat-shaped form. It is named in honour of Ian Turner, a Zimbabwean member of our Society and a well-known authority on the central African cycads. It is hoped that we will feature this new species in a future "Focus On..." article in ENCEPHALARTOS. Meanwhile, the botanical paper is found in the journal GARCIA DE ORTO, SERIE DE BOANICA (Lisbon), Volume 7 (1985), pages 11 to 14. A copy of the paper is available on request from Roy Osborne.

SAAB OUTING

Natal members Roy Osborne, Danie Nel and George Norval were pleased to join the excursion arranged by the South African Association of Botanists in May this year. The party explored the Umgeni Valley area just below the Howick Falls, a reserve managed by the Wildlife Society of South Africa. A large number of Encephalartos natalensis plants were seen and the extensive regeneration by younger plants was especially pleasing. A welcome break in the excursion was the resting stage at Camp Cycad in the reserve.

ENCEPHALARTOS CONE EXUDATES

Following the article on the subject of chemical analyses of the gummy exudates from Encephalartos cones (ENCEPHALARTOS 13, pages 22-24), members Daphne Stephens and Prof. Alistair Stephen have now published a detailed research report on their work. The report, entitled "Exudates from Encephalartos cones as chemical taxonomic markers", appears in the South African Journal of Science, Volume 84, April 1988, pages 263-266. The editors of the publication consider the article of sufficient importance to have also devoted the cover page of that particular issue to cycads, showing pictures of E. lebomboensis en E. transvenosus on their frontispiece. Also especially pleasing to us is the fact that our own journal, ENCEPHALARTOS, is quoted in the references accompanying the paper. A limited number of reprints are available from Prof. A. Stephen, Department of Organic Chemistry, University of Cape Town, Rondebosch 7700.

Members of the S.A. Association of Botanists resting at Camp Cycad in the Umgeni Valley.

(Photograph: Roy Osborne)

Part of the Natal University roof garden

REMARKABLE ROOF GARDEN

This year saw the opening of the new E.G. Malherbe library complex at the University of Natal's Durban campus. The surroundings, which include a one-acre roof garden, have been landscaped with an indigenous emphasis. The plantings include about 50 cycad seedlings, many of which were donated by the Society.

CYCAD EXHIBITS

Hardworking Chairman of the Natal Section of the Society, Danie Nel, has been organising a number of cycad educational exhibits this year. In May, he organised a stand at the Republic Day Fete at Werda High School. The exhibit included live plants, photographs, leaf specimens, seed samples and demonstrations of growing techniques. This stand attracted much interest and resulted in several new members for the Society. In June, Danie was approached by the local orchid society to arrange a similar stand at their annual orchid show at the Queensburgh civic centre. This too generated substantial interest.

Danie Nel's cycad stand at the Werda High School Fete

FOCUS ON... FOKUS OP...

In each edition of ENCEPHALARTOS, we focus on one Southern African species, in the form of an in-depth article in layman's language. In this edition the spotlight falls on:

In elke uitgawe van ENCEPHALARTOS fokus ons op een Suider-Afrikaanse broodboomspesie, in die vorm van 'n in-diepte-artikel in leketaal. In hierdie uitgawe val die kollig op:

ENCEPHALARTOS LEBOMBOENSIS

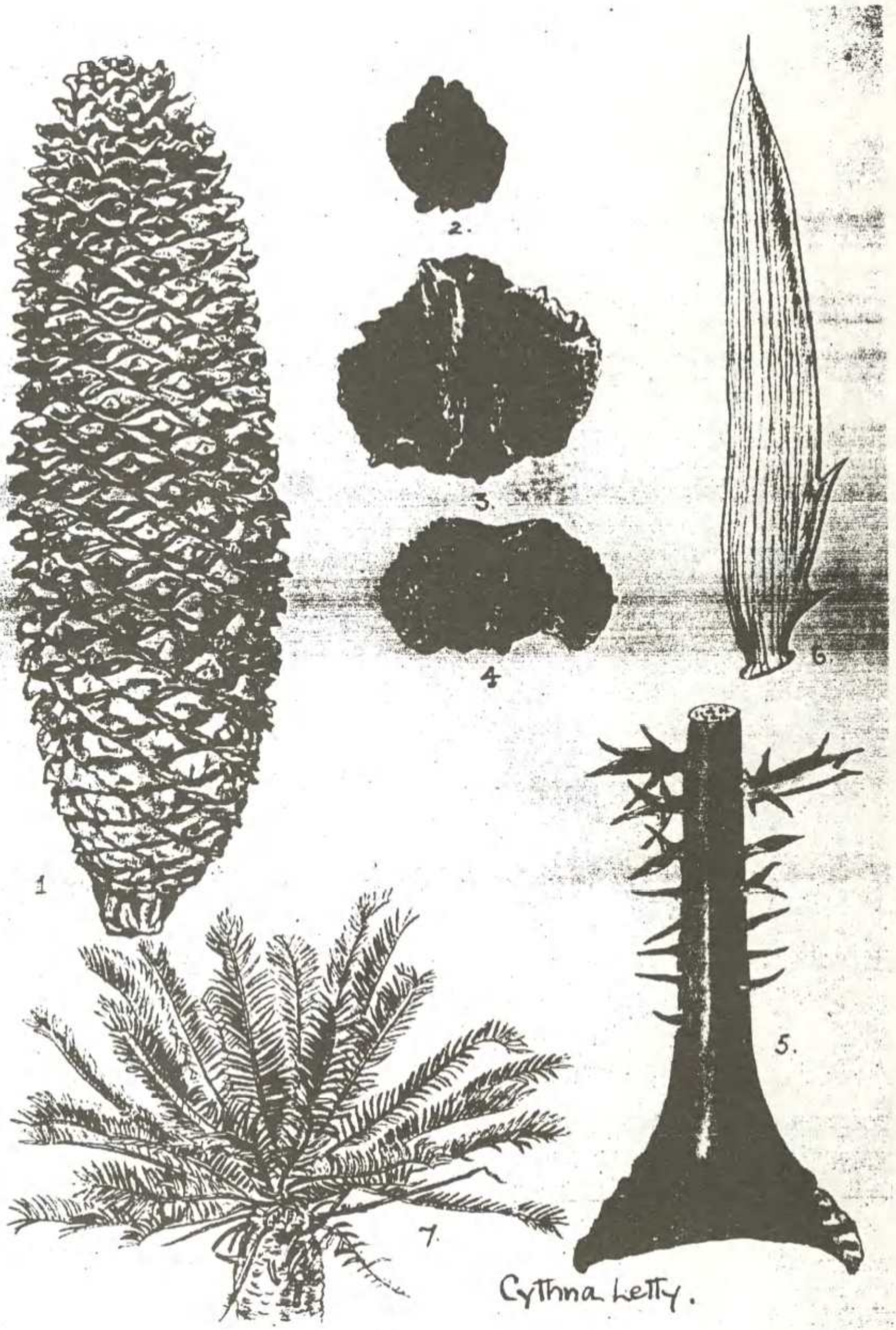
by Roy Osborne

INTRODUCTION

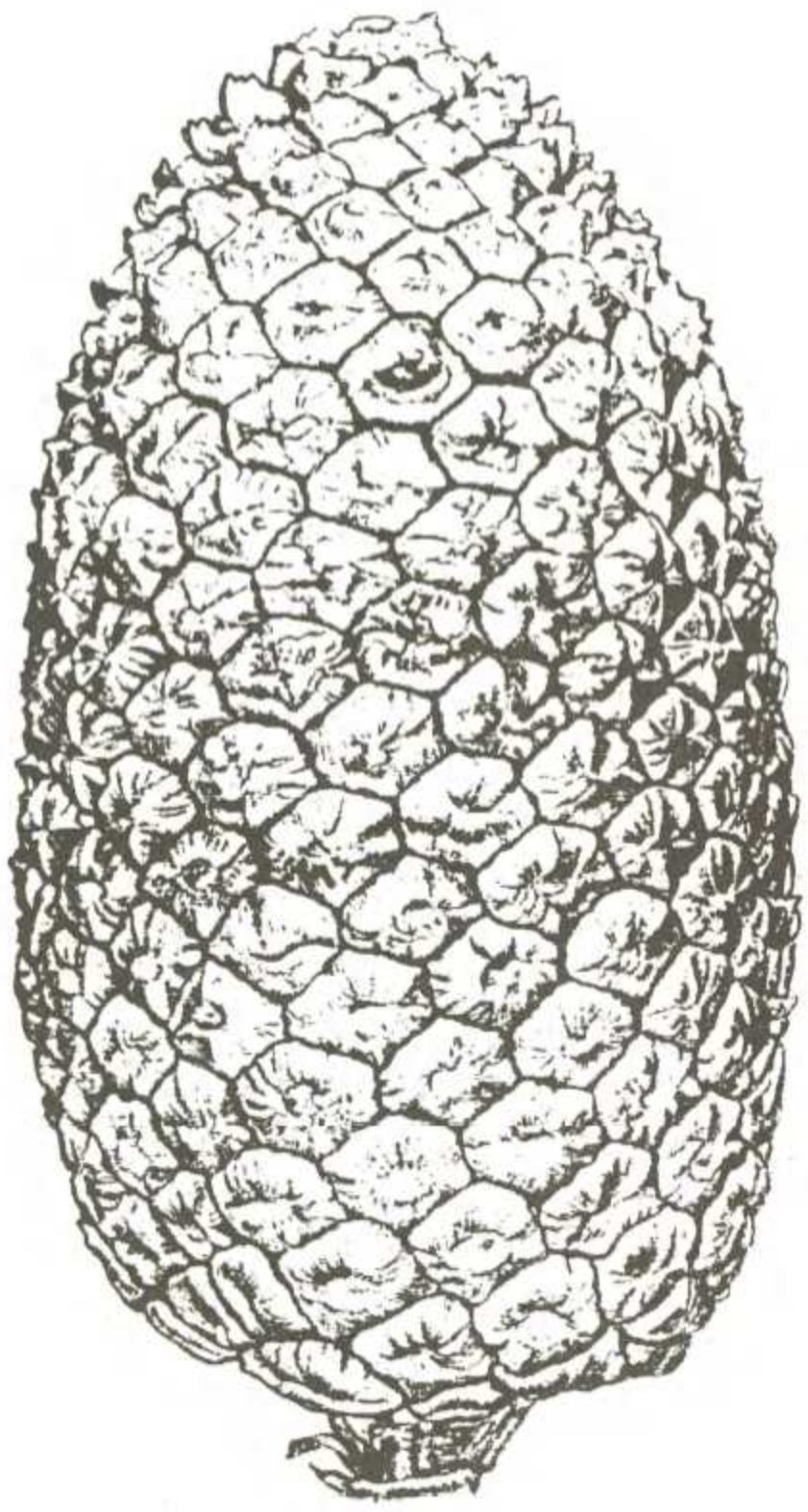
In his excellent paper on Encephalartos altensteinii (ENCEPHALARTOS 13, pp. 8-17), Maans Kemp has already pointed out that a number of southern African cycads were known collectively under the name of that species after Lehmann's description in 1834. Separations to individual new species were also summarised in that article : E. woodii (by Sander in 1908), E. transvenosus (by Stapf and Burtt Davy in 1926), E. lebomboensis (by Inez Verdoorn in 1949) and E. natalensis (by Drs Dyer and Verdoorn in 1951).

DISCOVERY AND NAME

Although it is difficult to credit any one person with the "discovery" of the plant we know now as E. lebomboensis, it was one Captain D.R. Keith who first drew the attention of botanists to its existence. Keith, in the late 1920's, found a large colony of cycads on rocky ridges of the Lebombo Mountains about 12 km south-east of Stegi (now Siteki) in Swaziland. He transplanted a number of these plants to create an avenue of cycads leading to his home "Ravelston" nearby. In 1935 he sent specimens to Kirstenbosch and Ewanrigg gardens. In 1945, M.R. Henderson, working at the Compton Herbarium, examined a number of cycads collected by O. West near Ingwavuma in northern Natal. He concluded that there could be little doubt that "West's Cycad" was an undescribed species. The magistrate at Ingwavuma, Mr L.H. Conyngham, made a fairly extensive survey of the cycads between Ingwavuma and Siteki and then acted as guide for a botanical party - which included Inez Verdoorn - to tour the area. From the notes prepared on that trip, Dr Verdoorn confirmed that these plants were in fact distinct from E. altensteinii. Naming the species E. lebomboensis, she chose the type specimen from the large concentration of plants near Siteki and the official publication appeared in the Flowering Plants of Africa, Volume 27, of 1949. Dr Verdoorn was careful to note that the Ingwavuma plants "had stems more woolly at the crown and the cones with scale faces somewhat more prominent and pubescent" than those at Siteki.



Encephalartos lebomboensis male plant, cone and leaf details.
Copy of the original drawings by Cythna Letty as used in
Dr Verdoorn's description of the species in 1949.



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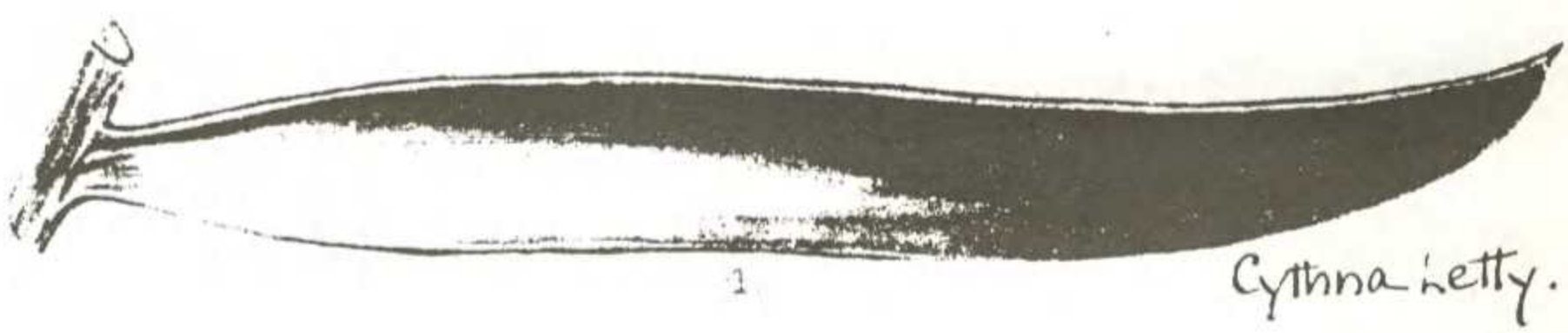

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Encephalartos lebomboensis female plant, cone and leaf details.
Copy of the original drawings by Cythna Letty as used in
Dr Verdoorn's description of the species in 1949.

In separating the new taxon from E. altensteinii, emphasis was threefold : firstly the Lebombo plants were smaller in overall size, secondly the leaflets were reduced to prickles towards the leaf base, and thirdly cone scales were less pronounced.

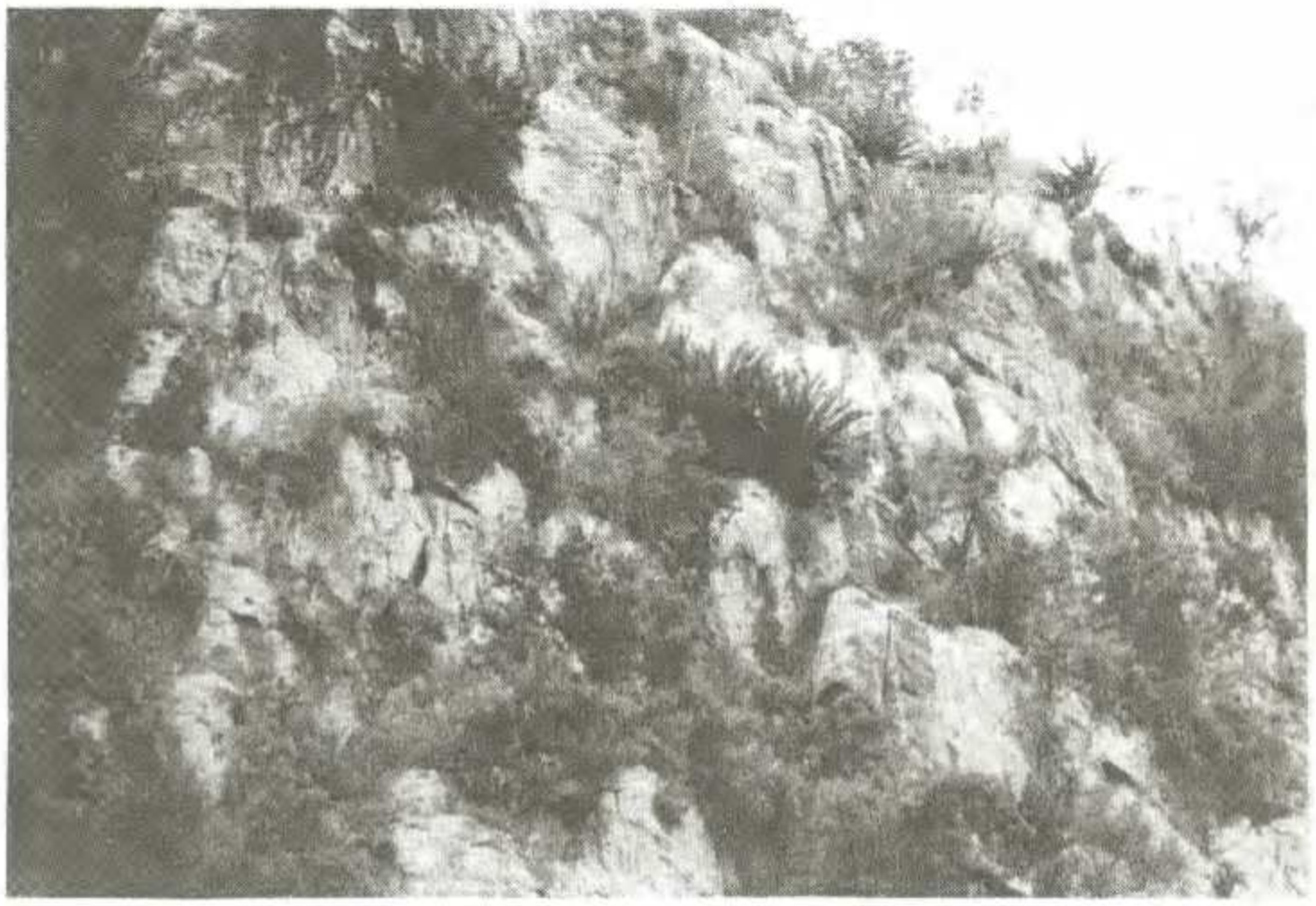
PRESENT DISTRIBUTION

E. lebomboensis occurs in comparative abundance in rocky slopes of the Lebombo mountains, principally in the catchment areas of the Pongola, Ngwavuma and Usutu Rivers. This area includes a large part of eastern Swaziland, and smaller areas in south-western Mozambique,northern Natal and the south-eastern Transvaal.The main towns in this area are Siteki and Big Bend (Swaziland), Ingwavuma, Jozini, Ubombo and Paulpietersburg (Natal) and Pongola and Piet Retief (Transvaal). The area enjoys a summer rainfall of 625-750 mm p.a.

The species is widely-distributed in botanical gardens and private collections internationally. Records indicate its occurrence in Europe at the Universities of Amsterdam and Warsaw, the botanic gardens of Kew, Edinburgh, Munich and Naples, the Natural History Museum in Paris and the Les Cedres garden in the south of France. In the U.S.A., E. lebomboensis is seen at the Fairchild and Huntington gardens, at the University of California gardens both at Davis and at Berkeley and at the Foster Gardens in Honolulu. More locally, the species is represented in the collections at Ewanrigg in Harare, at Kirstenbosch, at Pretoria University and at the Botanic Research Institute gardens in Pretoria and fairly widely in Natal gardens.

E. lebomboensis in habitat, near Jozini in northern Natal.
(Photograph by Mark Ward)

Slopes leading down to Jozini Dam - Habitat of E. lebomboensis.
(Photograph: Roy Osborne)



Habitat of E. lebomboensis on steep cliff faces above the Usutu River in Swaziland. About 300 large plants were on this rock face alone.

(Photograph: Dr Johan Geyser)

DESCRIPTION

1. STEM

The stems of E. lebomboensis are similar to those of E. altensteinii and E. natalensis but rarely exceed 4 m in height or 25-30 cm in diameter. They usually show a pattern of alternating bands of large and small leaf bases reflecting either the wet and dry periods in the plant's history or perhaps its coning cycles. The crown may be quite woolly, especially at coning times. Stems are generally unbranched, but suckers arising at the base may develop into mature trunks.

2. LEAVES

Leaves vary from a fresh bright green to a glossy darker green and are borne in a dense crown. They vary from 1 to 2 m in length and are fairly straight but may be slight recurved towards the apex. Emergent new leaves are hairy but these hairs are soon lost as leaves mature.

An unusual multiple-headed specimen of E. lebomboensis in a garden at Big Bend, Swaziland. This plant had 7 male cones at the time.

(Photograph: Dr Johan Geyser)

The leaflets vary from being set horizontally into two longitudinal grooves along opposite sides ofthe rachis without much overlapping, to being set at a slight angle so as to overlap downwards. Median leaflets are typically 12-18 cm long by 1,2-2,2 cm wide. Although sometimes without teeth, the leaflets usually have 1-4 teeth on both margins, often more teeth on the lower than the upper margin. Leaflets become progressively reduced in size towards the leaf base, ending in a series of small prickles.

3. CONES

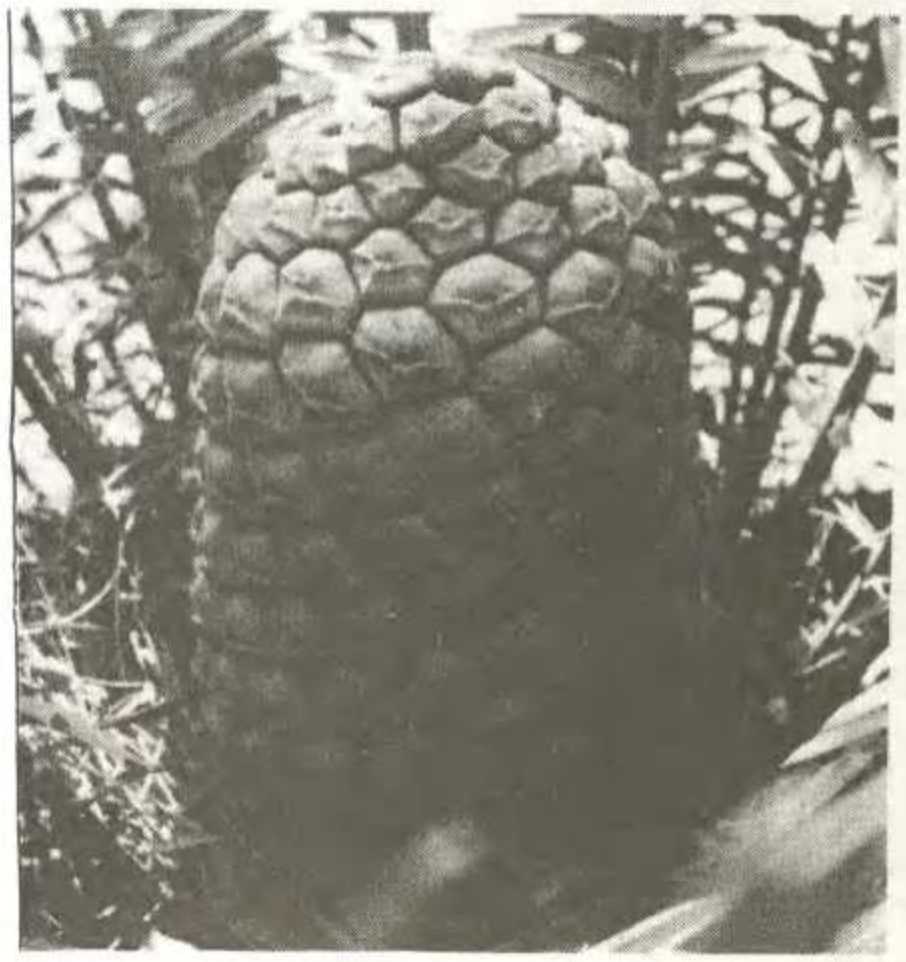
E. lebomboensis trunks bear 1-3 male cones which are about 45 cm long and 12-15 cm in diameter, narrowing gradually towards each end. Cones are usually apricot-yellow in colour and are supported on a short peduncle. Median cone scales are 3,5 cm long, 4 cm broad and 1,5 cm thick with the outer face projectes into a short beak.

Trunks on female plants also bear 1-3 egg-shaped cones which are 40-45 cm long by 22-30 cm in diameter. These vary somewhat in colour from a rich apricot-yellow through to a pale cream colour. Median scales measure about 6 cm long by 4,5 cm broad by 3,5 cm thick. The face of the female cones scales is typically smooth and flat, protruding only a short distance outwards.

Seeds are some 4 cm long by 1,8-2,2 cm in diameter with a scarlet skin over the fleshy layer. The seed kernel measures typically 2,6 cm long, 1,8 cm in diameter and displaces a volume of 4,5 mls. The seed shell is buff coloured with 10-13 prominent longitudinal ribs and has tiny wart-like protruberances near the micropyle.

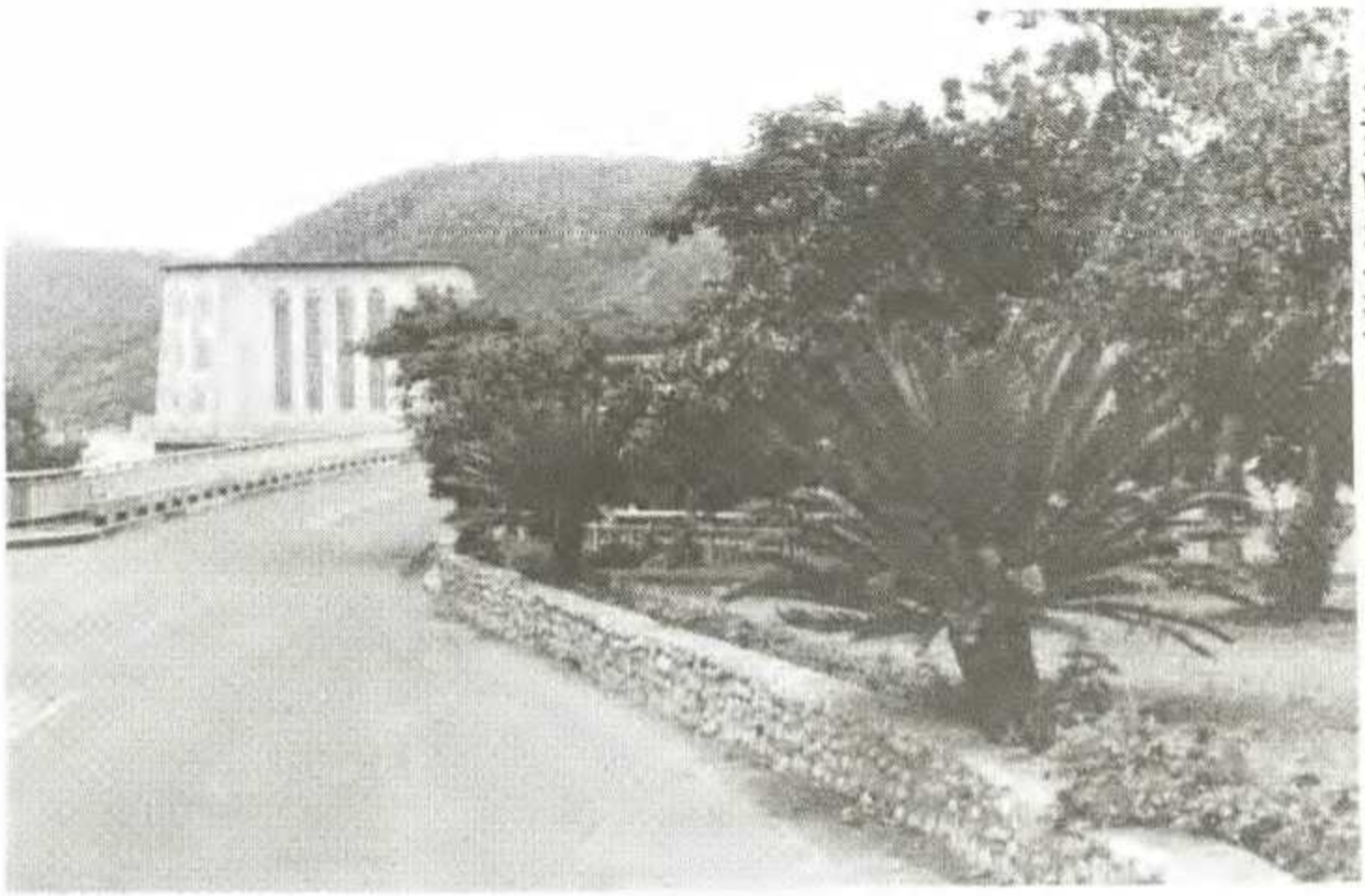
E. lebomboensis male cones on a garden specimen.

(Photograph: Dr Johan Geyser)



E. lebomboensis female cone, showing unusually hairy cone scales.

(Photograph: Roy Osborne)



E. lebomboensis plants rescued in "Operation Wildflower" and used for horticultural purposes at the Jozini Dam site.

(Photograph: Roy Osborne)

AFFINITIES

E. lebomboensis is clearly most closely related to E. natalensis and E. altensteinii, these three species being distinguished only on minor differences in leaf and cone morphology. E. lebomboensis is generally recognised as being smaller in overall size and in leaf and leaflet size, having leaflets reduced to prickles right down to the leaf base, and on the relatively smooth appearance of the female cone. There is a growing body of opinion that these differences are not sufficient to warrant the present rankings at species level and it is possible that the three may be integrated back into E. altensteinii. The present groupings would then either be scrapped or be relegated to subspecies or variental levels. A detailed survey of the so-called intermediate forms between E. altensteinii and E. natalensis in the Umtamvuna valley, and those between E. natalensis and E. lebomboensis in the area between Vryheid and Piet Retief, would provide important data on which to make this sort of decision. Biochemical analyses too (e.g. leaf wax and phenolics) could be invaluable in this respect.

A multi-trunked specimen of E. lebomboensis used for effect as a feature plant in a Pretoria garden.

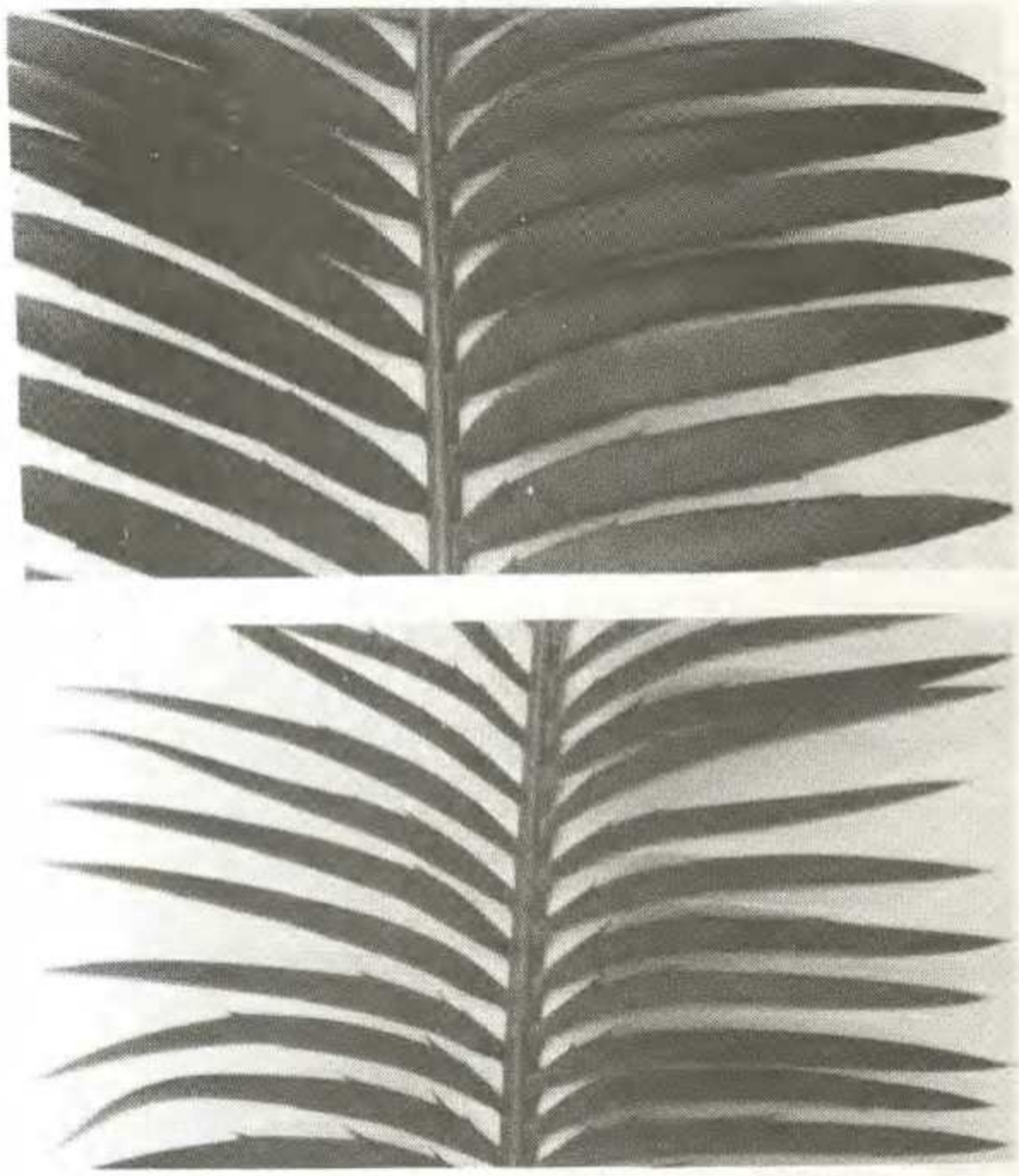
(Photograph: Roy Osborne)

HYBRIDISATION

The distribution of E. lebomboensis overlaps in some areas with that of E. villosus and E. ngoyanus and possibly even with E. umbeluziensis. Cynthia Giddy reports that natural hybridisation may occur between E. lebomboensis and E. villosus, but no other natural hybrid combinations have been found. Artificial crosses have been made between E. lebomboensis and E. arenarius, E. ngoyanus and E. trispinosus (see Piet Vorster's article in ENCEPHALARTOS 10, pp 10-15, for details).

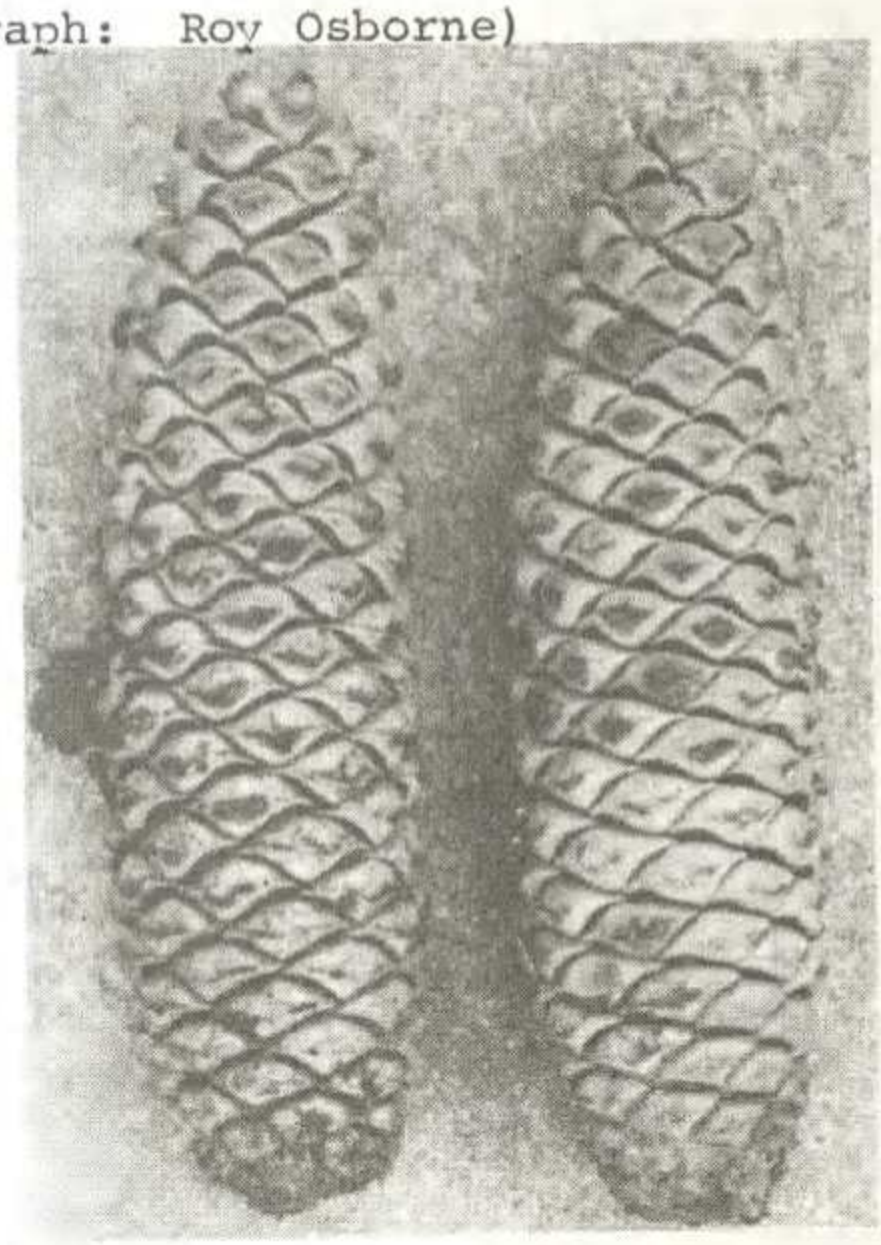
CONSERVATION

E. lebomboensis is presently classified as "vulnerable" by the Threatened Plant Unit of the I.U.C.N. Certainly the sizes of the existing populations does not warrant the species being considered endangered. Incidental to the conservation aspects, it is of interest to note that E. lebomboensis represents a classic example of what can be done with proper motivation and organisation - the case of Operation Wildflower. Several thousand specimens were located along the banks of the Pongola river upstream from Jozini. Prior to the construction of the massive dam wall at Pongolapoort, botanists, hobbyists, concerned laymen and officials from several government and provincial departments all co-operated in salvaging these and many other rare plants in the mid 1960's. On completion of the Jozini dam in 1972, the surface area of the water at 100% capacity extended over 13276 hectares. Many cycads which otherwise would have been doomed to a watery grave are presently flourishing thanks to the efforts of Operation Wildflower. Nevertheless, one cannot necessarily conclude that Operation Wildflower constitutes an act of conservation : the plants removed cannot contribute to the survival of the species in nature.



Median leaflets of E. lebomboensis (above) and E. "Piet Retiefii" below. Differences in the leaflet width and prominence of the leaflet spines is clearly evident.

(Photograph: Roy Osborne)



E. "Piet Retiefii" male cones.

(Photograph: Roy Osborne)

CULTIVATION

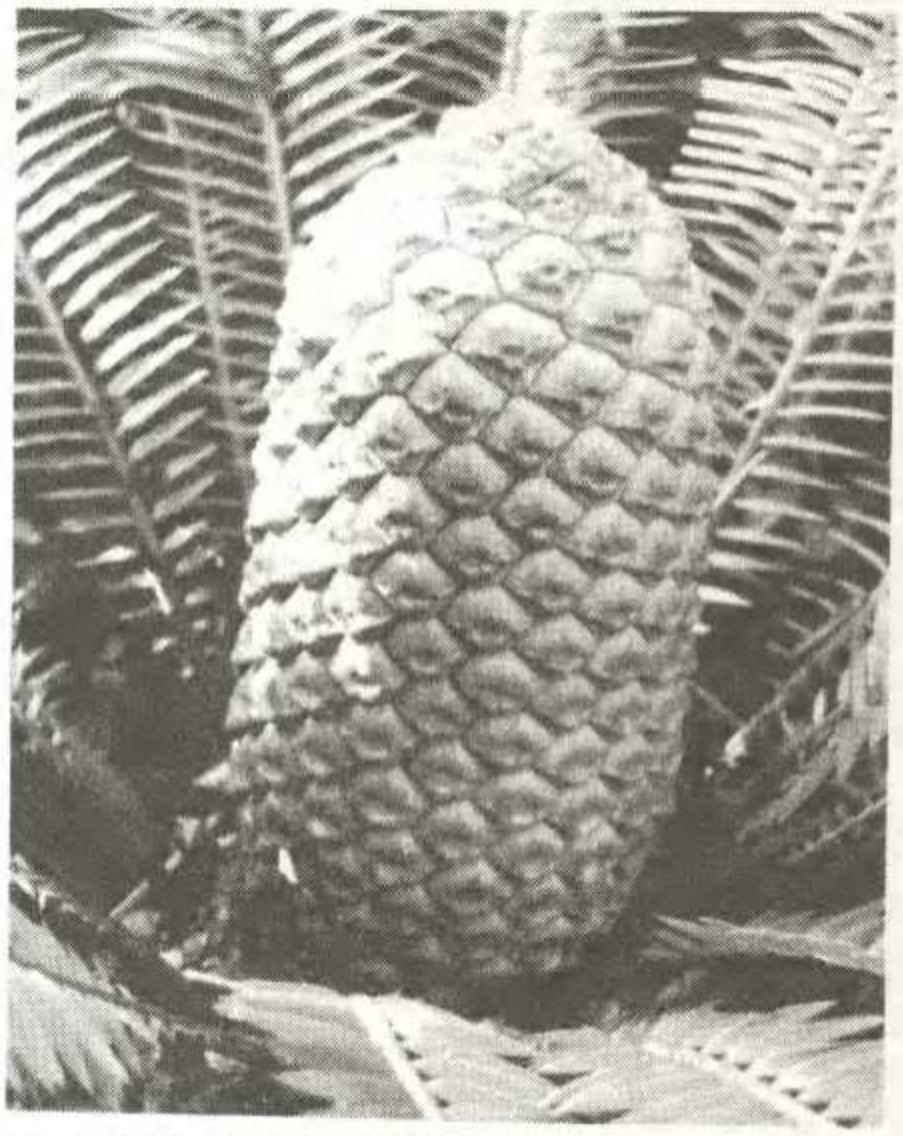
E. lebomboensis appears to produce highly viable seed which is easily germinated (see BOTHALIA 8, p 418). The plants grow relatively quickly in suitable garden conditions, reaching appreciable size within 5-10 years. They are best sited in a well-drained area in full sun but also make good container specimens. The species is only semi-hardy to frosts.

E. "Piet Retiefii"

Cycad enthusiasts in South Africa have been particularly interested in the plant which grows in the upper reaches of the Pongola River and its tributary, the Pivaan. Known by collectors as E. "Piet-Retiefii", it has never been described botanically and no refences to it are found in the literature. Nevertheless, it is quite widely found in cycad collections both private and public.

The locality for this plant overlaps with the distribution area of E. lebomboensis and is very close to the northern extension of E. natalensis. However, it is clearly recognisable from both these species. The following description is based on a limited number of personal observations by the author and must not be inferred as any attempt at a precise species description.

The leaves and leaflets and indeed the whole plants, are smaller than either species. The leaflets are very closely packed along a ridged golden-green rachis, overlapping downwards with 2-4 very distinct spines on both upper and lower margins. They are placed in a manner such that the rows of spines, viewed down the length of the leaves, make almost perfectly



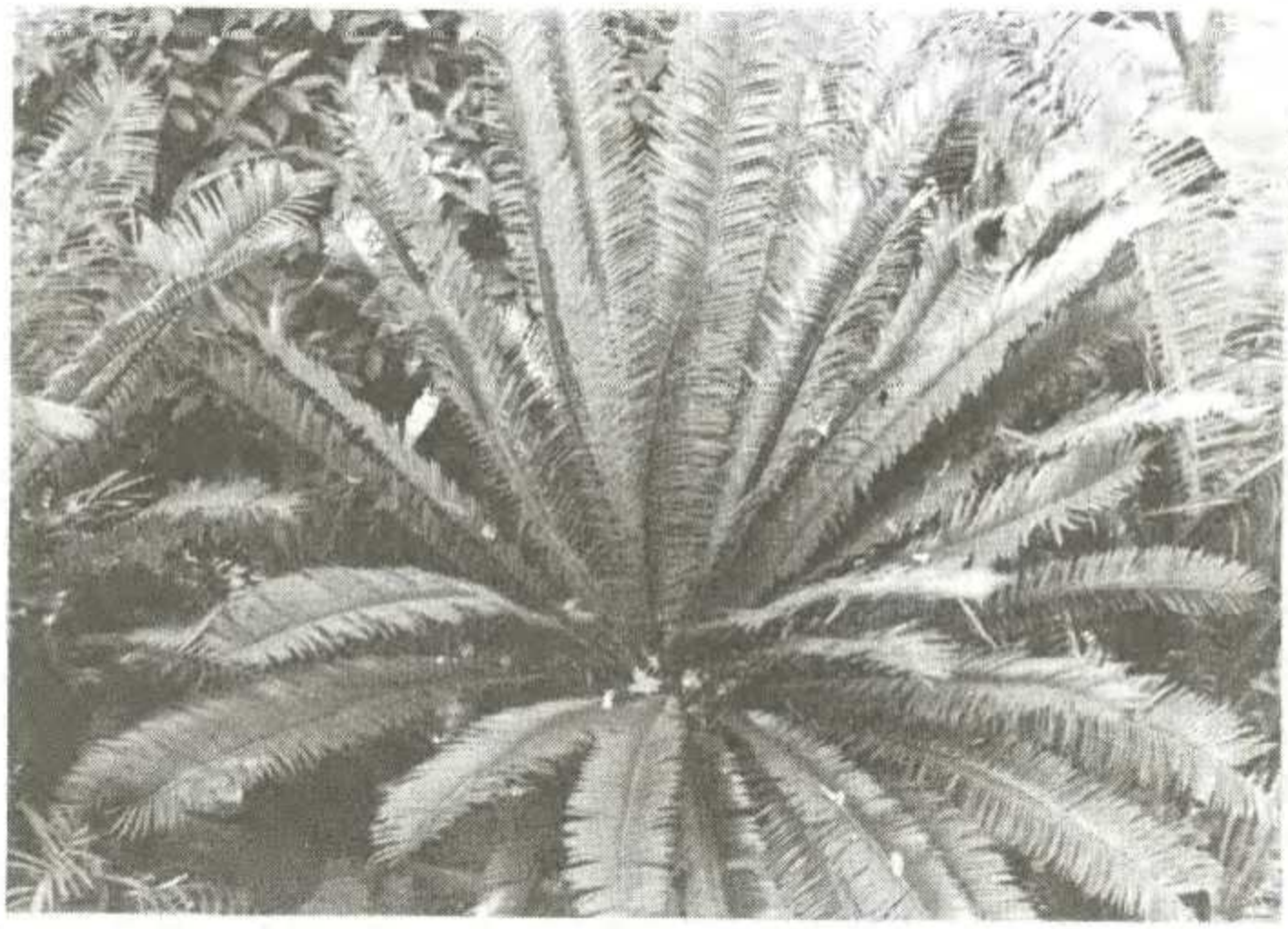
E. "Piet Retiefii" -mature female cone.

(Photograph: Roy Osborne)

straight lines, giving the whole plant a particularly symmetrical appearance.

Male cones of E. "Piet Retiefii" are greenish-yellow, 40 cm long, 11 cm in diameter and supported on a 2,5 cm peduncle. The female cones are 50-55 cm long, 20-25 cm in diameter on a very short peduncle. They have an attractive iridescent green colour, offset by a mat of short brown hairs at each cone face.

It is hoped that a full botanical description may follow in due course if botanically justified. The status of this plant must be viewed together with the overall situation between E. altensteinii, E. natalensis and E. lebomboensis, as discussed previously. For the present, it is my suggestion that we regard this plant under the name Encephalartos lebomboensis "var. Piet Retiefii".



E. "Piet Retiefii" - healthy young plant in a Durban garden.

(Photograph: Roy Osborne)

ACKNOWLEDGEMENTS

I would like to record my thanks to Dr Johan Geyser, Dr Piet Vorster, Mrs Cynthia Giddy, Mr George Norval, Mr Mark Ward and Mr Edgar Wohlberg who contributed in one way or another to the preparation of this article.

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BROODBOOMBEWARING IN S.A.

'n Verslag deur die SAGP

AGTERGROND

In Julie 1986 is 'n brief van Mnr. A.T.D. Abbott, Voorsitter van die Umtamvuna River Trust, deur die Sekretaris van die Suid-Afrikaanse Genootskap van Plantkundiges ontvang. Hierin spreek hy namens die lede van die Trust ernstige kommer uit oor die afmetings wat die onwettige handel in broodbome (Encephalartos-spesies) in Suider-Afrika aangeneem het. Aangesien verteenwoordigers van beide die Transkeise Afdeling Natuurbewaring en die Natalse Parkeraad lede van die Trust is, het die groep eerstehandse ondervinding van verskeie voorvalle waar broodbome onwettig uit die veld verwyder is. Broodbome word veral op groot skaal vanuit Transkei na die res van Suider-Afrika gesmokkel. Met bogemelde brief wil die Trust die ernstige situasie wat ontwikkel het, onder die SAGP se aandag bring en versoek terselfdertyd dat die kwessie van broodboombewaring ondersoek behoort te word. Hierdie saak is deur die SAGP-Sekretaris na die SAGP-Natuurbewaringskomitee verwys vir ondersoek en moontlike aanbevelings. Die Natuurbewaringskomitee het vervolgens 'n skrywe aan verskeie bewaringsinstansies gerig waarin inligting en menings oor die probleem aangevra is. Antwoorde is van die volgende instansies ontvang: KwaZuluse Departement van Landbou en Bosbou, KwaZuluse "Bureau of Natural Resources", die Natalse Parkeraad, die Tak Natuurbewaring van die O.V.S., die Afdeling Natuurbewaring van die Transvaal, die Kaapse Departement van Natuur en Omgewingsbewaring.

Dit word betreur dat, ondanks verskeie pogings, geen amptelike reaksie van die Transkeise Afdeling Natuurbewaring verkry kon word nie. Hierdie oënskynlike gebrek aan belangstelling is onbegryplik aangesien een van die oogmerke van die Trust juis is om die plundering van die natuurlike bates van Transkei aan bande te lê.

REAKSIE VAN BEWARINGSINSTANSIES

Uit die ondersoek het dit spoedig geblyk dat die mening van natuurbewaringsbeamptes soos gestel op papier en tydens informele samesprekings nie altyd dieselfde is nie. Beamptes is dikwels huiwerig om hul misnoeë met die huidige stelsel van bewaring op skrif te stel weens die vrees dat sodanige optrede onder andere as dislojaal teenoor die organisasie wat hul verteenwoordig, vertolk sal word. Uit gesprekke met sommige beamptes is dit egter duidelik dat daar ontevredenheid oor die effektiwiteit van die huidige bewaringswetgewing bestaan. Van die probleme wat die Natuurbewaringskomitee teëgekom het, word vervolgens kortliks vermeld. Sommige hiervan is bewerings waarvan die korrektheid nie deur die Komitee ondersoek kon word nie.

PROBLEME MET BROODBOOMBEWARING

1. Een van die grootste probleme is na bewering die verskille in die bewaringswetgewing van verskillende gebiede in Suider-Afrika. Byvoorbeeld, slegs broodboomspesies inheems in Transvaal word as "spesiaal-beskermde" plante gelys. Dit beteken dat spesies wat onder groot druk in ander provinsies is, verlaagde bewaringstatus ("beskerm") geniet wanneer sodanige plante Transvaal binnekom.

2. Die bewaring van broodbome op grond in privaatbesit lewer probleme omdat die eienaar dikwels nie aan al die beperkings van die wet onderwerp is nie. Daar word beweer dat, veral in die Kaapprovinsie, dit baie maklik vir 'n privaatgrondeienaar is om broodbome op sy plaas te verwyder.

3. Verslapte wetgewing ten opsigte van saailinge (in Transvaal word plante van andersins "spesiaal-beskermde" spesies met 'n stamdeursnee tot 150 mm as "beskerm" geklassifiseer) mag onwettige verwydering van jong plante uit die natuur bevorder.

4. Onvoldoende wetstoepassing en te ligte strawwe by skuldigbevinding. Broodboomsmokkelary is na bewering so 'n lonende bedryf dat die moontlikheid van 'n boete as 'n geregverdigde risiko beskou word. Dit word ondersteun deur die waarneming dat smokkelaars dikwels 'n rekord van vorige skuldigbevindings het. Sekere skuiwergate in die huidige wetgewing, veral ten opsigte van die konfiskering van voertuie, vergemaklik ook die taak van die smokkelaar.

5. Dit word beweer dat persone in leiersposisies dikwels betrokke is by die onwettige verwydering van broodbome. Op dié manier geniet skuldiges beskerming omdat wetstoepassers self die oortreders kan wees, of die ondersoek kan op hoë vlak in die kiem gesmoor word.

6. Gebiede waar broodbome in die natuur voorkom is dikwels afgeleë en moeilik toeganklik. Dit maak patrollering deur veldbeamptes baie moeilik.

7. Die plaaslike bevolking, veral in dele van KwaZulu, besef die markwaarde van broodbome en verkoop die plante op groot skaal aan lede van die publiek, veral in stadsgebiede.

8. Die teenwoordigheid van relatief groot getalle lede van die polisie en weermag in dele van KwaZulu (Maputaland) verteenwoordig 'n potensiële bedreiging vir die broodbome wat natuurlik hier voorkom.

9. Daar is in sekere dele van die land 'n oënskynlike onwilligheid by landdroste om bewaringswetgewing streng toe te pas.

10. Die blare van broodbome word dikwels verwyder wanneer die plante vervoer word, met die gevolg dat dit moeilik is om plante korrek te identifiseer. In sulke gevalle is dit dan ook moontlik dat foutiewe dokumentasie uitgereik mag word.

GEVOLGTREKKING

Ondanks die bestaan van bewaringswetgewing, vier broodboomsmokkelary en die onwettige verwydering van broodbome uit die veld steeds hoogty. Dit wil voorkom asof die huidige stelsel nie baie effektief is nie. Redes vir hierdie toedrag van sake moet na bewering onder andere aan leemtes in die huidige bewaringswetgewing toegeskryf word. Bewaringsinstansies is egter huiwerig om hulle hieroor uit te spreek weens die risiko om van dislojaliteit beskuldig te word. Die kweek en verspreiding van saailinge aan die publiek help baie om die druk op plante in die natuur te verminder. Weens die groter statuswaarde van ouer plante sal daar egter altyd 'n mark vir volwasse individue uit die veld wees. Dit is juis die verwydering van ou plante uit die natuuur wat tans 'n groot bron van kommer is. Bewaringswetgewing moet onder andere verseker dat die privaatgrondeienaar nie na goeddunke met buitengewone seldsame plantspesies wat op sy grond mag voorkom, kan handel nie.

AANBEVELINGS TER BEVORDERING VAN BROODBOOMBEWARING

Die volgende optrede deur die SAGP word aanbeveel:

Dat die Minister van Omgewingsake en Waterwese versoek word om 'n komitee, waarop onder andere die natuurbewarings-afdelings van al die provinsies verteenwoordig is, saam te stel. As deel van sy opdrag moet sodanige komitee veral aandag gee aan die volgende sake:

1. Eenvormige bewaringswetgewing, sover moontlik, regdeur Suid-Afrika en verkieslik ook buurstate soos byvoorbeeld Transkei. Natuurbewaringsordonnansies moet eenvormig wees in hul behandeling van aspekte soos die skenking, invoer, uitvoer, handel, pluk en uithaal van broodbome.

2. Strenger strawwe om as afskrikmiddel te dien. Eerste oortreders behoort reeds swaar gestraf te word. In dié verband kan miskien gekyk word na die sogenaamde "Cactus Law" in die VSA wat skynbaar baie effektief is. Oortreders van die wet behoort as onbevoeg verklaar te word om in die toekoms broodbome te besit. Alle plante wat by sodanige sake betrokke is moet gekonfiskeer word.

3. Vir effektiewe wetstoepassing moet spesialis-ondersoekspanne geskep word. 'n Ondersoekspan moet verantwoordelik

wees vir 'n hele provinsie (nie slegs distrikte soos tans in sekere gebiede die geval is nie). Spanne moet ook oor grense van provinsies kan beweeg om ondersoeke uit te voer. Noue samewerking tussen die ondersoekspanne van die onderskeie provinsies is noodsaaklik. Permituitreiking moet gerekenariseer word om huidige wanpraktyke te ontmoedig en die taak van wetstoepassingsbeamptes te vergemaklik.

4. Die grootskaalse kweek van saailinge vir verspreiding teen billike pryse aan die publiek moet aangemoedig word. Veral die privaatsektor moet hierby betrek word. Bewaringsinstansies kan 'n belangrike bydrae lewer deur saad tot die beskikking van kwekers te stel. Die vestiging van kwekerye naby natuurlike broodboombevolkings kan werksgeleenthede en 'n nuttige inkomste aan die inwoners in veral landelike gebiede verskaf. Permitte vir saadversameling in die natuur moet meer geredelik aan kwekerye uitgereik word.

5. Gebiede met lewensvatbare bevolkings behoort tot bewaringsgebiede verklaar te word of, indien dit nie moontlik is nie, kan bevolkings in bestaande natuurreservate hervestig word.

6. 'n Nasionale veldtog deur middel van die media om die onkunde onder lede van die algemene publiek te verminder en hulle meer bewaringsbewus te maak.

GIVE AND TAKE GEE EN NEEM

- Prof. J. van Staden, Head of the Department of Botany at the Pietermaritzburg campus of the University of Natal (PO Box 375, Pietermaritzburg 3200; tel. no. 0331-63320 ext. 130) would like to extend the collection of cycads in the Department's garden (see ENCEPHALARTOS 12, p.6). Donations of any medium to large specimens would be especially welcome. Apart from the decorative purpose, these plants will be used for scientific research work by students in the Department and will also add to the pollen and seed resources available to the Society.

- Maans Kemp (51 Constance Road, Broadwood, Port Elizabeth 6070; tel. no. 041-323344) would sincerely appreciate a few seeds or seedlings of any non-South African Encephalartos species.

- Roy Osborne (20 Maryvale Road, Westville 3630) is keen to contact any member who can spare seeds of Encephalartos inopinus and E. pauciden-tatus.

- Hein Ungerer (Posbus 279, Melville 2109) het onlangs begin met die kweek van broodbome van saad. Hy sal baie bly wees oor saad van enige Suid-Afrikaanse en Afrika-spesies.

- Hermann Kistner (163 Hutchinson Street, Greytown 3500; tel. no. 0334-31815) has 1000 seeds of Encephalartos natalensis available. He is looking for seed of Cape species.

- Martin O'Flaherty (5 Risdon Street, West Chermside, Brisbane 4032, Queensland, Australia) would be very pleased to obtain seed of Encephalartos caffer, E. ferox, E. cupidus, E. transvenosus, E. lehmannii, E. gratus, E. hildebrandtii, E. arenarius, Stangeria eriopus, Microcycas calocoma and Cycas thouarsii in exchange for seed of Australian Cycas, Macrozamia and Lepidozamia species. He is also prepared to buy seed.

BROODBOME EN DIE WET

deur Maans Kemp

- VERVOLG -

Na die publikasie van die artikel "Broodbome en die Wet" in ENCEPHALARTOS no. 14 (Junie 1988), is inligting van die Departement van Omgewingsake ontvang (sien briewekolom) wat daarop neerkom dat broodbome nie net deur die provinsiale ordonnansies beskerm word nie, maar ook deur die Boswet van 1984. Die Departement van Omgewingsake word van harte bedank vir hulle belangstelling en vir die inligting wat verstrek is.

Volgens die Boswet van 1984 kan die Minister van Omgewingsake "ten opsigte van enige grond wat nie deel van 'n Staatsbos uitmaak nie, 'n besondere boom, 'n besondere groep bome, of bome wat tot 'n besondere soort behoort wat op daardie grond voorkom, by kennisgewing in die Staatskoerant tot 'n beskermde boom of beskermde bome verklaar".

Na die publikasie van so'n kennisgewing mag niemand "enige beskermde boom koop, beskadig, vernietig, versteur of van die betrokke grond verwyder nie, of enige deel of produk daarvan versamel, verwyder, vervoer, uitvoer, koop, verkoop, skenk of op enige ander wyse verkry of van die hand sit nie, behalwe met die skriftelike toestemming van die Minister verleen op aansoek deur die eienaar van daardie grond en op die voorwaardes wat hy bepaal. Die Minister kan enige persoon, op die voorwaardes wat hy bepaal, van die bepalings van hierdie subartikel vrystel met betrekking tot 'n gekweekte boom wat tot 'n besondere soort... behoort".

'n Bosbeampte, provinsiale natuurbewaringsbeampte, 'n beampte van die Departement Landbou of van die Natalse Parkeraad of 'n polisiebeampte kan private grond betree of 'n perseel of motor deursoek om vas te stel of hierdie wet oortree word.

Alle Suid-Afrikaanse broodbome wat in die nasionale boomlys verskyn, is deur die Minister ingevolge hierdie wet as beskermde bome verklaar. Hulle is: Encephalartos altensteinii, E. eugene-maraisii, E. friderici-guilielmi, E. ghellinckii, E. inopinus, E. lanatus, E. laevifolius, E. latifrons, E. lebomboensis, E. lehmannii, E. longifolius, E. natalensis, E. paucidentatus, E. princeps, E. transvenosus, E. woodii en E. heenanii.

Dit blyk dus dat, wat dié broodbome betref wat as bome geklassifiseer is, daar beskermde wetgewing bestaan wat nie deur provinsiale grense beïnvloed word nie.

SAADBANK

Saad van die volgende broodboomspesies is nou beskikbaar van die Saadbankbeampte, Danie Nel (Bowkerweg 120, Escombe 4093; tel. no. 031-442505, na 17h00):
Encephalartos natalensis, E. villosus, Cycas armstrongii, Macrozamia riedlei, Zamia pumila.

SEED BANK

Seed of the following cycad species is now available from the Seed Bank Officer, Danie Nel (120 Bowker Road, Escombe 4093; tel. no.031-442505, after 17h00):
Encephalartos natalensis, E. villosus, Cycas armstrongii, Macrozamia riedlei, Zamia pumila.

FROM THE PRESIDENT

Having recently returned from a short but very successful trip to Pretoria, I am keen to express my thanks to the many cycad lovers and research workers in the Transvaal. Their enthusiasm, warm hospitality and delightful company is a wonderful reward for the moderate amount of effort given to management of the Society.

Membership of the Society at mid-year stood at 556 (461 local and 95 overseas members). As usual we welcome all recently-joined members. Thanks to the activities of Christopher Osborne, the membership list has now been fully computerized on Database III with consequent administrative improvements. The Committee has appointed three "overseas correspondents"; Douglas Atwater in the U.S.A., Keith Boyer in New Zealand and Paul Kennedy in Australia. These gentlemen will kindly attend to membership enquiries in their respective countries and will receive membership fees in future, thus avoiding the expense and inconvenience of numerous foreign exchange transfers by individual members. We sincerely thank Doug, Keith and Paul for their help. Their addresses will appear together with those of our office-bearers on the inside back cover of ENCEPHALARTOS.

With this issue of ENCEPHALARTOS we enclose a copy of a seed bank questionnaire kindly prepared by Danie Nel, and we hope for an enthusiastic response from members. Please remember to contact Danie if you have any seed available for the Society's seed bank - its proper functioning depends on givers as well as takers!

Your Committee is presently considering membership fees for 1989 and anticipates that a small increase in rates will be unavoidable. However, a discount system for early payment (before year end) is likely to be offered.

VAN DIE PRESIDENT

Na my onlangse terugkeer van 'n kort maar suksesvolle besoek aan Pretoria, wil ek graag my dank uitspreek teenoor die groot getal broodboomliefhebbers en -navorsers in die Transvaal. Hulle entoesiasme, gasvryheid en aangename geselskap is 'n wonderlike beloning vir die matige hoeveelheid moeite wat deur die bestuur van die Vereniging geverg word.

Die ledetal van die Vereniging teen die middel van die jaar beloop 556 (461 plaaslike en 95 oorsese lede). Soos gewoonlik verwelkom ons alle nuwe lede. Danksy die bedrywighede van Christopher Osborne is die ledelys nou volledig gerekenariseer op Database III, met daaruitspruitende administratiewe verbeterings. Die Komitee het drie "buitelandse verteenwoordigers" aangestel; Douglas Atwater in die V.S.A., Keith Boyer in Nieu-Seeland en Paul Kennedy in Australië. Hierdie menere sal so gaaf wees om lidmaatskapnavrae in hulle onderskeie lande te hanteer en sal ledegelde in die toekoms ontvang, wat die koste en ongerief van groot getalle buitelandse geldoordragte deur individuele lede sal uitskakel. Ons opregte dank gaan aan Doug, Keith en Paul vir hulle hulp. Hulle adresse sal saam met die van ons ampsdraers op die binneagterblad van ENCEPHALARTOS verskyn.

By hierdie uitgawe van ENCEPHALARTOS sluit ons 'n afdruk van 'n saadbankvraelys in wat goedgunstiglik deur Danie Nel voorberei is en ons hoop op 'n entoesiastiese reaksie van ons lede. Onthou asseblief om met Danie in verbinding te tree as u enige saad beskikbaar het vir die Vereniging se saadbank - die behoorlike funksionering van die saadbank hang af van skenkers sowel as ontvangers!

U Komitee oorweeg tans die ledegeld vir 1989 en voorsien dat 'n klein toename in ledegeld onvermydelik sal wees. 'n Afslagskema vir vroeë betaling (voor die einde van die jaar) sal waarskynlik aangebied word.

This issue of ENCEPHALARTOS again shows a healthy inflow of material from our members. The sustained high quality of our journal is largely due to the efforts of Maans Kemp and his production team. I hope you enjoy reading it as much as I do.

ROY OSBORNE

Hierdie uitgawe van ENCEPHALARTOS toon weer 'n gesonde invloei van materiaal vanaf ons lede. Die volgehoue hoë kwaliteit van ons tydskrif is hoofsaaklik te danke aan die pogings van Maans Kemp en sy produksiespan. Ek hoop u geniet dit net soveel as ek.

ROY OSBORNE

IMPRESSIONS AT A CYCAD AUCTION

by Cynthia Giddy

There was a time when the sight of an age-old cycad in the veld humbled one. It was with a sense of wonder that you saw your link with prehistory standing sentinel in the wild. Today a 40 cm Encephalartos latifrons in an upmarket townhouse garden only brings the callous thought that the R7000 spent on that single plant has certainly improved the resale value of the property.

I attended a much publicized cycad auction recently. Perhaps it was the dinginess of the surroundings, the cattle pen atmosphere - "What do you think the pauci will go for?" -, the brisk gabble of the auctioneer that brought a feeling of such profound sadness. Would I have felt better if perhaps Sotheby's had conducted the auction with dignity and panache? Should it rather have taken place in a gaily coloured marquee with champagne and an elegant finger lunch in the tradition of a Nederburg Rare Wine Auction? Does our vanishing floral heritage deserve to be sold like sheep and goats?

The sight of those tall, proud tree fern stems, shorn of their foliage, standing barerooted in plastic fertiliser pockets stopped me in my tracks. For a fleeting moment, in my minds eye, I saw two centuries ago, brown slave bodies herded against the same wall. People then, but today Africa's plants auctioned to the highest bidder.

The curtains in the hall were drawn so that the colour slides of the plants could be seen, but mercifully the drawn curtains also shut out the view of the distant kloofs and ravines from whence the cycads had come - the same cycads that were today an article of merchanise.

I have a measure of sympathy for the cycad lover who has walked many miles to find a plant, brought it home, looked after it and cherished it but today we were looking at a group of cheque book cycad collectors, pool landscapers, casino gardeners and investors. "R7000 vir die latifrons - ek dink dis 'n goeie belegging, hoe dikwels kom 'n latifrons op die mark?".

I left feeling as though I had been to a funeral, ... and as is wont today, where we are so often asked at a funeral to reflect on the state of our souls, should we not ask ourselves why we collect cycads? Will our wives one day arrange an auction because she is moving into a town house and after all, she was never really interested, it was your hobby?

I would like to save you the sight of a grandson bidding for some of his grandmother's cycads at a Public Auction.

ROOT FORMATION FROM CALLUS

by Helmut Schlegel

When I inadvertently dropped a germinating Cycas taiwaniana seed on 11 July 1984, the tip of the cotyledonary tube was crushed. One week later the damaged tissue proved to be inhabitated by tiny insects (probably some species of Zoraptera or Psocoptera) and fungus. Application of tetramethyl-thiuramdisulfide powder destroyed both, but further growth of the seedling seemed to be stopped altogether.

On 6 August the severed cotyledons resumed their longitudinal growth. Five days later, one of the stumps showed a colourless protrusion similar to tissue culture, out of which on 18 August something like a radicula spouted. On 24 August, when this structure measured 15 mm, two additional regenerative protrusions had formed on the same stump, besides two similar ones on the other stump as well. The "seedling" was now planted on vermiculite. Its vividly green cotyledons had now assumed twice the width of that in a normally germinated C. taiwaniana seed. On 3 November, the substitutional radicula had already attained a length of some 120 mm. No further growth had occurred from the other callus structures.

By July 1985 the primary root had developed into a normal-looking taproot with several short secondary roots. The endosperm, as showing between the severed halves of the shell, as well as the two cotyledonary stumps, were still a vivid green. The "seedling" was now transplanted from vermiculite into a ready-made mix containing conifer bark. By June 1986, probably due to too much moisture of the substrate, the root system, consisting of at least 350 mm taproot plus secondary roots and their ramifications, rotted away altogether. The endosperm retained its vital consistency and colour for another month, thus exactly fulfilling the "life span" which, from other experiences, I allot to this haploid structure.

(Helmut Schlegel's address: Wilhelm-Haspel-Strasse 30/2, 7032 Sindelfingen, West Germany)

NURSERY NEWS

The Transvaal Provincial Administration's nursery at Hartbeeshoek, on the northern outskirts of Pretoria, has been in operation for 15 years and is a well-known source of cycad plants to enthusiasts throughout the country. Officer-in-charge Mike van Biljon tells us that some 150 000 cycads have been raised and distributed by the nursery. Since plants are sold at cost, the prices have been very reasonable. A decision has now been taken to phase out the cycad operation over the next three years as it is felt that private commercial nurserymen are now in a position to cater for future demand.

The nursery operation is not normally accessible to the public and casual visitors are restricted to a small sales area where some half a dozen Encephalartos species are available at prices from R15 to R25. Visitors who wish to see "behind the scenes" must make private arrangements with either Mr van Biljon or Mr Koos Oosthuyzen, available at telephone number 012-582255. The nursery is closed at weekends.

WEDSTRYD

In ENCEPHALARTOS no. 12 het ons 'n broodboom-blokkiesraaiselkompetisie gepubliseer, met 'n kopié van Cynthia Giddy se boek "Cycads of South Africa" as prys. Ons het ongelukkig nie voldoende inskrywings ontvang om die prys te kon toeken nie.

Cynthia het goedgunstiglik ingestem om haar aanbod te herhaal vir 'n eenvoudiger kompetisie. Hierby verskyn 'n foto van 'n vroulike keël van 'n Encephalartos trispinosus-plant in haar tuin. Lede word genooi om te skat hoeveel sade die keël sal oplewer wanneer dit opbreek. Die persoon wat die naaste aan die kol is, sal die boek ontvang.

Skryf die beraamde getal op 'n poskaart of in 'n brief en pos dit aan die redakteur. Ons sien uit na 'n klomp inskrywings!

COMPETITION

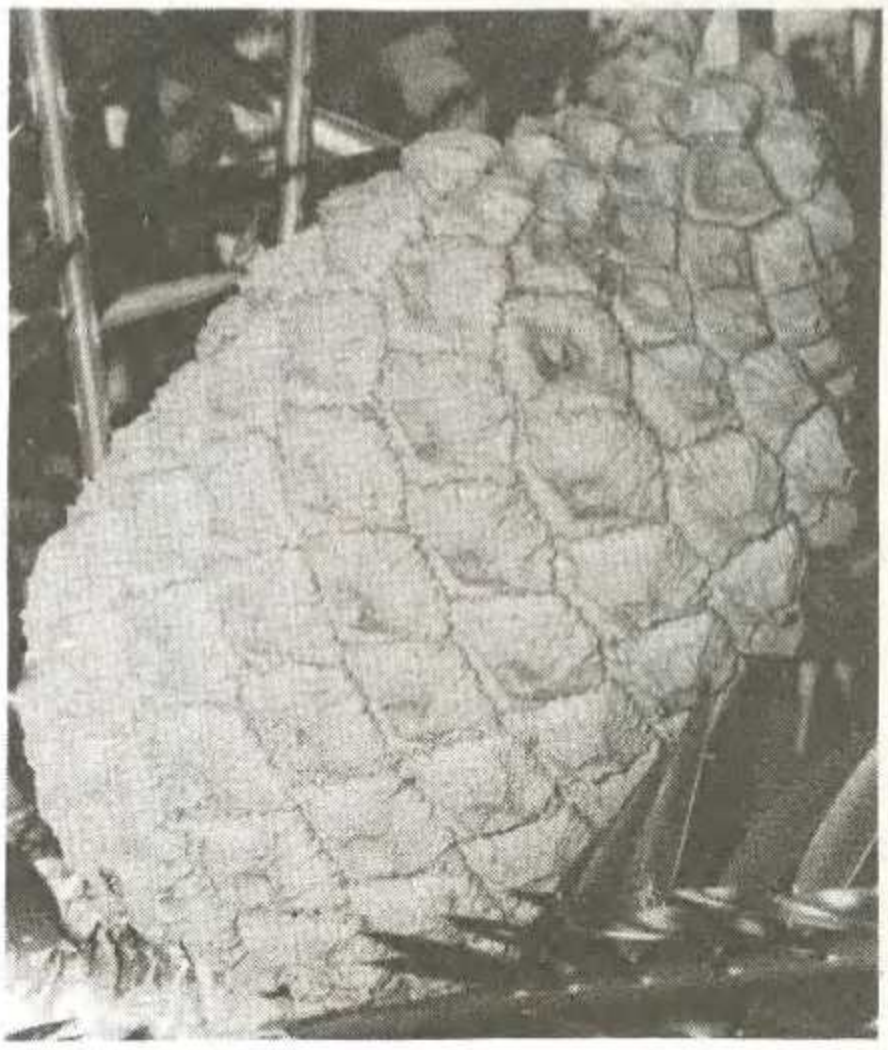
In ENCEPHALARTOS no. 12 we published a cycad crossword competition, with a copy of Cynthia Giddy's book "Cycads of South Africa" as the prize. We unfortunately did not receive sufficient entries to warrant the prize.

Cynthia has kindly agreed to repeat her offer for a more simple competition. The accompanying photograph is of the female cone of an Encephalartos trispinosus plant in her garden. Members are invited to estimate how many seeds will be shed when the cone breaks open. The person closest to the mark will win the prize.

Write the estimated number on a postcard or in a letter and mail it to the editor. We look forward to receiving lots of entries!

Die E. trispinosus-keël

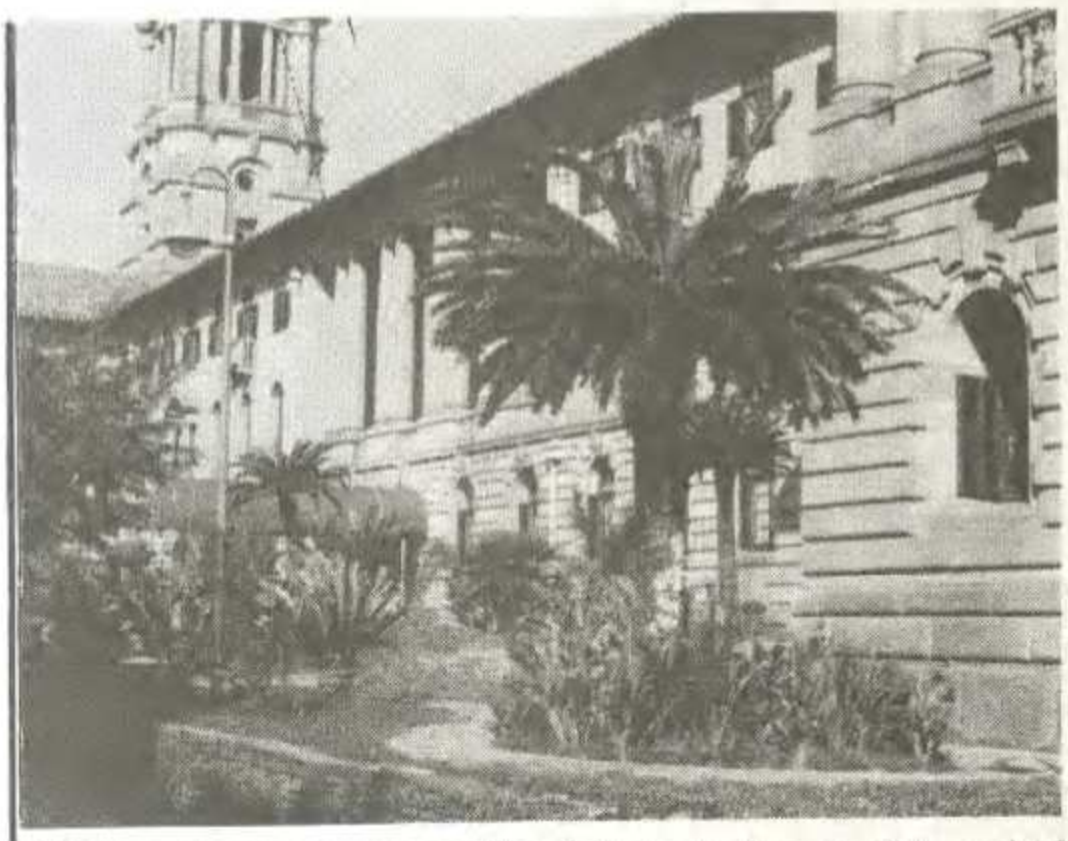
The E. trispinosus cone



CYCADS IN PRETORIA GARDENS

by Roy Osborne

Apart from being the seat of executive government in South Africa, the city of Pretoria must surely rank high in the listings as a world "cycad capital". Major public gardens with extensive cycad collections include the grounds of the Union Buildings, the displays at the Botanic Research Institute and the gardens of the University of Pretoria and the University of South Africa. Several of the country's biggest cycad nurseries lie on the outskirts of Pretoria and some very fine specimens are found in superbly-landscaped private gardens. The photographs below were taken by the author during a recent visit to South Africa's "cycad capital".

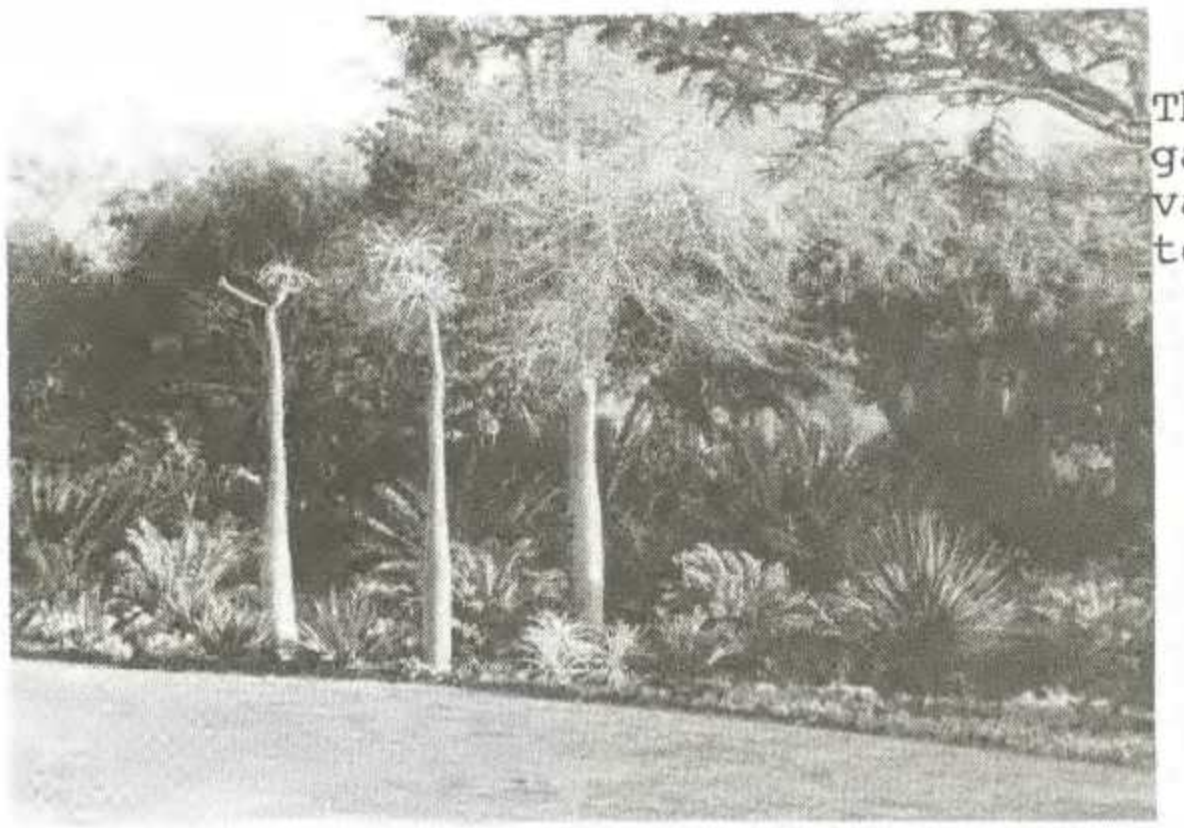


Many large cycads blend in well with the architecture of the Union Buildings in Pretoria.

The Union Buildings gardens also make use of cycads as feature container plants.

A fine collection of cycads is found in the grounds of the Botanic Research Institute in Pretoria.

Some excellent cycad specimens are found on the campus of the University of Pretoria



The magnificent landscaped garden of Henkie and Ita van der Walt is well known to Pretoria cycad enthusiasts.

Aloes, cacti and other succulents blend in well with cycads in Emden Pienaar's Pretoria garden.

REGIONAL NEWS STREEKNUUS

Eugene Marais

Neil Munro reports:

The first outing of the Eugene Marais regional branch of the Society took place on Sunday, 12 June to the Modjadji Nature Reserve. Ten members were present but, with family and friends, over 40 people made up the group. The group was very fortunate to find Mr John Burchmore of the Lebowa Nature Conservation Department on duty and he was asked to give us an official welcome and a short talk. The 300 hectare reserve has been completely fenced, which not only protects the cycads, but also keeps in the impala, blue wildebeest, duiker and vervet monkeys that occur there. The monkeys mutilate many of the cycads and are now considered a pest. Mr Burchmore was asked why some cycads had metal tags and numbers. He explained that this was done to indicate whether plants were male or female to enable coning patterns to be recorded. In the nearby nursery it was pleasing to see 46 000 seedlings that had been propagated from seed and many members took the opportunity to purchase some fine plants for only R7,00 each.

Oos-Kaap / Eastern Cape

Die lede van die streek het op 2 Junie in Port Elizabeth vergader. Maans Kemp, redakteur van ENCEPHALARTOS, het die lede toegespreek oor "Broodbome - ons boeiende erfenis". Die praatjie is opgevolg deur 'n skyfievertoning en 'n ope bespreking.

Mr John Burchmore points out an interesting fact to (from left to right) Stef Schoeman (Chairman of the Eugene Marais branch), Bunny Wentzel and Neil Munro.

Eugene Marais members discuss cycads around the braai fire at the Modjadji Reserve.

THE CYCADS OF LONGWOOD GARDENS

by Thomas Winn

Perhaps the most complete collections of cycads exist in private gardens in California and Florida. Several public gardens exhibit quite extensive collections of these primitive plants. Zamia, Ceratozamia, Dioon, and Cycas grow well in Florida. Encephalartos and Macrozamia are also found growing in Florida, but these two genera adapt best to the Southern California climate. Cycads also adapt easily to greenhouse culture, and the major genera of cycads can be found in the Longwood Gardens collection in Kennett Square, Pennsylvania (50 km south of Philadelphia). This is the most extensive collection in the North-eastern part of the United States. Some of the acquisitions are relatively recent. Not all plants in the Longwood collection are mature, but many are large plants, usually on display in the exposition houses. Among these plants are some of the most beautiful members of the cycad family.

Distinctive in its arrangement is Longwood's main display house in which the visitor can find large plants of Cycas circinalis and Cycas revoluta and several species of Encephalartos. These are attractively inter-mingled with specimens of Australian Wattle trees, several clumps of giant bamboo and other botanically, as well as decoratively, impressive plants. This exposition house also boasts a beautiful lawn with meandering pathways, which places the visitor at ease among the vegetation. The walls and pillars are covered here, as elsewhere in the Conservatory, with Ficus pumila, "Creeping Fig"). At several times during the year, South African proteas are put on display when they are in bloom. Longwood considers itself a display garden, and as a result, the staff rigorously evaluate each plant that comes into their experimental greenhouses for its distinctive, decorative values. Luckily, most of the cycads are considered quite ornamental, as well as rare. Thus they seem to occupy a permanent niche in the Longwood collection. Constantly re-evaluated and cared for, the collection does not remain continuously in one location. The following description presents the cycad collection as it was at the time of writing and is meant to be a general guide.

Most impressive in the main display house at Longwood are the large specimens of Encephalartos. Longwood cannot boast a plant as old as the famous two hundred and some years old E. longifolius that Kew Gardens still maintains, but there is a large coning-size E. natalensis flanking the left side of the stairway which leads from this house to the next, where large specimens of tree ferns abound. Complimenting this beautiful plant, and perhaps outshining its splendour, is a mature specimen of E. woodii. This is perhaps the most famous of all the cycads, for it exists only as a male plant discovered in the late nineteenth century by Medley Wood. All the existing plants of this species come from this original large three-trunked tree. Two of these main trunks exist in South African botanical gardens while the third trunk was not found on subsequent trips to the original site. It can safely be said that this plant no longer exists in the wild and, with no female plant ever found, it is considered by many to be the rarest plant in the world. E. woodii has a lot more going for it than being the rarest plant in the world, for it is also quite beautiful. It has an arching canopy of leaves unlike any other Encephalartos. In its immature leaf formations, each leaflet of each leaf (sometimes called frond because of its similarity to the fern fronds) has a different spine formation. The leaflets at the base are reduced almost to a series of star shapes, while those in the centre of the rachis have distinctive spines on both margins. E. woodii has an extremely wide leaflet, making it even more

attractive. The plant at Longwood has approximately 70 cm of trunk and the leaf formation is partially mature now. There are not as many spines as it had when it was younger, but the plant is still one of the most beautiful in the Longwood collection. Last year it produced three large orange cones. Photographs of this event were published in HOUSE PLANTS AND PORCH GARDENS magazine.

The main display house also boasts two other very beautiful cycads - one of these is the E. lebomboensis. This plant was sent to Longwood numerous years back when the Jozini Dam in South Africa was being built. At this time, several thousand specimens of E. lebomboensis were saved by "Operation Wildflower", and these plants were distributed to public gardens and interested growers. It has grown and become a handsome specimen. Interesting also is the E. umbeluziensis nearby. This plant is full-grown, yet it looks somewhat like an immature E. natalensis. Most of its trunk is below ground and it is one of the dwarf African species.

The next most impressive display is the Palm House, a beautifully appointed greenhouse, several stories high. The observer walks around the display on a raised walkway from which one can peer down into the tropical forest. Of interest here are several rare palms, the most impressive of which is the grey-leaved Neodypsis decaryi from Madagascar. Longwood also has the variegated banana tree, Musa paradisica (known in the trade as variety "Koae"), in this room. The breadfruit tree (Artrocarpus) here is also quite impressive. Perhaps the focal points for the cycad enthusiast in this house are the groupings of Ceratozamia mexicana and Encephalartos villosus. As you probably know, there are many subspecies or varieties of C. mexicana; the one here is probably C. mexicana var. angustifolia. It has dark, olive-green leaflets and the rachis is spineless. The plants are grown under the shade of the palms and are luxuriant in growth. The Encephalartos villosus maintains leaves that reach at least 2 m in length. A plant of Lepidozamia peroffskyana here is also quite showy.

The greenhouse immediately next to the palm house is the location for two very large Zamia specimens, which are labelled Zamia pseudoparasitica. These are not the true Z. pseudoparasitica, for they are not epiphytic. The true plants have recently been introduced from Panama. Longwood now has a young plant of this species in its experimental house. Nevertheless, these specimens of false Z. pseudoparasitica are quite impressive. This room also contains an old long-trunked specimen of Z. skinneri, with its beautiful ridged leaflets, and a magnificent specimen of Macrozamia macdonnellii, the Australian blue cycad. The latter is somewhat endangered, for it has such a limited range in its natural habitat, the Alice Springs area of the Macdonnell mountain range in Australia. The blue colour is an adaptation to the extremely arid conditions of its habitat. The plant, like other Macrozamias, tends to put leaves out over a period of time during the warm months. The leaves come out successively rather than all at one time. Longwood has recently acquired other species of Macrozamia which are not yet on display, among them M. pauli-guilielmi var. pauli-guilielmi, M. heteromera var. glauca and M. fawcetii. Two other Macrozamias are here on display already, however, and these are two M. communis specimens. These may still be labelled M. spiralis, from the original source, but the mistake has been rectified, at least on the books. M. spiralis is a rather dwarf plant, unlike the robust specimens at Longwood Gardens.

In the succulent greenhouse there is perhaps one of the most beautiful of the blue-leaved cycads, Encephalartos lehmannii. This plant is housed with the succulents in order to maintain its intense blue colouration. It is also a rather dry grower and it fits in well in this environment. Longwood has also recently acquired a young plant of the other blue Encephalartos, E. horridus. It will doubtless be several years before this appears in the display houses. Other recent acquisitions include Dioon purpusii var. imbricatum, Stangeria eriopus and Microcycas calocoma. This last plant Longwood raised from seed obtained from Fairchild Gardens.

Numerous other species of Encephalartos, Zamia and Dioon exist now in the growing houses at Longwood - too many to discuss one by one. As can be seen, the collection is good and recent acquisitions promise even more diversity in the future.

If one is unable to travel to some of the gardens in the South, then for the cycad enthusiast, Longwood is truly the ideal place to visit. The Gardens maintain so many rare and unique plants that they are a pleasure for a wide range of interests. It may be surprising to some that cycads are so well represented. For the purposes of the garden, this representation is well-founded, for the cycads are remnants of a vast family of plants and their presence always evokes the strange and exotic.

(Reprinted from the Cycad Newsletter (USA), vol. III, no. 2, February 1980, with the kind permission of the author and the editor. Thomas Winn's address is: 10 Church Street, Steward, OH 45778, USA)

LETTERS BRIEWE LETTERS BRIEWE

Readers are invited to write to the editor (See address elsewhere.) Where applicable, experts will be asked to deal with specific questions.

Lesers word genooi om aan die redakteur te skryf (sien adres elders). Waar van toepassing sal kenners gevra word om spesifieke vrae te beantwoord.

Dear Sir

I wish to express my sincere gratitude to the Cycad Society for the excellent service provided for the benefit of its members. ENCEPHALARTOS, in particular, deserves praise for its contribution to the cycad cause. I find the journal most interesting and informative. I would also like to mention that I sincerely appreciate the free publicity given to cycad nurseries in your "Nursery News" feature. After my own nursery was mentioned in ENCEPHALARTOS, I received numerous enquiries and many successful contacts were made.

Keep up the good work!

DON GIESE
KING WILLIAM'S TOWN

Geagte Heer

Met verwysing na die hoofartikel in nommer 14 van u tydskrif, sowel as die berig op bladsy 4, vestig ek graag u aandag daarop dat die broodbome met nasionale boomnommers 2 tot 14 as beskermde bome ingevolge die Boswet van 1984 verklaar is. Vind asseblief hierby, ter inligting, afdrukke van artikel 13 van die Boswet van 1984 en die lys van beskermde bome wat nog kragtens die Boswet van 1968 afgekondig is, maar steeds geldig is.

Die afdruk van 'n koerantberig uit die "Oosterlig" van 1 Maart 1988 op bladsy 25 van genoemde uitgawe van u tydskrif bevat 'n verwysing na die "Wet op Bedreigde Flora" van 1974. Daar bestaan nie so 'n wet nie en die benaming is blykbaar 'n versinsel van die verslaggewer.

Graag wens ek u Vereniging alle sukses toe met sy pogings om broodbome te beskerm en wens ek u Vereniging ook geluk met wat u reeds bereik het.

C. KROMHOUT
Namens die Direkteur-Generaal,
Departement van Omgewingsake

Sien die artikel "Broodbome en die Wet (vervolg)" elders in hierdie uitgawe - REDAKTEUR

Great benefit seen in big Natal park plan

Mercury Reporter

THE long-standing proposal for the creation of a massive national park at Maputaland in Northern Zululand incorporating several reserves in the region would be of great benefit to conservation and the local people.

That is the opinion of the KwaZulu Bureau for Natural Resources (KBNR), which runs most of the reserves in the area; the Wildlife Society of Southern Africa and Mr Naas Steenkamp, chairman of the Gencor Development Trust, who pledged his support for the project last week.

As early as 1980, the Wildlife Society formulated a blueprint for a consolidated conservation area stretching from Hluhluwe to the Lebombo mountains.

Proclaimed

Mr Barry Marshall, KBNR communications director, said the bureau was working steadily towards making the plan a reality.

It had proclaimed the Tembe Elephant Park in northern Zululand in 1983, the Hlatikulu forest at Ingwavuma and the Lake Sibaya reserve. The Kosi Bay National Park — incorporating the whole Kosi Lake system — would be proclaimed in the near future.

Also, the bureau would take over the coastal forest between Kosi Bay and Sodwana on July 1.

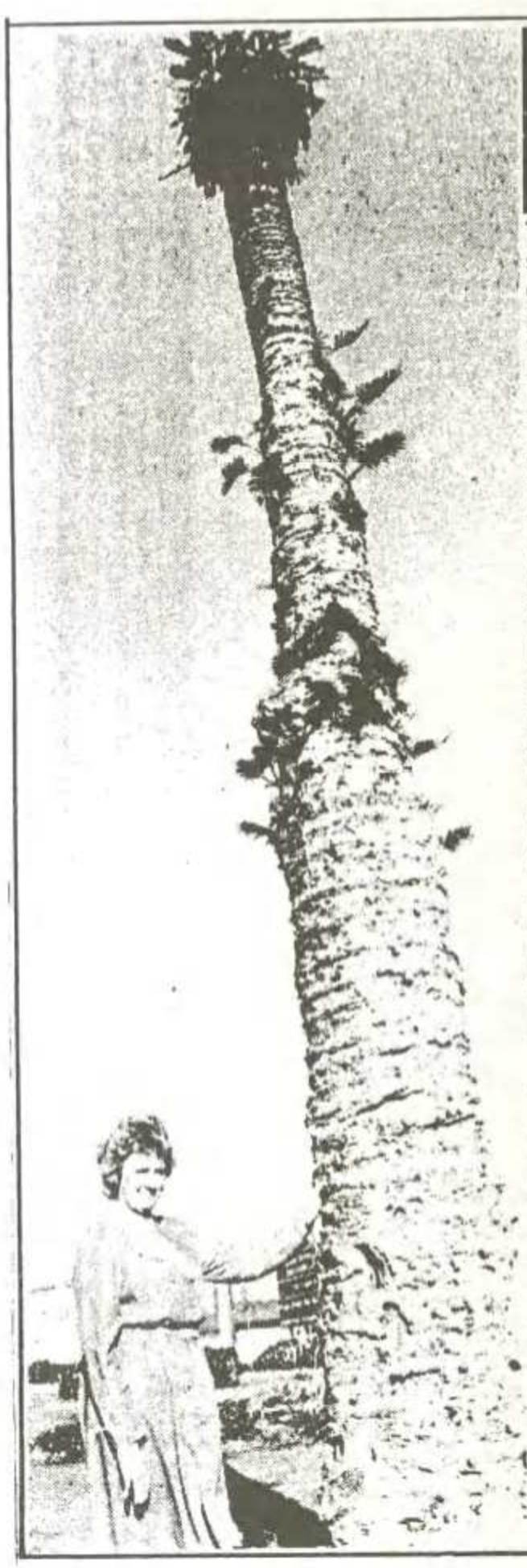
Also to be incorporated in the proposed national park was the Ndumu Game Reserve, taken over recently by the KBNR from the Natal Parks Board.

Neogtiations with the Parks Board, wich controls the Mkuzi and Hluhluwe reserves, would also have to be carried out to facilitate the creation of the reserve.

Mr Marshall said the park would be of very great benefit to local people as the major resource of the area, which had very little agriculture or mineral resources, was its unique and unspoiled nature.

According to the bureau's conservation-by-consensus policy, the local tribal authorities are granted 25% of the revenue of reserves while local inhabitants are allowed to reap natural resources on a sustained-yield basis and are employed to build and staff reserves.

Mr Steenkamp said last week that the Gencor Development Trust would be 'very willing' to contribute towards the scheme and would try to encourage the private sector and polticians to co-operate in creating it.



Old cycas 'takes off'

They all said it couldn't be done. But the staff at Durban's Louis Botha Airport were at pains to announce yesterday that the airport's cycas tree has new shoots and 'seems quite satisfied with its new home'. The 200-year-old tree, admired here by airport worker Maureen Koekemoer, was the subject of a furore last year when it was transplanted from Queensburgh to Louis Botha. Many people argued it would never 'take off' at the airport.

THE NATAL MERCURY
13 JUNE 1988

R150 000 boost for E Tvl

CONSERVATION in the Eastern Transvaal received a boost recently when a Mercedes 7-ton truck and R20 000 were presented to kaNgwane Chief Minister Mr Enos Mabuza for development of three local nature reserves.

The truck, specially adapted for nature reserve management work, was handed over by the chairman of Mercedes Benz, Mr S van Hüllen, at a Johannesburg function in February.

Worth R130 000, the truck was donated by Mercedes Benz through the SA Nature Foundation (SANF).

A cheque for R20 000 — raised from sale of special bronzes cast by sculptor Bobby Lawrence to commemorate the anniversary of Jock of the Bushveld — was handed to Mr Mabuza by SANF chairman Mr Gavin Relly.

The three kaNgwane nature reserves — one of which borders the Kruger National Park — were proclaimed with the assistance of the SANF in 1985 and total 75 000 ha, containing important cycad populations and Eastern Transvaal forest.

THE PANNER . . . one of the bronzes from the FitzPatrick collection.

Kaapsche Hoop Trail opened

A NEW hiking trail of special geological, historical and conservational interest was officially opened on 20 June by the Minister of Environment Affairs and of Water Affairs, Mr G J Kotzé.

In his opening address at the Kaapsche Hoop Hiking Trail, which took place at the Berlin State Forest near Waterval-Onder, the Minister praised the Gold Fields Foundation for sponsoring the route and the guide map. It is the first time in the history of hiking trails in South Africa that a private company has sponsored a complete trail.

Characteristic of this Trail is the large variety of natural features, such as the deeply eroded V-shaped valleys with their steep and, in places, precipitious sides. These valleys originated due to extremely active headward erosion of the tributaries of the Crocodile River. Streams such as Battery Creek, Starvation Creek, Buttons Creek and Coetzeestroom have cut through the Black Reef quartzite into the softer sandstone, shales and volcanics of the Godwan Formation down to the granite basement. These rocks of the Godwan Formation belong to the oldest rocks on the African Continent.

Since the earliest times, gold has played an important role in the history of the area. Along the route several remains can be found of early mining activities such as worked diggings, exposed reefs, a desolate diggers' hut — which is expected to be declared a national monument soon — claim pins, a cemetery and the small diggers' town of Kaapsehoop. This town experienced its heyday during the early Eighties of the previous century, before a far richer gold-field was discovered on the Witwatersrand. Today only memories remain, although a few of the houses in the town are still occupied.

The route of the Hiking Trail was planned in such a way as to include a wide variety of scenery and vegetation. The larger part of Berlin State Forest is planted with exotic trees, although fine examples of indigenous forest are protected. Of special interest is also the Kaapsche Hoop cycad, which may be seen in the Starvation Creek Nature Reserve. At Coetzeestroom the tree cover changes dramatically and elements of Lowveld bushveld savannah occur with typical tree species such as Transvaal teak, pigeonwood, marula and Pride of De Kaap.

The blue swallow, which breeds in the grassland of the Eastern Montane Sourveld, is another feature of this area. The blue swallow's habitat has decreased considerably as a result of normal agricultural and forestry development in South Africa. At present approximately ten breeding pairs occur at Berlin State Forest, which has prompted the Department of Environment Affairs to leave some 470 ha of prime forestry land at Berlin unafforested in order to protect the blue swallow's habitat.

The Kaapsche Hoop Hiking Trail serves two types of hikers — those who prefer hutted routes and those who carry their tents with them. The hutted route resembles a figure eight with the starting point in the middle. Here the overnight facilities consist of two old train coaches, known as the Barrett's Coaches and named after the Barrett brothers who discovered gold here. By using different connecting routes, hikers can adapt the length of their hikes to the time available.

Reservations can be made at the office of the Regional Director, Southern Transvaal Forest Region, Private Bag 11201, Nelspruit 1200. Tel 01311-23244. — *Jackie de Klerk*

CYCADS OF AUSTRALIA

by Len Butt

Macrozamia riedlei

Macrozamia riedlei is commonly called the "Zamia palm" by West Australians and although it has some written history regarding the paralytic effect on early settlers' cattle, the settlers also realised its potential as a source of starch. To this end they carefully shredded the pith of the trunk, soaking it in water for many hours, and filtering and washing the material many times before drying and powdering it into a starch.

This very variable Macrozamia occurs along the coastal regions of south-western Western Australia in a wide band, roughly from just south of Geraldton to the Esperance River. All specimens I have seen were quite trunkless, but there are reports of plants growing in the south-east corner Karri forests, which have a caudex of about two metres. It appears that, like M. miquelii, it does get a trunk at maturity, and one of good proportions. The arching fronds are at first erect, later spreading, and are numerous in the plant's crown. The female cone of red seeds is typical of the Macrozamia genus in other parts of Australia. The seed is similar in size to that of M. miquelii (5 cm long), and the cones are approximately 30 cm in length. Variability of this plant must be pronounced in cultivation as it occurs in sandy soils and also in red moist soils. The fact that these plants adapt well is also evident in the Eastern states. M. miquelii occurs on moist sandy loam (Fraser Island) and dry stony hills west of Gympie.

A female M. riedlei plant in habitat.

M. riedlei is prominent enough in appearance to warrant it being quite a likely plant for home garden or tub culture. It is to be hoped that the true ornamental value of this West Australian species will be realised in time to save it from eradication by certain authorities who always place the value of a plant by its value in commerce rather than by its botanical antiquity and value as a link with our past.

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