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Red List of South African Plants

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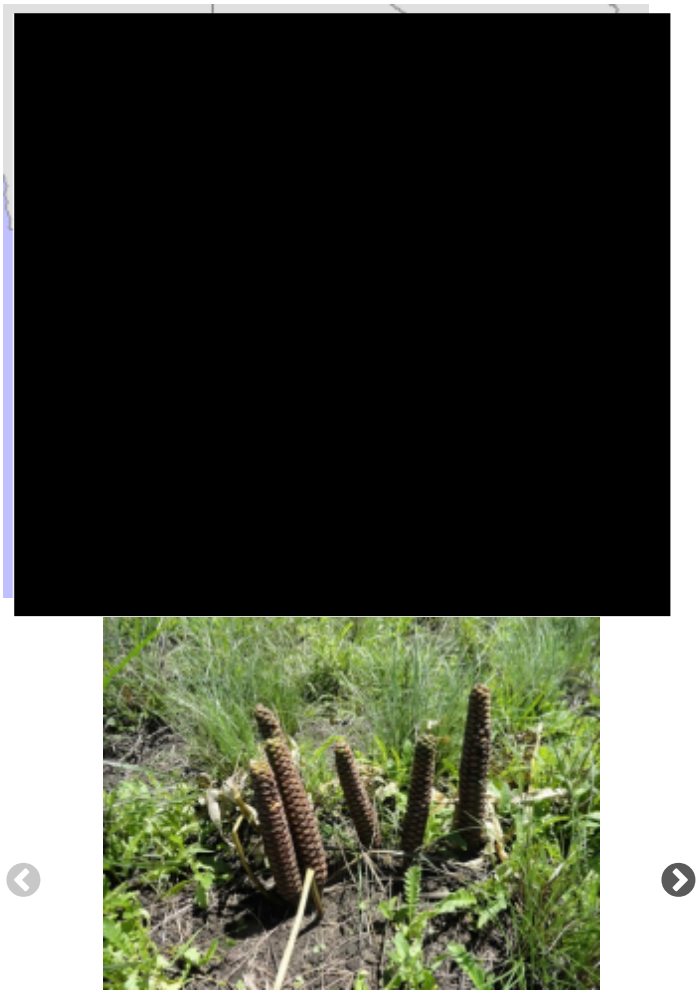
Imfingo

Taxonomy

Scientific Name	**Stangeria eriopus (Kunze) Baill.**
Higher Classification	Gymnosperms
Family	ZAMIACEAE
Synonyms	Lomaria coriacea Kuntze (later homonym), not of Schrad. (1818), Lomaria eriopus Kunze, Stangeria katzeri Regel, Stangeria paradoxa T.Moore, Stangeria paradoxa T.Moore forma schizodon, Stangeria paradoxa T.Moore var. katzeri (Regel) Marloth, Stangeria paradoxa T.Moore var. schizodon (Bull.) Marloth, Stangeria schizodon Bull., Stangeria zeyheri Stoneman
Common Names	Bobbejaankos (a), Cycad (e), Imfingo (z), Natal Grass Cycad (e), Stangeria (e), Umfingwani (x), Umncuma (x)



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National Status

Status and Criteria	**Vulnerable A2acd+4cd**
Assessment Date	2008/01/14
Assessor(s)	V.L. Williams, D. Raimondo, N.R. Crouch, A.B. Cunningham, C.R. Scott-Shaw, M. Lötter & A.M. Ngwenya
Justification	At least 20% of the habitat has been lost over the last three generations (150

years) and harvesting for the traditional medicine trade has caused at least a further 10-20% decline in population size. It is a sought-after medicinal plant that is over-exploited in much of its range. It is likely to be threatened in future by habitat loss and increased harvesting as a result of the proposed N2 highway being extended through the Eastern Cape.

Distribution

Endemism	Not endemic to South Africa
Provincial distribution	Eastern Cape, KwaZulu-Natal
Range	Bathurst to southern Mozambique.

Habitat and Ecology

Major system	Terrestrial
Major habitats	KwaZulu-Natal Coastal Belt Grassland, Pondoland-Ugu Sandstone Coastal Sourveld, Scarp Forest, Moist Coast Hinterland Grassland, Transkei Coastal Belt, KwaZulu-Natal Coastal Belt Thornveld, Northern Coastal Forest, Northern Zululand Sourveld, KwaZulu-Natal Sandstone Sourveld, Eastern Valley Bushveld, Bhisho Thornveld, Southern Lebombo Bushveld, Maputaland Coastal Belt, Lebombo Summit Sourveld, KwaZulu-Natal Hinterland Thornveld, Dry Coast Hinterland Grassland
Description	Scarp and coastal forest, Ngongoni and coastal grassland.

Threats

Stangeria is a sought after medicinal plant which has been critically over-exploited over much of its distribution range (Scott-Shaw 1999). The habitat is rapidly being degraded because of woodcutting and the expansion of crop farming (Scott-Shaw 1999). The

lignotuber is used for traditional medicine, hence harvesting is destructive and whole plants are usually killed. Cunningham (1988) estimated an annual sale of 233 bags (50kg-size) by 54 traders in the Durban markets - possibly accounting for ¼ of the total sales in the province. Cunningham also classed it as 'rare and vulnerable' - i.e. a species with a relatively small population that is vulnerable to over-exploitation if exploitation continued. In a survey conducted by Osborne et al. (1994) in July 1992, 28 out of 170 gatherers (16.5%) in two Durban muthi markets sold the tubers. The mean mass of caudices on sale = 0.7kg; mean mass sold/month/trader = 85kg; mean number of plants sold/month/trader = 122; total mass sold/month = 2380kg; total number of plants sold/month = 3410 individual caudices (or, 40,920 plants per year). The unknown quantity of tubers sold by the muthi shops in the city would have added considerably to the annual volume sold in the region (Osborne et al. 1994). The plants were said to have been harvested from areas in the former Transkei, southern and northern KwaZulu-Natal, and concerns were raised that the rate of exploitation would lead to a rapid demise of Stangeria in the wild, especially if the herbal medicine trade continued to expand (as it has) (Osborne et al. 1994). The popularity of Stangeria is such that it is traded outside of its range in Mpumalanga (Mander 1997) and Gauteng (Williams 2007; Williams et al. 2007). Trade figures for Johannesburg showed that 58% of muthi shops stocked the species in 1994, 18% of which said it was scarce. The annual volume estimated to have been sold was 243 bags (50kg-size). In the Faraday market in 2001, 9% of traders sold it with a combined volume of 38 bags in the market at the time of the survey (Williams 2003). Stangeria was rated high conservation priority species by Williams (2007). More recently, Peckover (2006) found evidence of Stangeria tubers having been excavated in the Manguzi, presumably for the traditional medicine trade. He estimated that more than 50 plants had been removed from the site, and that conservatively hundreds had been excavated in the last few months. On a visit to the Faraday market, Peckover (2007) found 20 traders with Stangeria, each with about 20 plants per trader. In terms of habitat destruction, Dyer (1965) estimated that vast numbers of plants had been

eradicated along the KwaZulu-Natal coast as sugar cane fields replaced the natural vegetation, and the expansion of the pineapple industry in the Eastern Cape had caused similar diminution in the distribution of Stangeria in that area. Vorster & Vorster (1974) suggested that "countless thousands of plants have been destroyed" during plantation preparations. Cycad collectors have also threatened the Stangeria population. Crouch et al. (2000) cited a cited a post-war anecdote in which a field botanist active along the Natal south coast was offered one pound per plant to send as many living Stangeria plants as could be collected to a Chicago museum. The botanist refused, and the field full of Stangeria that was mentioned in the anecdote was subsequently visited 30 years later to find that it had been over-grazed and not a plant remained.

Population

Donaldson (2003) estimated the population size to be 100 000, and that the rate of present decline over the last 30 years was high; threats were over-collection, habitat destruction and traditional use; habitat reduction over the last 30 years estimate to be moderate. A previous estimate by Osborne (1994) estimated the number of mature plants to be >10000. Since at least 1965, there have been reports of Stangeria eriopus becoming scarce, rare and extirpated in many areas of its range. Dyer (1965) reported on how vast numbers of plants were eradicated along the KwaZulu-Natal and Eastern Cape coast as sugar cane fields and the pineapple industry respectively replaced the natural vegetation. Vorster and Vorster (1974) estimated that countless thousands of plants were destroyed in the process of the plantation preparation. Crouch et al. (2000) said that Stangeria was once a usual sight in coastal and scarp forests and coastal grassland from Bathurst to Kosi Bay, but today it is far less common. Furthermore, plants within the borders of designated nature reserves are not altogether safe (Crouch et al. 2000). For example, Dhlinza Forest (2831CD), Entumeni (2831CD), Krantzkloof (2930DD), Ngoye Forest (2831CD), Vernon Crookes (3030BC) and Umtamvuna Nature Reserves (3130AA) are all known to at least historically had this species, but the individuals are sparse and not safe. Regular visitors to Ngoye have also reported drastic

reductions in population numbers, and a recent half-day survey in the Gwaliweni forest north of Jozini (2732A_) in KwaZulu-Natal failed to locate any specimens (Crouch et al. 2000). Between Durban and Hluhluwe, a lot of Stangeria was lost at many localities due to habitat transformation for sugar cane and gum plantations; very little natural veld exists in these areas today, and Stangeria tends to be found in isolated pockets (N.R. Crouch, pers. comm., 2008). Stangeria is therefore currently rare and of low abundance (Scott-Shaw 1999). The future construction of the highway through the Eastern Cape will threaten many of the subpopulations. Parts of the former Transkei are currently a refuge for Stangeria, but coastal urban development will threaten the habitat and the range as forest refugia become more accessible to collectors (N.R. Crouch, pers. comm., 2008). There are 34 known QDS records from PRECIS, the literature and personal observations. The following threats were noted: a) In 14 known QDS (41%), habitat transformation and degradation has occurred from the Eastern Cape to KwaZulu-Natal for plantations (pineapple, sugar cane and pine trees). Stangeria tends to occupy vegetation pockets within these areas or has been permanently extirpated. (Past decline) b) 14 QDSs (41%) stand to be affected by the new N2 highway through the Eastern Cape, hence destroying habitats and making previous Stangeria refugia potentially accessible to collectors (Future decline) c) In at least 9 QDSs (26%), Stangeria has been observed to be scarce, declining and actively targeted by collectors (Current decline) Therefore, in total, in at least 27 QDS (79%) that we know of (through personal observations and the literature), the Stangeria population has experienced past declines OR is currently declining OR is facing potential decline due to past, current and future threats from habitat transformation and traditional medicine harvesting.

Population trend Decreasing

Notes

Distribution note: Until recently, Stangeria was listed as endemic to South Africa and occurring from Bathurst to Kosi Bay (e.g. Crouch et al. 2000). On several occasions it was speculated that it occurred in southern Mozambique (e.g. Dyer

1965), but the extension of the range into Mozambique had yet to be thoroughly evaluated (Crouch et al. 2000). An intensive grassland survey within a 10km radius of Zitundo (26.7 deg S; 32.8 deg E), just over the KwaZulu-Natal/Mozambique border, also did not yield Stangeria (Crouch et al. 2000). However, in Douwes (2002) and Douwes et al. (2004), Stangeria was reported to occur in southern Mozambique and cited its Red List status as VU C2b D1D2. The flora checklist for Mozambique also lists Stangeria as occurring in the Maputo Province (da Silva et al. 2004). Hence its discovery in Mozambique is within the last six years. An archival report of Stangeria occurring in Mpumalanga has yet to be substantiated (Crouch et al. 2004). Grassland and forest forms of Stangeria exist. The different forms are adaptations to the varying habitat conditions and there is no clear line of distinction between each form (Dyer 1965). Different plants from different habitats that are cultivated under identical environmental conditions will eventually assume a similar appearance (Vorster and Vorster 1974). The tuber is sometimes branched into several growing points and because of this, it is usually not possible to uproot all of the plant without damaging and leaving behind some of the caudex (Vorster and Vorster 1974). It is sometimes possible for some regeneration to occur from the damaged caudex (Douwes 2002). It is, therefore, also possible that a portion of the caudex is left behind during incomplete excavations for the muthi trade, and that some regeneration may occur in an area that was targeted by harvesters. Growth from seed is slow.

Assessment History

Taxon assessed	Status and Criteria	Citation/Red List version
Stangeria eriopus (Kunze) Baill.	**VU** A2acd; A4cd	Raimondo et al. (2009)
Stangeria eriopus (Kunze) Baill.	**Lower Risk - Conservation Dependent**	Scott-Shaw (1999)
Stangeria eriopus (Kunze) Baill.	**Rare**	Hilton-Taylor (1996)

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Citation

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