ENCEPHALARTOS CAFFER *

by Maans Kemp

INTRODUCTION

Encephalartos caffer occupies a special position amongst South African cycads. It shares the honour with E. longifolius of being the first South African cycads to be noticed and described by botanists. In addition, it is the cycad species which occurs the furthest south in South Africa, and therefore in Africa.

DISCOVERY

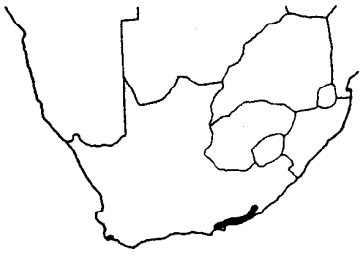
E. caffer was botanically discovered by the Swede, Carl Peter Thunberg. Thunberg was a student of the famous Carl Linnaeus, professor in botany at the University of Uppsala in Sweden. He visited the Cape of Good Hope between April 1772 and March 1775 and travelled the country extensively. He collected more than 3000 specimens during his stay and is often referred to as the father of South African botany. He started the longest of his journeys into the interior at the end of 1772; a journey which took him as far as the present Coega, near Port Elizabeth. On this journey he was accompanied by a Scotsman, Francis Masson. Masson was a gardener at the Royal Gardens at Kew in England and was sent to the Cape of Good Hope by Sir Joseph Banks, scientific advisor of Kew, to collect plants and seeds for the gardens. He arrived in October 1772 and stayed until 1774.

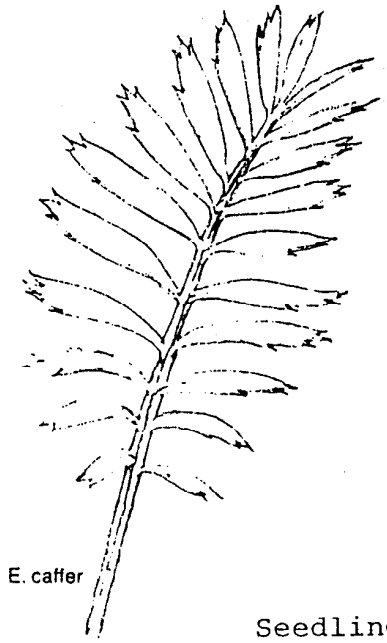
During this journey, probably in the vicinity of the present Kareedouw, Thunberg came accross the cycad which is now known as E. longifolius and which he mistook for a species of palm. In the same vicinity, probably closer to the present Humansdorp, he also noticed small cycads but thought them to be young plants of the same kind as the tall-growing ones. He collected material from both forms. It is evident from his later descriptions that the small plants were the cycads we now know as E. caffer.

NAME

E. caffer, like E. longifolius, has had its fair share of different names, mainly resulting from Thunberg's mistake in thinking that the tall and the short plants he saw were of the same species. When he first saw the tall plant, he thought it was a species of palm and called it Zamia caffra. In his description he made use of material collected from both the tall and the short plants and his record therefore contains features of the present E. longifolius and E. caffer.

Distribution:
EASTERN CAPE





Seedling leaf
full size

The confusion continued for many years. In 1809 Jacquin called the species Zamia longifolia and described another species, Z. lanuginosus which was later reduced to E. longifolius. In 1834, when he introduced the genus name, Encephalartos, Lehmann simply changed Thunberg's C.caffra to E. caffer. In 1836 Lehmann also described a species which he called E. brachyphyllus and which corresponded to the present E. caffer. In 1933 J. Hutchinson and G. Rattray finally sorted out the name problem and distinguished between E. caffer and E. longifolius. E. brachyphyllus was at the same time reduced to E. caffer. Plants in Zululand which up till then were classified as E. caffer, were segregated as a separate species in 1949 by Verdoorn, who called the new species E. ngoyanus.

DISTRIBUTION

E. caffer occurs in the Eastern Cape Province in the districts of Humansdorp, Albany, Bathurst and East London and in Transkei in the district of Kentani, as far east as Willowvale. Specimens have been recorded from the Uitenhage and Steytlerville districts. No reports of plants in the Uitenhage district have been received in recent years, while there is some doubt about the accuracy of the report on the occurrence in the Steytlerville district. The presence of this species in these two districts is highly unlikely.

E. caffer grows infrequently in the coastal belt, usually in sour grassveld, where plants are often difficult to see in the surrounding grass. It is often found growing amongst rocks. This may be the result of the protection offered by the surrounding rocks against the effects of veld fires on young plants.

The rainfall in its distribution range varies from about 1000mm per year at the coast to 750mm and less further inland. The summers in these areas are hot and no frost occurs. Rain in the north-western parts of the distribution area occurs mainly in summer. In the Humansdorp district it is more evely spread, with some winter rain and fairly dry summers.

Encephalartos caffer in its grassy habitat

DESCRIPTION OF PLANT

1. STEM

E. caffer has an underground stem. Occasionally a small portion of the stem may be above ground level. The stem resembles that of other Encephalartos species and is covered by old leaf-bases. The stem in older plants may be of considerable size; as much as 40cm long and 25cm in diameter. The stem is always woolly on top and is usually unbranched. Branching occurs occasionally, probably as a result of damage to the stem. Characteristic of this species is its tuberous root system, consisting of numerous short, thick roots.

Photograph of an uprooted old E. caffer specimen, showing its tuberous roots, stout stem, sometimes curled leaves and old male cone. (Reproduced from Bothalia Vol.VIII, Part 4, 1965, with kind permission from the editor and the Botanical Research Institute.)

2. LEAVES

The leaves of E. caffer are quite characteristic. They are 40cm to 1m in length and fresh light green. New leaves are brown-woolly at first but most of the hair is lost as they mature; although they never become completely smooth or glossy. The rachis of the leaf is usually straight, but may sometimes be curved or twisted. When the leaves are very numerous, the lower leaves may be spread out almost horizontally. The petiole is about $\frac{1}{4}$ to $\frac{1}{3}$ as long as the rachis. The leaf base is covered with pale brown wool.

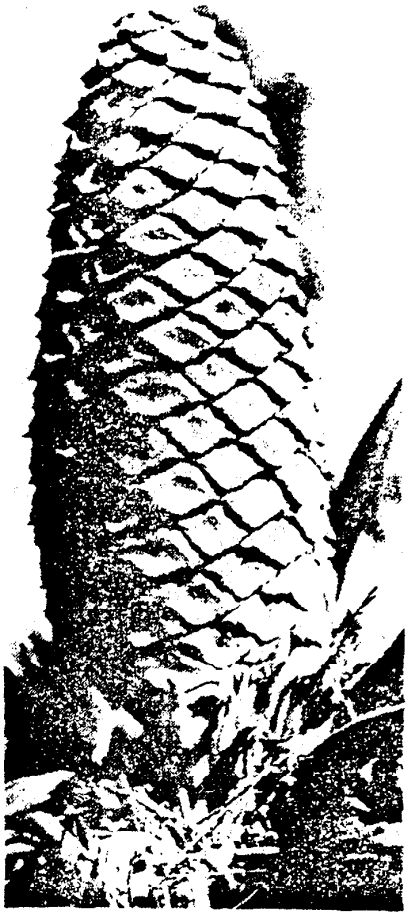
The leaflets at the middle of the leaf are usually 8 to 10cm long and approximately 1cm broad, gradually becoming narrower from the base and ending in a sharp tip. The leaflets become smaller towards the leaf base, eventually ending in one or two prickles. These reduced leaves may be forked, but the other leaflets are usually without teeth, especially in mature plants. In young plants one or two teeth may occur on both margins. Seedlings are characterized by up to four teeth at the tip of the leaflet.

A characteristic of E. caffer is the ruffled appearance of the leaves, caused by the numerous, crowded leaflets and the fact that the leaflets arise from the rachis in different planes and may be irregularly twisted from the rachis.

3. CONES

Both male and female plants bear single cones which are greenish-yellow when mature. The cones are borne on short, thick stalks, up to about 15cm long in the case of the male and 7cm long in the female.

The male cone itself is approximately 20 to 30cm long and 6 to 12cm in diameter. The cone is cylindrical, but becomes narrower towards its tip.



Male cone of E. caffer. (Reproduced from Bothalia Vol. VIII, Part 4, 1965, with kind permission from the editor and the Botanical Research Institute.)

The male cone has a number of spirals of roughly triangular scales. At the middle of the cone the scales are about 3cm long and 2,5cm broad at its widest end. The faces of these median scales are slightly projected to form beaks, 5 to 6mm long, with the lower margin sometimes toothed. The whole of the under-surface of the scale, except for the narrow end, is covered by sporangia - small sacs in which the yellow pollen is formed.

The female cones are up to about 30cm long and 15cm in diameter. The cone is more or less cylindrical but becomes narrower towards the rounded tip. The scales are arranged in 6 to 8 spirals. The scales at the middle of the cone are approximately 5,5cm long and 5,5cm wide at its widest part. The scale is about 3,5cm thick and ends in a flat face. The rim of this flat surface is slightly raised and the lower margin projects somewhat and may be irregularly toothed.

On top of each female cone scale two seeds are formed, each up to about 3,8cm long and 2,5cm in diameter. The fresh seed is bright red or scarlet in colour and glossy in appearance. Occasionally pale pinkish-yellow seeds are found.

Female cone of E. caffer.
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HYBRIDIZATION

Although specimens of E. caffer occur close to some other species, for example E. trispinosus, in the Grahamstown and Bathurst areas, no signs of hybridization have been reported.

PLANTS IN THE GARDEN

E. caffer grows well in cultivation. If mature plants are transplanted, it may take a few years for new leaves to form. Such mature plants should be planted with the top of the stem below ground level. The soil should be well-drained, slightly acid and rich in organic matter. Well-established plants should receive enough water. Plants may be grown in full sun or light shade. They are fairly resistant to frost, although frost seldom occurs in their natural habitat. E. caffer is very attractive when planted amongst well-placed, natural-looking rocks.

CONSERVATION

A number of years ago E. caffer, E. latifrons and Stangeria eriopus were the first Cape cycads to be declared endangered species by the Cape provincial nature conservation authorities. It has subsequently been discovered that E. caffer is not quite as rare as originally thought, although it is in need of strict protection. In certain areas, especially where it grows in easily-accessible terrain, the numbers of E. caffer have been severely depleted by collectors. In some areas, in the Humansdorp and Albany districts, large numbers were destroyed when farmers ploughed the land for the planting of wheat and other crops.

Fortunately a few viable colonies occur on state-owned land, where the plants are protected. Probably the largest colony occurs in the Cape provincial cycad reserve near Grahamstown, where the plants are inspected regularly and where many seedlings can be seen amongst the mature plants. Other smaller colonies occur on land which belongs to the Department of Environmental Affairs (formerly the Department of Forestry), where they are also well looked after. It seems, therefore, that E. caffer is in no immediate danger as a species. It is essential, however, for this attractive species to be cultivated from seed as much as possible to ensure its long-

Female E. caffer with numerous seedlings at left.

Specimens of E. caffer planted in rockery.

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