

Supporting document

NDF Assessment for *Encephalartos latifrons*

Approved by the Scientific Authority of South Africa: February 2012

Last information update: May 2015

Summary of finding

Encephalartos latifrons (Albany cycad) is included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). As an Appendix I species, the export of specimens for commercial purposes is prohibited (Article III). However, specimens artificially propagated for commercial purposes are deemed to be specimens of species included in Appendix II (Article VII) of CITES and therefore may be traded. In terms of Article IV of the Convention, an export permit shall only be granted for an Appendix II species when a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. This document details the undertaking of a non-detriment finding (NDF) for *E. latifrons* and is based on the best available information, current as of May 2015.

Encephalartos latifrons has been listed as Critically Endangered by the IUCN (the International Union for Conservation of Nature), meaning that it is considered to be facing an extremely high risk of extinction in the wild. Historically scattered through the Albany and Bathurst districts of the Eastern Cape, *E. latifrons* has declined by more than 80% over the past 100 years and today numbers approximately 45 wild plants equally divided between the two major localities where the species is still extant. The species continues to decline in the wild due to poaching for horticultural/ornamental purposes, and illegal harvesting of suckers, pollen, seed and cones from the remaining wild plants, as well as limited bark harvesting, is also occurring. It is anticipated that the proposed wind farms and a lime mine in close proximity to *E. latifrons* plants will increase opportunities for poaching. *Encephalartos latifrons* is a popular cycad amongst collectors and is encountered in private collections as well as in some cycad nurseries primarily in the Eastern Cape, Western Cape and Gauteng.

The harvest of wild cycads has been prohibited throughout South Africa since February 2007. Prior to this, any harvesting, possession or conveyance of cycads required permits in terms of provincial legislation enacted in the 1970s. Apart from one permit issued in 1997 and another in 2000 to allow for the once-off collection of seed, no permits were reportedly ever issued for the wild harvest of *E. latifrons* plants or seed, but plants may have been harvested from the wild prior to the enactment of provincial legislation. In general, there has been an exponential increase in *ex situ* cultivated cycads, which are regulated by provincial conservation ordinances/Acts and the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA): Threatened or Protected Species (TOPS) Regulations. Enforcement of the strict protection measures afforded to cycads has been hampered by the human resource and budgetary constraints facing the provincial conservation authorities that are mandated to enforce provincial and national environmental legislation, and ongoing illegal harvest of wild cycads is a countrywide problem. In Gauteng for example, where the demand for illegally harvested wild cycads is ultimately centered, reportedly 40% of posts within the Biodiversity Enforcement division of the Gauteng Department of Agriculture and Rural Development were vacant in the 2011/2012 financial year. The Special Investigations unit within the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism is reportedly constrained by a limited operational budget.

Past ineffective implementation of conservation legislation in the provinces of KwaZulu-Natal, the Eastern Cape and particularly Gauteng, where the requirements for cycad possession permits have not been consistently enforced, has facilitated the entry of illegally harvested cycads into the legal trade. Wild-sourced plants have been and continue to be legalized and incorporated into private collections and their use as parental stock for the propagation of seedlings for both the domestic and international cycad trade cannot be ruled out. The number of *E. latifrons* specimens exported from South Africa has increased over the years since the inception of international trade in this species in 1980. In total, 1125 specimens (with an estimated total value of R5 850 000 and an average annual value of around R276 000 ± R188 000) had been exported from South Africa up until the end of 2011, the bulk of the trade (83%) having taken place after 1995 when the cycad protection measures in Gauteng were particularly weak.

Micro-chips have been inserted into all known wild *E. latifrons* plants. Micro-chips have however proven to be largely ineffective for establishing wild origins of cycads and have failed to deter poachers. The failure of the legal protection measures has been further exacerbated by prosecutors and magistrates who are not well informed about South Africa's cycad extinction crisis and the small fines issued and minimal jail sentences passed for cycad related offenses are ineffective deterrents.

A Biodiversity Management Plan (BMP) for *E. latifrons*, the aim of which is to secure the existing wild plants and execute a restoration and monitoring programme, was published in June 2011 in terms of section 43 of the National Environmental Management: Biodiversity Act (NEMBA) of 2004. Harvesting of wild seed for propagation and subsequent trade is allowed in accordance with this BMP provided all permits are in place and on condition a percentage of the seedlings are set aside for restoration purposes. This harvesting model is designed to increase the value of wild *E. latifrons* plants, thereby incentivizing landowners to protect them from poaching. The effectiveness of the BMP has however been questioned as it is reliant on landowner willingness and is therefore unenforceable. At present mismanagement of wild plants and illegal harvesting of seed are occurring, potentially negatively affecting recruitment, while monitoring is difficult due to poor landowner cooperation and hence limited access to properties with *E. latifrons* plants. Further research is required to advise on a quota for the harvest of *E. latifrons* seed. The existence of the BMP and the anticipated potential conservation benefits to the species nevertheless places *E. latifrons* at a lower risk of overutilization than other Critically Endangered cycad species, and it is hoped that the species' conservation status will be improved and ultimately its extinction will be prevented through the implementation of the BMP.

Trade in artificially propagated specimens of *E. latifrons* has been detrimental (Figures 1 and 2). The Scientific Authority, in reviewing the factors presented above, is unable to state with any confidence that parental stock is cultivated (as defined in the CITES Resolution Conf. 11.11 (Rev. CoP18)) in all cases of export since (1) there is uncertainty around legal acquisition of parental stock and (2) the illegal harvesting for horticultural purposes has had a detrimental impact on the wild population. It is therefore recommended that *E. latifrons* seedlings may only be exported if the nursery is registered in accordance with the CITES Resolution Conf. 9.19 (Rev. CoP15), and

- i. The seedlings are artificially propagated in accordance with the CITES Resolution Conf. 11.11 (Rev. CoP18), or
- ii. The seedlings have been grown from wild harvested seed in accordance with the conditions specified in the CITES Resolution Conf. 11.11 (Rev. CoP18) and within the framework of a Biodiversity Management Plan published in terms of section 43 of the NEMBA.

Each nursery applying for CITES registration must be audited in accordance with the decision tree approved by the Scientific Authority, and regular follow up audits must be conducted in order to monitor seedling propagation. All parental plants must

- i. Be accompanied by the relevant TOPS permit (or equivalent permit where provinces are not implementing TOPS) and affidavits from the owner stating that the plants are not of wild origin, and
- ii. Not exhibit any characteristics typical of wild origin.

The export of large artificially propagated specimens (with a stem diameter of more than 15 cm) from CITES registered nurseries can be allowed provided that the plants are marked with an acceptable method at the seedling/juvenile stage and are set aside in a separate part of the nursery where they can easily be inspected, and the nursery is contributing to/supporting *in situ* conservation of *E. latifrons* in accordance with CITES Resolution Conf 13.9 (CoP18). Large plants proven to be artificially propagated through acceptable forensic methods (e.g. stable isotopes, DNA profiling) can also be exported.

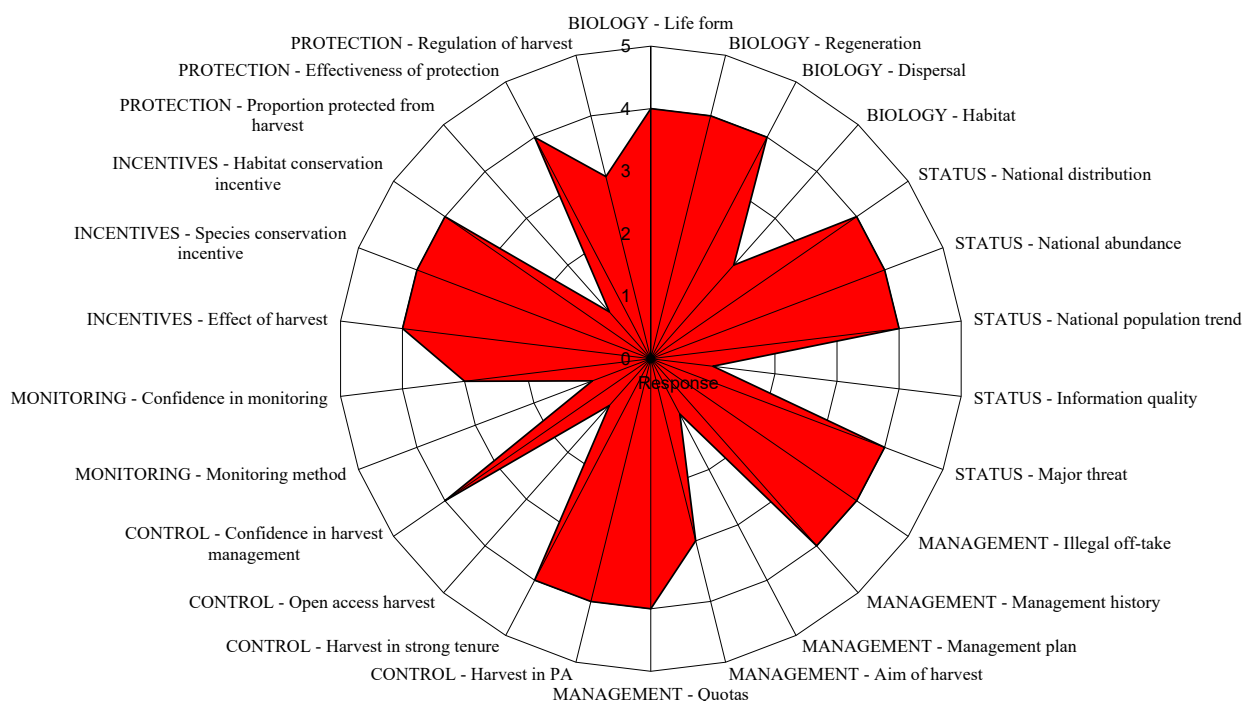


Figure 1. Radar chart summarizing the non-detriment finding assessment undertaken for *Encephalartos latifrons* in accordance with the CITES NDF checklist. Explanations of scores given are detailed in Table 1. Higher scores are indicative of higher risks to the species. The extensive shaded area in the radar chart demonstrates an overall high risk to the species.

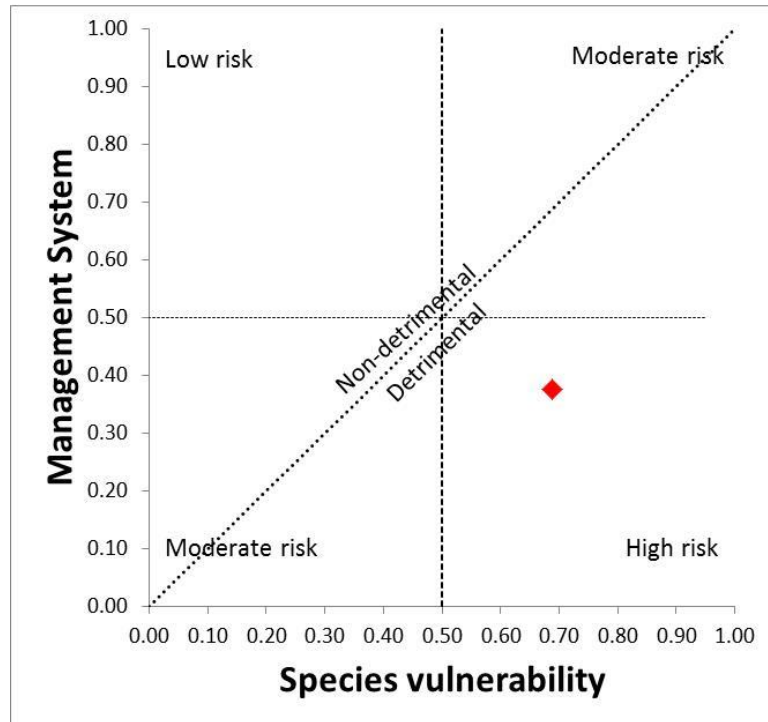


Figure 2. The risk of trading in *Encephalartos latifrons* as represented by the relationship between species vulnerability (biology and status) (0 = low vulnerability; 1 = high vulnerability) and the management system to which the species is subjected (management, control, monitoring, incentives and protection) (0 = weak management system; 1 = strong management system). The figure shows that the species is at high risk and trade is detrimental.

Table 1. Non-detriment finding assessment for *Encephalartos latifrons* undertaken in accordance with the CITES NDF checklist. Scores assigned to each question are indicated (bold text and shaded blocks) along with detailed explanations/justifications where relevant. Higher scores are indicative of higher risks to the species.

Biological characteristics		
1. Life form: What is the life form of the species?	Annual	1
	Biennial	2
	Perennials (herbs)	3
	Shrub and small trees (max. 12m.)	4
	Trees	5
2. Regeneration potential: What is the regenerative potential of the species concerned?	Fast vegetatively	1
	Slow vegetatively	2
	Fast from seeds	3
	Slow or irregular from seeds or spores	4
	Uncertain	5
The cycad life history is characterized by long-lived adults that regenerate predominantly from seed. Plants do produce suckers, but they are relatively unimportant for the regeneration of cycad populations, with 95% of species regenerating from seed only. Suckers remaining behind after the main plant has been harvested do sometimes survive. <i>Encephalartos latifrons</i> plants cone infrequently and sex ratios in the wild are strongly skewed in favour of males in a ratio of 4:1.		
3. Dispersal efficiency: How efficient is the species' dispersal mechanism?	Very good	1
	Good	2
	Medium	3
	Poor	4
	Uncertain	5
The dispersal abilities of cycads are not well understood but are generally regarded as poor. Even if seed were dispersed to new sites, the concomitant dispersal of species-specific pollinators would be highly unlikely thus rendering population recovery after local extirpation impossible. Colonization of new sites is improbable due to a number of reproductive limitations, such as limited seed production or non-viable seeds, irregular coning and male biases in populations. There has been no observed change / expansion in the distribution of any cycad species.		
4. Habitat: What is the habitat preference of the species?	Disturbed open	1
	Undisturbed open	2
	Pioneer	3
	Disturbed forest	4
	Climax	5
<i>Encephalartos latifrons</i> plants grow on rocky outcrops and hill slopes, usually amongst scrub bush vegetation but also in open grassland. The species also occurs along dry river courses.		
National status		
5. National distribution: How is the species distributed nationally?	Widespread, contiguous in country	1
	Widespread, fragmented in country	2
	Restricted and fragmented	3
	Localized	4
	Uncertain	5
<i>Encephalartos latifrons</i> is restricted to two major localities in the Eastern Cape.		
6. National abundance: What is the abundance nationally?	Very abundant	1
	Common	2
	Uncommon	3
	Rare	4
	Uncertain	5
A total of 45 <i>E. latifrons</i> plants remain in the wild, approximately equally divided between the two major localities where		

the species is still extant. In addition to this, 17 confiscated <i>E. latifrons</i> plants have been replanted in the wild, 14 of which have survived and of which some have started to produce suckers and cones.		
7. National population trend: What is the recent national population trend?	Increasing	1
	Stable	2
	Reduced, but stable	3
	Reduced and still decreasing	4
	Uncertain	5
It is uncertain how widespread or abundant <i>E. latifrons</i> was historically, but there are records of populations being scattered through the Albany and Bathurst districts of the Eastern Cape. Based on plants in collections and studies of matched photographs, the wild population of <i>E. latifrons</i> has declined by more than 80% over the past 100 years. The species continues to decline in the wild due to poaching for horticultural/ornamental purposes, and the illegal harvest of suckers, pollen, seed and cones from the remaining wild plants has been observed. Limited bark harvesting is also occurring. The re-introduced / replanted population is not increasing. <i>Encephalartos latifrons</i> is currently listed in the IUCN Red List category of Critically Endangered (A2acd; B2ab(ii,iii,v); C1+2a(i) (IUCN version 3.1)).		
8. Quality of information: What type of information is available to describe abundance and trend in the national population?	Quantitative data, recent	1
	Good local knowledge	2
	Quantitative data, outdated	3
	Anecdotal information	4
	None	5
9. Major threats: What major threat is the species facing (underline following: <u>overuse</u> / habitat loss and alteration/ invasive species/ other:) and how severe is it?	None	1
	Limited/Reversible	2
	Substantial	3
	Severe/Irreversible	4
	Uncertain	5
Poaching to supply the horticultural trade and private collections is the predominant threat to this species. <i>Encephalartos latifrons</i> is an attractive and therefore very popular cycad amongst collectors and is commonly encountered in private cycad collections in the Eastern Cape and is also owned by at least one nursery in that province. There is one private collection in the Western Cape numbering ten plants. Although inspectors rarely encounter this species in collections in Gauteng, quite a number have been imported into the province. At least 10 <i>E. latifrons</i> plants are present in one garden in Gauteng and another ten belong to a well-known cycad nursery in the province. It is almost impossible to obtain seedlings of <i>E. latifrons</i> and traders generally wait for plants to grow larger before selling them at a high price.		
Harvest management		
10. Illegal off-take or trade: How significant is the national problem of illegal or unmanaged off-take or trade?	None	1
	Small	2
	Medium	3
	Large	4
	Uncertain	5
Poaching of wild plants over many years has had a severe impact on this species. A case in 2009 involving the illegal possession and transportation of 25 adult and 151 seedlings of <i>E. latifrons</i> was reported by the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism. In general, around 30-50% of cycads removed from the wild die within a few years.		
11. Management history: What is the history of harvest?	Managed harvest: ongoing with adaptive framework	1
	Managed harvest: ongoing but informal	2
	Managed harvest: new	3
	Unmanaged harvest: ongoing or new	4
	Uncertain	5
Illegal harvesting of wild cycads has been occurring in South Africa for the past 40 years, becoming more prevalent from the 1990s onwards in spite of various legislative interventions. Since the 1970s all cycad species have been protected in provincial nature conservation ordinances, with the harvest of any plants or seed requiring a permit (in addition to other activities such as possessing, conveying, selling, etc.). A permit was issued in 1997 and again in 2000 (both valid for one year) to allow for the artificial pollination of <i>E. latifrons</i> plants and subsequent collection of seed. A condition of the permit		

was that 50% of the resulting seedlings were to be planted back into the wild, however the landowner subsequently refused to honour this permit condition and only 12 plants were reintroduced. Other than this, reportedly no permits were ever issued for the wild harvest of *E. latifrons* plants or seed. Plants may however have been harvested from the wild prior to the enactment of provincial legislation. In general, there has been an exponential increase in ex situ cultivated cycads, which are currently regulated by provincial conservation ordinances/Acts and the National Environmental Management: Biodiversity Act (NEMBA): Threatened or Protected Species Regulations (TOPS). In February 2007, the harvest of cycads from the wild was prohibited nationally in terms of Regulation 25 of the Threatened or Protected Species Regulations (subsequently replaced by Government Notice 371 in May 2012). Poaching is nevertheless ongoing.

12. Management plan or equivalent: Is there a management plan related to the harvest of the species?	Approved and co-ordinated local and national management plans	1
	Approved national/state/provincial management plan(s)	2
	Approved local management plan	3
	No approved plan: informal unplanned management	4
	Uncertain	5
A Biodiversity Management Plan (BMP) for <i>E. latifrons</i> was published in June 2011 in terms of section 43 of the National Environmental Management: Biodiversity Act (NEMBA) of 2004. A forum comprising of conservation officials and landowners has been established to implement this BMP. The aim of the BMP is to secure the existing wild plants and execute a restoration and monitoring programme. The effectiveness of the BMP has however been questioned as it is reliant on landowner willingness and is therefore unenforceable. The recovery of the species is nevertheless anticipated once the management and control of utilization is improved through implementation of the BMP.		
13. Aim of harvest regime in management planning: What is harvest aiming to achieve?	Generate conservation benefit	1
	Population management/control	2
	Maximize economic yield	3
	Opportunistic, unselective harvest, or none	4
	Uncertain	5
In terms of the BMP, a percentage of seedlings grown from wild harvested seed must be set aside for restoration purposes while the remainder can be traded. This harvesting model is aimed at increasing the value of the wild plants, thereby incentivizing landowners to protect them from poaching. Intensive harvesting of seed from wild <i>E. latifrons</i> plants has been taking place since 2006 in anticipation of the BMP's publication, and approximately 3000 seedlings are now available. This harvesting has however been associated with mismanagement of wild plants (e.g. use of poisons and removal of cones), potentially negatively affecting recruitment, and has been conducted in the absence of the required permits. There has also been some disagreement regarding the percentage of seedlings that should be set aside for restoration purposes.		
14. Quotas: Is the harvest based on a system of quotas?	Ongoing national quota: based on biologically derived local quotas	1
	Ongoing quotas: "cautious" national or local	2
	Untried quota: recent and based on biologically derived local quotas	3
	Market-driven quota(s), arbitrary quota(s), or no quotas	4
	Uncertain	5
It is difficult to set a quota for the harvest of <i>E. latifrons</i> seed as it would be dependent upon the number of coning plants. Plants of this species cone infrequently and natural recruitment is absent. Further research is required to advise on a quota.		
Control of harvest		
15. Harvesting in Protected Areas: What percentage of the legal national harvest occurs in State-controlled Protected Areas?	High	1
	Medium	2
	Low	3
	None	4
	Uncertain	5
16. Harvesting in areas with strong resource tenure or ownership: What	High	1
	Medium	2

percentage of the legal national harvest occurs outside Protected Areas, in areas with strong local control over resource use?	Low	3
	None	4
	Uncertain	5
In terms of the published BMP, harvesting of <i>E. latifrons</i> seed is proposed for privately owned land under the relevant TOPS permits. All seed harvesting currently taking place on private land is however illegal.		
17. Harvesting in areas with open access: What percentage of the legal national harvest occurs in areas where there is no strong local control, giving <i>de facto</i> or actual open access?	None	1
	Low	2
	Medium	3
	High	4
	Uncertain	5
18. Confidence in harvest management: Do budgetary and other factors allow effective implementation of management plan(s) and harvest controls?	High confidence	1
	Medium confidence	2
	Low confidence	3
	No confidence	4
	Uncertain	5
The provincial conservation authorities that are mandated to protect wild cycad populations from illegal harvesting are currently experiencing capacity constraints relating to shortages of human resources and budget. Frequent arrests and confiscations are indicative that the system intended to protect wild cycad populations is inadequate. Most cycad populations occur outside of state-controlled protected areas, but even those within protected areas are not secure from poaching activities.		
There has been some delay in implementing the BMP for <i>E. latifrons</i> .		
Monitoring of harvest		
19. Methods used to monitor the harvest: What is the principal method used to monitor the effects of the harvest?	Direct population estimates	1
	Quantitative indices	2
	Qualitative indices	3
	National monitoring of exports	4
	No monitoring or uncertain	5
Although current monitoring of wild populations is unstructured and irregular, it should improve in accordance with the recently published BMP. The Eastern Cape Parks & Tourism Agency is currently monitoring the re-introduced / replanted population of <i>E. latifrons</i> .		
20. Confidence in harvest monitoring: Do budgetary and other factors allow effective harvest monitoring?	High confidence	1
	Medium confidence	2
	Low confidence	3
	No confidence	4
	Uncertain	5
Monitoring is difficult due to poor landowner cooperation and hence limited access to properties with <i>E. latifrons</i> plants.		
Incentives and benefits from harvesting		
21. Utilization compared to other threats: What is the effect of the harvest when taken together with the major threat that has been identified for this species?	Beneficial	1
	Neutral	2
	Harmful	3
	Highly negative	4
	Uncertain	5
A new threat is the possible establishment of a lime mine in the area, which will result in an increase in traffic and opportunities for poaching. <i>Encephalartos latifrons</i> plants in close proximity to wind farms will also be more susceptible to poachers.		
22. Incentives for species	High	1

conservation: At the national level, how much conservation benefit to this species accrues from harvesting?	Medium	2
	Low	3
	None	4
	Uncertain	5
In terms of the BMP, a percentage of the seedlings grown from wild harvested seed must be set aside for restoration purposes. The harvesting model is aimed at increasing the value of the wild plants, thereby incentivizing landowners to protect them from poaching. However, the BMP has yet to be effectively implemented. Around 20% of the seedlings grown from illegally harvested seed have died or are dying due to lack of care, and to date very few of the seedlings have been used for restoration.		
23. Incentives for habitat conservation: At the national level, how much habitat conservation benefit is derived from harvesting?	High	1
	Medium	2
	Low	3
	None	4
	Uncertain	5
Protection from harvest		
24. Proportion strictly protected: What percentage of the species' natural range or population is legally excluded from harvest?	>15%	1
	5-15%	2
	<5%	3
	None	4
	Uncertain	5
Government Notice 371 published in May 2012 in terms of section 57(2) of the National Environmental Management: Biodiversity Act (NEMBA) of 2004 prohibits the harvest of wild cycads throughout South Africa, unless required for conservation or enforcement purposes. <i>Encephalartos latifrons</i> is also listed on Schedule 3 (Endangered Flora) of the Eastern Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974).		
25. Effectiveness of strict protection measures: Do budgetary and other factors give confidence in the effectiveness of measures taken to afford strict protection?	High confidence	1
	Medium confidence	2
	Low confidence	3
	No confidence	4
	Uncertain	5
The cycad trade is very complex and in order to monitor all the legal and illegal activities related to this trade, substantial resources would be required. Although providing for a solid legal framework, the Threatened or Protected Species Regulations have been difficult to implement by resource constrained provinces. The provincial conservation authorities that are mandated to enforce the strict protection measures pertaining to cycads are currently experiencing capacity constraints relating to shortages of human resources and budget. The Special Investigations unit within the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism is reportedly constrained by a limited operational budget. In Gauteng, where the demand for illegally harvested wild cycads is ultimately centered, reportedly four out of ten posts within the Biodiversity Enforcement division of the Gauteng Department of Agriculture and Rural Development were vacant in the 2011/2012 financial year, a vacancy rate of 40%. Even cycads within state-controlled protected areas are not secure from poaching activities, with protected areas often understaffed. Enforcement of the legislation is further weakened by inexperienced officials without the necessary skills to identify the different species. Prosecutors and magistrates are infrequently exposed to cycad related cases and are therefore not well informed about South Africa's cycad extinction crisis. Consequently, cases relating to cycads seldom result in large fines and/or jail sentences. Provincial conservation legislation pertaining to cycads has been ineffectively implemented in the past in both Gauteng and KwaZulu-Natal. Neither province consistently enforced the requirements for possession permits, although all adult ("size-determined") cycads exported from KwaZulu-Natal had to be micro-chipped. In Gauteng, where most cycad enthusiasts live (50% of the Cycad Society's members reside in Gauteng with between 10% and 12% of members residing in each of the Western Cape, KwaZulu-Natal and Mpumalanga provinces), possession permits were not required for cycads between 1994 and 2001, with the regulatory authority only requiring the presentation of documentary proof of legal possession. Similarly, the legal requirement for cycad possession permits was only strictly enforced in the Eastern Cape from 1 April 2004 and property owners in possession of unpermitted cycads after this date were instead issued with cycad site registration letters. Up until 31 March 2004, people in possession of unpermitted cycads were given amnesty based on submission of affidavits and documentary proof of legal origin. (<i>Encephalartos latifrons</i> and <i>E. arenarius</i> were		

excluded from this amnesty.) Conservation legislation in three out of the four provinces that were designated out of the former Transvaal province is weak, providing for adequate control over the possession and movement of only those cycad species indigenous to the former Transvaal province (the exception being Limpopo where all South African cycads are Specially Protected). This ineffective implementation of legislation has allowed the entry of illegally harvested plants into the legal trade. In the past, a number of syndicates involved in poaching activities moved illegally harvested cycads into Gauteng where possession permits were not required, laundering them into the trade with the required documentary proof. Such operations apparently continue until today due to the delayed implementation of new national legislation (Threatened or Protected Species Regulations).

Due to the impossibility of tracing the origin of these cycads and/or proving wild origin to the satisfaction of a court (proof of wild origin over and above a reasonable suspicion is required), these plants have been and continue to be legalized through the issuing of possession permits and are subsequently incorporated into private collections. The use of these plants as parental stock for the propagation of seedlings for both the domestic and international cycad trade cannot be ruled out. Trade statistics (derived from the CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK) indicate an increasing trend ($R^2 = 0.21$; $P = 0.01$) in the international trade of *E. latifrons* since its inception in 1980. In total 1125 specimens (estimated total value of R5 850 000) had been exported from South Africa up until the end of 2011, the bulk of the trade (83%) having taken place after 1995 when the cycad protection measures in Gauteng were particularly weak. The domestic demand for *E. latifrons* seedlings is largely unmet and seedlings seem to be preferentially traded internationally. The average annual value of *E. latifrons* exports is estimated at around R276 000 $\pm$ R188 000 (assuming exports of 3-year old seedlings at 2012-2013 prices).

All known wild *E. latifrons* plants have been micro-chipped. However, micro-chips inserted into wild cycads as a measure of proving wild origin are often destroyed or removed and it has been suggested that they are even sometimes replaced with legal micro-chips previously inserted into legally owned ex situ cycads, effectively laundering plants of wild origin. It has also been suggested that legal micro-chips are inserted into un-chipped wild plants to prove legal ownership. Suckers are seldom micro-chipped and are therefore particularly vulnerable to poaching.

26. Regulation of harvest effort: How effective are any restrictions on harvesting (such as age or size, season or equipment) for preventing overuse?	Very effective	1
	Effective	2
	Ineffective	3
	None	4
	Uncertain	5

It is premature to ascertain whether the restrictions introduced in terms of the BMP are effective. There has been some delay in implementing the BMP.

List of participants / contributors at cycad NDF workshop of 20 – 21 January 2011 and 11 May 2011

Name	Organization	Expertise in relation to cycads
De Wet Bösenberg	South African National Biodiversity Institute	Manages Global Cycad Red List Database
Brigitte Church	Ezemvelo KwaZulu-Natal Wildlife	Monitoring and management plans for cycads
Stephen Cousins	University of the Witwatersrand	Research on cycads in traditional medicine trade in South Africa
Mzikayise Dandala	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Cycad permitting
Juan de Beer	Mpumalanga Tourism and Parks Agency	Enforcement
John Donaldson	South African National Biodiversity Institute	Science/research
Cornia Hugo	Gauteng Department of Agriculture and Rural Development	Cycad inspections and law enforcement
Leon Labuschagne	Gauteng Department of Agriculture and Rural Development	Cycad inspections and permitting
Eric Mbele	Gauteng Department of Agriculture and Rural Development	Investigations related to illegal harvesting, trading and possession of cycads
Errol Moeng	Limpopo Department of Economic Development, Environment and Tourism	Cycad management
Michèle Pfab	South African National Biodiversity Institute	Scientific Co-ordinator for the Scientific Authority
Dean Ricketts	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Management in Alfred Nzo Region Eastern Cape
Stan Rodgers	Limpopo Department of Economic Development, Environment and Tourism	Cycad monitoring and management
Tommie Steyn	Mpumalanga Tourism and Parks Agency	Monitoring and surveys
Thembinkosi Tyali	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Cycad permitting and monitoring
Erich van Wyk	South African National Biodiversity Institute	SANBI <i>ex situ</i> conservation co-ordinator
Karin van der Walt	South African National Biodiversity Institute	Propagation, trade and monitoring of cycads
Phakamani Xaba	South African National Biodiversity Institute	Manages cycad collection at Kirstenbosch National Botanical Garden

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