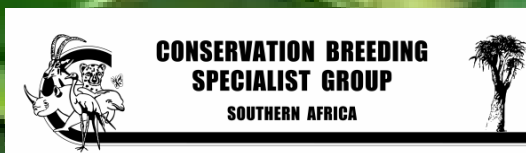


POPULATION AND HABITAT VIABILITY ASSESSMENT FOR THE ALBANY CYCAD

(Encephalartos latifrons)



ALBANY CYCAD

(Encephalartos latifrons)

POPULATION AND HABITAT VIABILITY ASSESSMENT

**Bathurst, Eastern Cape, South Africa,
17 – 21 July 2006**

WORKSHOP REPORT

Convened by:

**THE CONSERVATION BREEDING SPECIALIST GROUP (CBSG)
OF THE IUCN SPECIES SURVIVAL COMMISSION (SSC)
CBSG SOUTHERN AFRICA
ENDANGERED WILDLIFE TRUST
SOUTH AFRICAN NATIONAL BIODIVERSITY INSTITUTE**

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OF THE IUCN SSC
THE CYCAD SPECIALIST GROUP OF THE IUCN / SSC
DEPARTMENT OF ECONOMIC AFFAIRS, ENVIRONMENT AND TOURISM OF
THE EASTERN CAPE GOVERNMENT**

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The CBSG, SSC and IUCN encourage workshops and other fora for the consideration and analysis of issues related to conservation, and believe that reports of these meetings are most useful when broadly disseminated. The opinions and recommendations expressed in this report reflect the issues discussed and ideas expressed by the participants in the Albany Cycad PHVA Workshop and do not necessarily reflect the opinion or position of the CBSG, SSC, or IUCN.

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Thank You!
August 2006

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ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa

WORKSHOP REPORT



SECTION 1

EXECUTIVE SUMMARY AND CBSG WORKSHOP PROCESS

EXECUTIVE SUMMARY

BACKGROUND

The Albany Cycad (*Encephalartos latifrons*) is endemic to the Bathurst region in the Eastern Cape in South Africa. It is listed as Critically Endangered on the IUCN Red List (Donaldson, 2003) and on the draft list of threatened and protected species, drafted in terms of Section 56(1) of South Africa's National Environmental Management Biodiversity Act, 10 of 2004. In addition, all species of *Encephalartos* are listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Appendix I listed species are the most threatened of the CITES-listed animals and plants and face an imminent threat of extinction due to trade. CITES prohibits commercial international trade in wild collected specimens of these species, with exemptions for conservation related activities, such as scientific research or artificial propagation. While CITES imposes restrictions on international trade of cultivated specimens, the key threat to *E. latifrons* stems from the domestic level through illegal harvesting and domestic trade. Even though the Albany Cycad has been afforded the maximum legal national protection, the species is facing an extremely high risk of extinction in the wild. This is exacerbated by infrequent coning and great distances between plants, therefore natural pollination no longer occurs. For several decades now, no evidence exists of natural recruitment or viable seed production in the wild. In the past, agriculture presented a severe threat to the survival of this species due to the ongoing conversion of suitable habitat, but the predominant threat to its continuing existence today is illegal collecting.

Between 60 and 100 individual *E. latifrons* remain in the wild with none of these plants located within formally protected areas. In response to the need for an urgent national conservation strategy for the Albany Cycad, a workshop was held in July 2006 to assess the viability of the current population and to determine actions for the species recovery and ongoing conservation. The workshop was facilitated by the IUCN (World Conservation Union's) Conservation Breeding Specialist Group Southern Africa (CBSG SA) and the Endangered Wildlife Trust (EWT) and funded by the South African National Biodiversity Institute (SANBI) and Norwegian Agency for Development Co-operation with endorsement from the Department of Economic Affairs, Environment and Tourism (DEAET) of the Eastern Cape Government.

The CBSG utilises a series of scientifically-based tools to undertake risk assessment and species management decision-making. The Population and Habitat Viability Assessment (PHVA) process is one such tool, which uses population and conservation biology, human demography and the dynamics of social learning in intensive, problem-solving workshops to produce realistic and achievable recommendations for more effective wildlife and habitat management.

Outcomes from this PHVA workshop include recommendations around the development and implementation of a supplementation programme to create conditions required for self-reproducing populations (supplementation will include confiscated plants and seedlings). Research will also be undertaken to better determine the distribution of wild populations, the impact of harvesting cycad bark for traditional use and the market and demand for plants. A national audit on seedlings produced in nurseries and private collections will also be conducted. A Cycad Forum is to be established to facilitate the implementation of the conservation and management plan and provide an opportunity for all stakeholders to raise concerns and continue discussions on species conservation issues.

As part of the workshop process, input was given into the Eastern Cape policy on propagation and sustainable utilisation of *E. latifrons*, and details of the suggested changes to the policy and the way forward for Albany Cycad conservation are provided in Section 4.

THE CBSG PHVA WORKSHOP PROCESS

Twenty-one participants from across the country participated in the multi-stakeholder workshop, representing: nature conservation officials and agencies, private landowners, cycad collectors, members of the Cycad Society of South Africa, conservation NGOs and researchers. A Briefing Document was made available to all workshop participants prior to the workshop which afforded participants the opportunity to get up-to-date information on the biology, ecology, population dynamics and trends, distribution, threats and conservation status of the Albany Cycad in South Africa.

The workshop ran for three and a half days. The morning of the first day was dedicated to presentations covering the current status of Albany Cycad research and monitoring, government conservation efforts and the life history of *E. latifrons*. Thereafter the workshop progressed as outlined below.

A standard PHVA workshop process comprises a series of plenary and working group sessions in which working groups work through tasks designed to facilitate free thinking, brainstorming, discussion and debate and finally, consensus building. After an initial group brainstorming session, a list of the key issues affecting the survival of the Albany Cycad was identified and this gave rise to the establishment of the following three working groups:

1. Ecological Priorities Working Group
2. Trade and Communication Working Group
5. Population Modelling and Dynamics Working Group

Working groups spent three days tackling issues specific to their group, and systematically worked through the tasks assigned, which included drafting a situation overview, compiling problem statements, developing and prioritising solutions and goals and finally, working out detailed action plans and steps that will contribute to achieving the identified goals. Plenary discussion sessions enabled working groups to present the results of their discussions to the whole group and obtain the input of all participants, which resulted in additional debate and insight from members of other working groups.

SUMMARY OF KEY ISSUES AND PROPOSED INTERVENTIONS

Listed below are a summary of the issues and interventions proposed by the three working groups:

1. Ecological Priorities Working Group

Priorities and solutions identified by the working group included:

- Lack of reproduction and recruitment means that there are no functionally viable wild populations; the species is thus functionally extinct. Suggested solutions included the development and implementation of a supplementation programme and research into key issues such as seedling survival, sex ratios and optimal habitat.
- The lack of a conservation management plan leads to inactivity, partly due to inadequate capacity. To address this, it was suggested that a comprehensive management plan, acceptable to all stakeholders, be developed and a person responsible for spearheading the plan be appointed within DEAET.
- Lack of knowledge pertaining to wild populations (in terms of demographics and habitat) results in management and restoration problems. Suggested solutions include conducting a limited survey to fill the gaps in distribution of wild populations and developing a research programme pertaining to cycad bark harvesting for traditional use.

- Legal nurseries are unable to meet the demand for plants and a lack of knowledge about the number of plants in gardens means that it is difficult to assess the potential to satisfy demand or undertake restoration. The group suggested a national audit of seedlings produced in nurseries and private collections and research into market forces and demand to understand the volumes and sizes of plants required.
- Peculiarities of *E. latifrons* life history (slow growth and recruitment) make it difficult to implement actions and measure success. In order to mitigate this, it was suggested that the management plan (as mentioned above) be developed, incorporating long-term objectives as well as developing a research programme, using controlled experiments to understand the long-term responses.

2. Trade and Communication Working Group

Priorities and solutions identified by the working group included:

- Lack of agreement amongst stakeholders on ownership, permit conditions, CITES measures and the sale of seedlings from wild collected seeds resulted in intense debates and discussion within the working group. The group proposed the establishment of a Cycad Forum in which all stakeholders are engaged and in agreement on the way forward. The Forum was tasked with initiating a process in which the national policy on ownership and sale of wild collected cycad seed is to be revised and provide incentives (e.g. tax rebates) for landowners.
- A shortage of staff, and staff having too many responsibilities, is hindering effective conservation of *E. latifrons*. To mitigate this, it was suggested that a Cycad Forum Coordinator be appointed to facilitate and coordinate discussions and actions within the Cycad Forum. This should overcome poor communication and negative perceptions being experienced at present.
- Lack of extension work by government, NGOs and other interested parties is impairing conservation initiatives. It was suggested that the Cycad Forum establish an extension programme that will focus on the provision of practical advice and assistance to stakeholders. Stakeholder details are not available and it was therefore suggested that stakeholders are identified and a database is developed.
- Limited supply of *E. latifrons* stimulates high prices and illegal collection. To curb these activities it was suggested that a coordinated process / effort is implemented to increase seed production and therefore seedlings. All confiscated mature plants are to be re-established in a sanctuary. Members of the Cycad Forum should establish a code of conduct that specifies minimum standards of conduct to counter illegal and unregulated trade in wild collected cycads (Code of Conduct). A “studbook” should also be established to ensure that pure species are maintained and to avoid excessive inbreeding.
- Lack of knowledge pertaining to utilisation for medicinal purposes and awareness amongst traditional healers (sangomas) about the conservation status of *E. latifrons* results in serious damage to individual plants. The group suggested that research should be conducted into the magnitude of the medicinal trade in this species and determine whether further action is required.

3. Population Modelling and Dynamics Working Group

Demographic modelling is a valuable and versatile tool for assessing risk of decline and extinction of a population. Complex and interacting factors that influence population persistence and health can be explored, including natural and anthropogenic causes. Models can also be used to evaluate the effects of alternative management strategies to identify the most effective conservation actions for a population or species and to identify research needs. Such an evaluation of population persistence under current and varying conditions is commonly referred to as a population viability analysis (PVA).

Data on the ecology, genetics, population sizes and trends, threats and mortalities of a species such as the Albany Cycad are collected and a sophisticated computer modelling programme (Vortex) is used to evaluate the risk of population decline or extinction under alternative future scenarios. Having refined multiple perspectives on the future puts us in a better position to interpret current threats and better evaluate the potential for species survival.

In this particular case it was found that the life history of the species was very complicated and could be further exacerbated by the potential for sex reversal of male and female plants that has been observed at least once in *E. latifrons* in a private collection.

ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa

WORKSHOP REPORT



Werner Voigt

SECTION 2

BACKGROUND INFORMATION

1. Taxonomic Description

Encephalartos latifrons was first described by J.G.C. Lehmann in 1837 / 1838. The name *latifrons* means “with broad leaves”.

The current classification of *E. latifrons* is as follows:

Order:	Cycadales
Family:	Zamiaceae
Sub-family:	Encephalartoideae
Tribe:	Encephalarteae
Genus:	<i>Encephalartos</i>
Species:	<i>latifrons</i> (Lehmann, 1837 / 38)

Adult plants are usually unbranched but may have up to seven branches off the main-stem well above ground. More often they comprise several stems arising from the base with each stem 2.5 - 3 m tall. Heights of 4.5 m have been recorded. Stems are typically 30 - 45 cm in diameter. A skirt of old, dry leaves is often present below the crown of green leaves.

The leaves are 1 - 1.5 m long and recurved or curled in the upper half. The petiole is 10 cm to 20 cm long and the leaf base has a conspicuous yellow-white collar. The shiny, dark green leaflets are hard and rigid, covered in fine hairs, but losing this with age. The leaflets overlap upwards in the upper half of the leaf. The leaflets are attached to the rachis in a V-form and terminate in a pungent tip. The median leaflets are 10 - 15 cm long, 4 - 6 cm broad, with the attachment 1.5 - 2 cm broad. The upper margin is entire or sometimes toothed, while the lower margin has 2 - 4 triangular lobes with pungent tips. These lobes are twisted out of the plane of the leaflet. Only the lower leaflets may be reduced to prickles. The leaflets are usually prominently nerved, especially on the under-side.

Plants infrequently produce 1 - 3 dark green or dark blue-green cones. Cone scales are covered with fine hair. The male cones are almost cylindrical, 30 - 50 cm long and 8 - 17 cm in diameter. The cone tapers towards each end. The facets of the median cone scales project into a slightly decurved beak that is about 2 cm long. The female cones are barrel shaped, up to 60 cm long and 25 cm in diameter. The facets of the median scales are wrinkled and pimply, protruding 2 - 2.5 cm. The seeds are red, about 5 cm long and 2 - 2.5 cm in diameter (Whitelock, 2002).

Encephalartos latifrons may be confused with *E. arenarius*, but can be distinguished due to the former having shiny dark-green leaves which are heavily ribbed on the lower surface, and the latter having duller green to glaucous leaves, no ribbing, and often with a blue-gray bloom. The natural ranges of the two species are not known to overlap (Whitelock, 2002).

2. Distribution and Population Status

Encephalartos latifrons occurs naturally in the Eastern Cape Province of South Africa, in the Biodiversity Hotspot region known as the Maputaland-Pondoland-Albany hotspot, which is an important centre of plant endemism. It is uncertain how widespread or abundant *E. latifrons* was prior to human settlement, but there are records from the earliest European settlements of populations scattered throughout the Albany and Bathurst districts of the Eastern Cape Province. Reports from the early 20th Century indicate that *E. latifrons* was always rare (Pearson, 1916; Chamberlain, 1919), with individuals “usually half a mile to a mile apart” (Chamberlain, 1919). This scattered distribution could be because these plants often grow on rocky outcrops where they are afforded some protection from fire, habitats that are naturally widely spaced within the landscape (Kemp, 1986; Norstog and Nicholls, 1997; Whitelock, 2002) or it could be an artefact of habitat transformation, i.e. the cycads have persisted in areas least affected by land-use.

The remaining wild population is estimated to number only between 60 and 100 mature individuals. The actual number is uncertain because the last official count was done more than 10 years ago, when microchips were inserted into all remaining plants. Since then, not all plants have been monitored and, in a recent survey of plants to gather DNA material, there seemed to be far fewer plants in the wild (da Silva *et al.* MS, 2006).

None of the plants occurring naturally in the wild are located within protected areas. However plants have been introduced to the Round Hill, Thomas Baines and Waters Meeting Nature Reserves which lie between the Great Fish River and the Bushmans River in the Eastern Cape. (See map for details). Another possible area for re-introduction is the Kap River Nature reserve, in close proximity to the natural distribution area of *E. latifrons*.

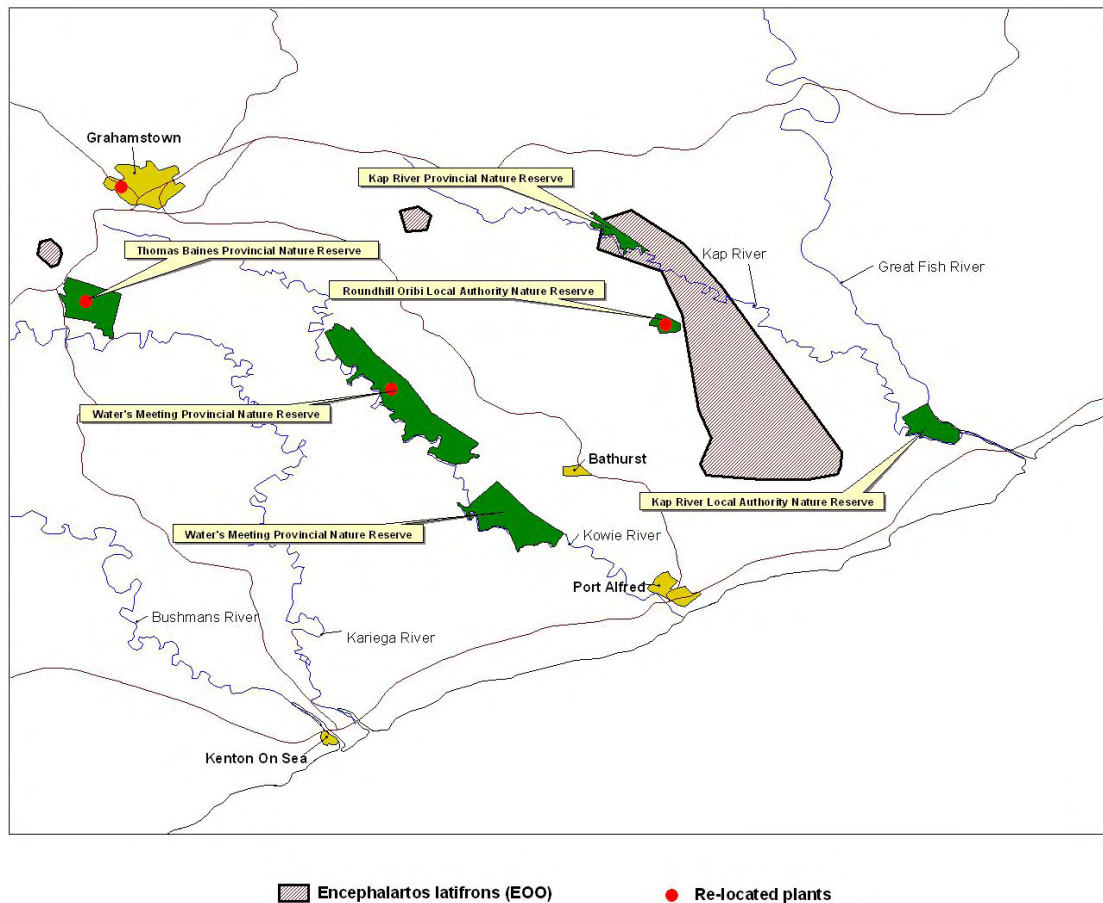


Figure 1: Current distribution of *E. latifrons* in the Bathurst district of the Eastern Cape Province (da Silva, 2005).

3. Life History

Like all cycads, *E. latifrons* is dioecious, meaning that plants are either male or female. In most cycad populations, the sex ratio is close to 1:1, but the last population count for *E. latifrons* showed a strong bias towards males (4:1). This trend has been observed in other cycads with small population sizes and means that the effective population size for *E. latifrons* is well below the actual numbers of 60 - 100 individuals.

E. latifrons has a reputation for being a very slow grower. Adults produce new flushes of leaves every 2 - 3 years, with coning being even more sporadic. The cones are produced from May - August with pollen-shedding taking place from July - August. Individual plants may cone only once in 5 - 10 years. In many cycad populations, coning is synchronised to some extent, with recorded levels of synchrony varying from 15% to 100% (i.e. all plants in a population cone in the same year). The degree of coning synchrony within *E. latifrons* populations is not known. Seed are normally shed in January; however the female cones can take 6 - 12 months to mature. Baboons and hornbills have been observed dispersing the shed seed after having eaten the fleshy outer layer. An after-ripening period is needed before the seed will germinate, provided the seeds were pollinated. This after-ripening period is approximately 6 months.

As a result of the large distances between plants in the wild and the infrequent coning episodes, no natural pollination seems to be taking place. There has been no evidence of recruitment in wild populations for several decades and no viable seed has been observed in the wild. However, according to a classification of cycad life histories (Donaldson, 1995), *E. latifrons* is a 'Type 2' cycad, capable of persisting over long periods by vegetative production of numerous basal suckers.

Insect pollination has been recorded in two cycad species in the Eastern Cape and is thought to occur in most cycad species in this region. Potential beetle pollinators of *E. latifrons* (species in the genus *Porthetes* together with Cucujid beetles) were until recently thought to be extinct, but beetles from pollinator groups have recently been collected on *E. latifrons* although pollination does not seem to be occurring (Donaldson *et al.*, 1995 and Donaldson, 1997).

Sex reversal of male and females plants is known to occur in a number of cycad species, and has been observed at least once in *E. latifrons* in a private collection.

4. Population Genetics

A recent study of both *in-situ* and *ex-situ* populations of *E. latifrons* (da Silva *et al.* MS, 2006) revealed that there is relatively little genetic variation between subpopulations (i.e. plants from different sites) suggesting that all the remaining plants belong to what was once a single large population with relatively high levels of gene flow between subpopulations. The study also showed that there is a high level of genetic variation within the remaining population (high proportions of polymorphic loci, moderate to high Nei's and Shannon's diversity indices, as well as moderate levels of heterozygosity). This is greater than in many other cycad species where there tends to be low genetic variation within populations.

Six distinct genotypic groups were detected in the wild, with two confined to a single site. Several other genotypes were also represented at these sites, meaning that they represent the majority of the genetic variation remaining in the wild. The importance of this diversity to the survival of the species is indisputable and each genotypic group should be considered a high conservation priority (da Silva, 2005).

5. Habitat Requirements

The plants grow on rocky outcrops and hill slopes, usually amongst dense scrub bush vegetation. They also occur along dry river courses. The altitude at which the plants are found varies between 200 and 600 masl. The natural distribution range of *E. latifrons* occurs in the following vegetation units: Kowie Thicket, Suurberg Quartzite Fynbos and Suurberg Shale Fynbos (Mucina and Rutherford, 2004.)

The soils in this region are mainly Glenrosa and Mispah forms. Lime soils are rare or absent. The underlying geology of this area is quartzitic sandstone, shale and micaceous siltstone.

The annual rainfall varies between 600 – 1250 mm and is fairly evenly distributed during the year although a summer peak usually occurs. Although winters are cool to cold, frost does not normally occur. The summers may be hot and fairly dry.

6. Threats

E. latifrons now occurs in areas where the predominant land-uses are cultivation (pineapples and chicory) as well as stock farming. The impact of agricultural land-use on *E. latifrons* is difficult to assess, but the early reports of Pearson 1916 and Chamberlain (1919) imply that at least some habitat was lost as a result of agricultural activity. Repeat photography, using photographs first taken between 1906 and 1945, showed that all the plants occurring at seven different sites had disappeared by 1996 (Donaldson and Bösenberg, 1999). This cannot be attributed to agricultural transformation as, in most cases; the areas in which the plants occurred were neither ploughed nor cleared.

Trade in cycads is currently the greatest threat and probably explains the decline observed in the repeat photography study (Donaldson and Bösenberg, 1999). The removal of relatively large numbers of plants by collectors has been recorded, with some plants recovered by law enforcement and conservation agencies (Department of Economic Affairs, Environment and Tourism, Province of the Eastern Cape). The demand for wild-collected plants remains high because *E. latifrons* is regarded as scarce in trade and currently mature plants are traded for between R600 and R800 per centimetre of stem height, i.e. a 1m high plant is worth between ZAR60 000 and ZAR80 000 (US\$10 000 -12 000) (Donaldson *pers. comm.*).

Population modelling of other species of *Encephalartos* (Raimondo and Donaldson, 2003) showed that species such as *E. latifrons* are extremely sensitive to the removal of adult plants because population persistence over long periods relies on adult survival and not seedling recruitment. By contrast, harvest of seeds has relatively little impact on population dynamics. Today, illegal harvesting of adult plants is thus undoubtedly the major cause of population decline.

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WORKSHOP REPORT



SECTION 3

PRESENTATIONS

AN OVERVIEW OF CYCAD STATUS IN SOUTH AFRICA

JOHN DONALDSON, SOUTH AFRICAN NATIONAL BIODIVERSITY INSTITUTE

South Africa has 38 species of cycad, comprising 37 species in the genus *Encephalartos* and one species in the monotypic genus *Stangeria*. This means that South Africa has ca. 13% of the global cycad flora and is the third most diverse country for cycads after Australia and Mexico.

Cycads are globally one of the most threatened groups of plants, with 56% of all species listed on the IUCN Red List (Donaldson, 2003). Even so, South African cycads have an exceptionally high level of threat, with 27 species (71%) included in Red List categories, and a disproportionately large number of species listed as Critically Endangered (12 species) and Extinct in the Wild (3 species). Only one other species from outside South Africa is listed as Extinct in the Wild (*E. relictus* from Swaziland).

The ongoing decline of cycad populations in South Africa is relatively well documented. Based on a study of repeat photographs, Donaldson and Bösenberg (1999) concluded that 67% of 130 populations had declined between 1946 and 1996. Population monitoring by conservation agencies has also shown ongoing decline, sometimes to the point of extinction in the wild, for at least 10 South African cycad species. The main cause of decline is illegal collecting, to satisfy the demand for specimen plants in private collections, but there has also been an increase in mortality in several *Encephalartos* species due to bark harvesting for traditional medicinal use and a decline in *Stangeria eriopus* populations due to whole plant harvesting for medicinal use. Relatively few populations of cycads have been impacted by habitat destruction.

A growing problem for conservation is the number of species with small population sizes and / or very restricted distributions. Six cycad species from South Africa now have <250 individuals and four species occur at only a single locality. This makes them extremely vulnerable to ongoing collecting as well as any environmental perturbations (e.g. disease, fire, drought). Already, studies have revealed that insect pollinators are absent from small populations. The impact of cycad extinctions on ecosystem function is unknown, but the loss of South African cycads will have a cascade effect on other components of biodiversity. Southern African cycads host an unusually rich assemblage of specialised insects, especially groups of beetles that are specific to cycads. For example, some species in the Eastern Cape province host as many as 9 species of weevil, compared to only one species of weevil associated with many cycad species that occur elsewhere in Africa. Surveys have shown that these specialised weevils become locally extinct as cycad populations decline.

South Africa has been at the forefront of efforts to conserve cycads, including establishing reserves, developing legislation, assigning resources to law enforcement, and using novel technologies such as microchips. Despite these efforts, cycads continue to decline and new and innovative approaches to conservation must be developed. The PHVA process has been successfully used with several threatened animal species and presents an opportunity to bring together the various stakeholders in order to develop a biologically and socially meaningful action plan for one cycad species that can then be used as a model for other cycad species in South Africa.

DINOSAURS OF THE PLANT KINGDOM

COLIN FLETCHER, LANDOWNER



Picture 1: Typical cluster of adult *E. latifrons* concealed in the surrounding trees.



Picture 2: What was a single stem thousands of years ago has now been replaced by suckers from the original plant. This may have taken thousands of years; truly these plants are the dinosaurs of the plant kingdom.



Picture 3 and 4: Typical male population but out in the open veld and vulnerable to poachers especially from the air whereas **picture 5** is nicely stuck away in the bush.



Picture 6: Shows the typical beauty of the curled back leaves.



Picture 7 to 11: shows the various stages of leaf and male cone production, which occurs about every 2 to 3 years. **Picture 11** shows a male cone ready to deposit its pollen.



Picture 12 and 13: pollen being deposited and collected on brown paper for storage and future use.



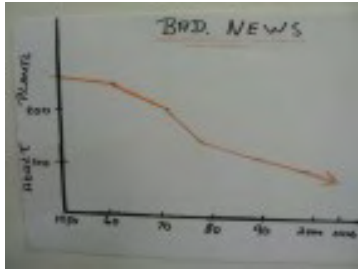
Picture 14: shows a close up of pollen sacs, some broken open already, the rest still ripening. Males produce cones an average once every 2 to 3 years whereas female's cones **picture 15** as little as once in 20 years.



Picture 16: female ripening and **Picture 17** becoming receptive and ready to receive pollen, but only for a week or so.



Picture 18: is BAD NEWS as a cluster of 6 females left to breed on their own have only produced one seedling in hundreds of years on their own something has happened and nature cannot manage on its own any more.



Picture 19: is a graph of the decline in numbers since 1960 due to poaching and indiscriminate selling of adult plants. According to the late Cynthia Giddy numbers declined from 250 in 1950 to less than 100 in 1980.



Picture 20, 21 and 22: damage by bark harvesters.



Picture 23 and 24: whole stems removed.



GOOD NEWS seedlings can be produced in numbers as in **graph 25** estimate of 1500 seedlings produced to date by landowners.



Picture 26 and 27: picture of seedlings propagated from hand pollination.



Picture 28: showing a seedlings large root system which enables it to store energy for a dry period.



Picture 29: a healthy seedling ready to be returned to the wild.



Picture 30: a little *E. latifrons* sprout, may it have a blessed future.

ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa

WORKSHOP REPORT



SECTION 4

WORKING GROUP REPORTS

List of Acronyms

CITES	Convention on International Trade in Endangered Species
CBSG SA	Conservation Breeding Specialist Group Southern Africa
DEAET	Department of Economic Affairs Environment and Tourism of the Eastern Cape Government
DEAT	Department of Environmental Affairs and Tourism
EWT	Endangered Wildlife Trust
NGO	Non-government Organisation
PHASA	Professional Hunters' Association of South Africa
PHVA	Population and Habitat Viability Assessment
SANBI	South African National Biodiversity Institute

Ecological Priorities Working Group

WORKING GROUP PARTICIPANTS

- | | |
|---------------------|------------------|
| 1. Ian Burden | Lowlands Nursery |
| 2. Simon Childs | Private |
| 3. John Donaldson | SANBI |
| 4. Morne Ferreira | Cycad Society |
| 5. Tommy Gleaves | Landowner |
| 6. Quintus Hahndiek | DEAET |
| 7. Nick King | EWT |
| 8. Werner Voigt | SANBI |

ASSEMBLY AND SYNTHESIS OF DATA

PROBLEM STATEMENT 1

LACK OF REPRODUCTION AND RECRUITMENT MEANS THAT THERE ARE NO FUNCTIONALLY VIABLE WILD POPULATIONS, LEADING TO EXTINCTION.

Facts

- No natural seed is produced (observation).
- Observations show that stems on plants behave as separate plants and do not produce cones in the same year. Colin Fletcher notes that one large plant, comprising four large stems (>2 m in height) and several smaller stems (<1 m) coned five times in 20 years however there was only one instance of more than one stem coning at the same time. As a result, it is important to know what the numbers of potential coning stems are rather than the number of plants (quantitative data available). Area – 2 km x 1 km, more males than females, about 45 stems (other data available from DEAET based on surveys carried out) (Colin Fletcher *pers. comm.*)
- Size of sucker before coning is estimated to be 50 cm (determined with assistance of photographic record by Tommy Gleaves).
- Size at first coning is estimated to be at a height of 80 cm for males and ca. 1 m for females (*pers. obs.* Colin Fletcher).
- Frequency of coning – males at two year intervals, but more commonly 5 years. Females cone an average of between 10 years (4 events over 40 years) and 30 years (one plant coned once in this period) (*pers. obs.* Colin Fletcher and Tommy Gleaves).
- Number of seeds per cone: 200 – 300 (*pers. obs.* Colin Fletcher, Tommy Gleaves and John Donaldson).
- Percentage fertile seed with artificial pollination: 60-70% (*pers. obs.* Colin Fletcher, Tommy Gleaves and John Donaldson)
- Percentage actual germination (60% based on germination of fertile seeds obtained from Colin Fletcher (*pers. obs.* John Donaldson).

Assumptions and Justification

- Fire frequency is 4 – 5 years under current land-use practises. Based on work done by Denzil Edwards in the 1960s, natural fire frequencies would probably have been 7-10 years.
- Seed predation – *Antliarhinus zamiae* has been observed in *E. latifrons* seeds (*pers. obs.* Tommy Gleaves). This is a widespread predator of almost all *Encephalartos* species in the Eastern Cape. Levels of predation across all species can be predicted based on cone sporophyll thickness (Donaldson, 1993). Estimate for *E. latifrons* would be 20 – 40% (once populations are big enough to attract and sustain seed predator populations).

- Assumption that *E. latifrons* is insect pollinated. Individuals of *Porthetes* weevils have been collected. Other studies in Eastern Cape show that weevils (*Porthetes*) and Cucujid beetles (*Languriidae*) are the pollinators (Donaldson, 1995 and 1997).
- Assumption that other mutualisms are intact and will not hamper regeneration.

Limited data

- Survival of seedlings reintroduced into a habitat or from artificially pollinated seed is unknown. 15 two-year old seedlings were reintroduced in 1998 and 5 still survive (33%). Semi-natural seedlings have survived for 3 years on Colin Fletcher's farm but the proportion of original seedlings that have survived is unknown.
- The natural seed dispersal agent is unknown.
- Production of suckers is uncertain (DEAET's reintroduction programme may provide some data on suckering of confiscated plants that have been reintroduced in reserves).
- Factors stimulating suckering unknown.
- Ideal climate, soil, rainfall, vegetation i.e. prime habitat conditions is unknown.
- Survival and recruitment under different environmental conditions is unknown.

PROBLEM STATEMENT 2

THE LACK OF A CONSERVATION MANAGEMENT PLAN LEADS TO INACTIVITY, PARTLY DUE TO INADEQUATE CAPACITY.

Facts

- There is no comprehensive management plan for *E. latifrons*.
- Components of a management plan that do exist include:
 - a) Legislation
 - b) Regulation
 - c) Draft nursery agreement

Assumptions and Justification

- A conservation management plan will result in greater action, conservation and government departments often find it difficult to motivate for specific actions without an approved plan.

Limited data

- None.

PROBLEM STATEMENT 3

LACK OF KNOWLEDGE PERTAINING TO WILD POPULATIONS (ON DEMOGRAPHICS AND HABITAT) RESULTS IN MANAGEMENT AND RESTORATION PROBLEMS.

Facts

- A survey was conducted of plants in the wild by DEAET officials.

Assumptions and Justification

- Plants occurred in habitats where they are now absent. Herbarium records and historical photographs indicate that plants were more widespread than their current distribution.

Limited data

- There may be additional plants *in-situ* not yet surveyed, but numbers, if any, will be small.
- Longevity unknown.
- Effects of bark-harvesting on sucker production and / or mortality unknown.

**PROBLEM STATEMENT 4
LEGAL NURSERIES ARE UNABLE TO MEET THE DEMAND FOR PLANTS.**

Facts

- Many plants in gardens are not contributing to propagation.
- The application of CITES regulations are disadvantaging landowners.
- Landowners are constrained by the lack of an agreement regarding seedling propagation.
- Nurseries do not have access to seeds.
- Regulations on suckers are limiting nursery activities.

Assumptions and Justification

- Assumed that the demand could be 5000 plants a year. This is based on estimates by the Cycad Society that it would be possible to sell 5000 seedlings.

Limited data

- Data missing on number of seedlings produced via nurseries.

**PROBLEM STATEMENT 5
LACK OF KNOWLEDGE ABOUT GARDEN PLANTS IN TERMS OF NUMBERS, AGE, SEX, ORIGIN AND USE IN PROPAGATION, THIS MEANS THAT IT IS DIFFICULT TO ASSESS THE POTENTIAL TO SATISFY DEMAND, DO RESTORATION AND ESTIMATE ORIGINAL NUMBERS.**

Facts

- Number and gender of plants in botanic gardens (main gardens) are known.

Assumptions and Justification

- That numerous plants occur in private and public collections that are not catalogued, this is based on workshop participant knowledge of collections.

Limited data

- Audit on all plants nationally: size and sex is needed.

SOLUTIONS AND ACTION TO BE TAKEN

**PROBLEM STATEMENT 1
LACK OF REPRODUCTION AND RECRUITMENT MEANS THAT THERE ARE NO FUNCTIONALLY VIABLE WILD POPULATIONS, LEADING TO EXTINCTION.**

Solution 1

Create the conditions required for self-reproducing populations of *E. latifrons*.

Minimum Goal: Supplement three populations with adult plants to achieve a target of 35 to 50 coning stems in each population (with optimal sex ratios) and boosted by seedling introduction to increase numbers and genetic diversity.

Maximum Goal: Supplement four populations if sufficient adult plants exist or based only on new seedling populations.

Action Step 1: Identify core populations to be supplemented.	
Responsibility:	SANBI – technical input; Cycad Forum – proposed plan; and

	DEAET – final approval.
Timeline:	January – July 2007.
Resources needed:	Internal to responsible parties.
Collaborators:	(None in addition to those responsible).
Measurable outcomes:	Approved proposal.
Obstacles:	Bureaucracy / administrative delays related to agreements.

Action Step 2: Audit core populations and establish requirements for supplementation.	
Responsibility:	DEAET and Cycad Forum.
Timeline:	January – July 2007.
Resources needed:	Internal to responsible parties.
Collaborators:	SANBI and DEAET.
Measurable outcomes:	Audit report.
Obstacles:	None.

Action Step 3: Audit of potential plants (including suckers) for supplementation (e.g. confiscated plants and donations (including singles and suckers)).	
Responsibility:	DEAET.
Timeline:	January 2007 – January 2008.
Resources needed:	Internal to responsible parties.
Collaborators:	Public institutions (e.g. museums).
Measurable outcomes:	List of available plants.
Obstacles:	<ul style="list-style-type: none"> ▪ Capacity. ▪ Possible legal proceedings.

Action Step 4: Develop and implement a supplementation programme, including acquisition of plants for supplementation and investigation into the removal of suckers.	
Responsibility:	DEAET, Cycad Forum and SANBI.
Timeline:	July 2007 – 2009 (re-introduction of adult plants). July 2007– 2012 (first seedling re-introductions).
Resources needed:	Resources for translocation; vehicles, manpower for seedling re-introductions.
Collaborators:	Landowners and SANBI.
Measurable outcomes:	Meeting targets set in the supplementation plan.
Obstacles:	Budget and people.

Solution 2

Undertake research on key issues:

Minimum Goal: Survival of seedlings, optimal habitat, sex ratio.

Maximum Goal: Aforementioned and seed dispersal, growth, development and pollination.

Action Step 1: Formulate research questions and approach likely research partners.	
Responsibility:	SANBI.
Timeline:	Concepts by February 2007.
Resources needed:	Research funds.
Collaborators:	Universities (especially Rhodes University).
Measurable outcomes:	Active research projects.

Obstacles:	<ul style="list-style-type: none"> ▪ Duration (students only have 1 - 2 years at their disposal); ▪ Security (access to sensitive sites); and ▪ Funding.
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Simon Childs asked for actions which he had suggested but which were not accepted by the rest of the group to be recorded. These are listed below:

1. Potential for a 'share' reserve where collectors get shares in a reserve by contributing seeds or plants for restoration.
2. To obtain plants or seedlings through deals with owners in which more common plants are swapped for *E. latifrons* (e.g. swop a mature plant for 2 or 3 seedlings).
3. Vegetative proliferation (harvesting suckers stimulates the production of more) – *group felt that this was captured under the supplementation programme.*
4. Approach South African Fisheries for plant nutrition products to feed plants in the wild – *group included addition of nutrients under research.*
5. Place adverts in the media for cheap plants to obtain information? – *the group felt that this was not ethical / helpful.*

PROBLEM STATEMENT 2
THE LACK OF A CONSERVATION MANAGEMENT PLAN, LEADS TO INACTIVITY, PARTLY DUE TO INADEQUATE CAPACITY.

Solution 1

Develop a comprehensive management plan acceptable to all stakeholders.

Minimum Goal: Management plan to be completed by mid 2007.

Action Step 1: Development of an action plan.	
Responsibility:	DEAET, SANBI and Cycad Forum.
Timeline:	Draft by July 2007.
Resources needed:	Dedicated individuals.
Collaborators:	None.
Measurable outcomes:	Draft completed timeously.
Obstacles:	<ul style="list-style-type: none"> ▪ Possible stakeholder disagreement; ▪ Bureaucratic hold-up; ▪ Conflict with National Environmental Management: Biodiversity Act (NEMBA) regulations; and ▪ Security of sensitive information.

Solution 2

Establish a stakeholder forum (Cycad Forum) to further the goals of the management plan.

Minimum Goal: Establish a Cycad Forum for landowners and conservation authorities, related to core sites.

Maximum Goal: Cycad Forum to include other stakeholders (e.g. SANBI, researchers).

Dealt with by the Trade and Communication Working Group.
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Solution 3

Appoint responsible person within DEAET.

Minimum: Immediate appointment of a contact person following PHVA process.

Maximum: The formal appointment of a dedicated person responsible for action within DEAET, within 3 months to represent the department on the Cycad Forum and to implement DEAET responsibilities.

Action Step 1: Participants at PHVA to table ideas at the next Biodiversity Technical Meeting.	
Responsibility:	DEAET.
Timeline:	December 2006.

Action Step 2: Designation of Quintus Hahndiek as interim contact person.	
Responsibility:	DEAET.
Timeline:	July 2007.

PROBLEM STATEMENT 3

LACK OF KNOWLEDGE PERTAINING TO WILD POPULATIONS (ON DEMOGRAPHICS AND HABITAT) RESULTS IN MANAGEMENT AND RESTORATION PROBLEMS.

Solution 1

Conduct a limited survey to fill gaps in distribution of wild populations.

Minimum Goal: Completed within 3 years.

Action Step 1: Conduct a survey and map plant distributions.	
Responsibility:	Coordinated by DEAET, Cycad Forum (e.g. list of landowners).
Timeline:	January 2007 – December 2009.
Resources needed:	Personnel to undertake surveys.
Collaborators:	Completed survey.
Measurable outcomes:	Reduced landowner resistance.
Obstacles:	<ul style="list-style-type: none">▪ Resistance from landowners.▪ Lack of capacity and resources.

Solution 2

Develop a research programme pertaining to cycad bark harvesting for traditional use.

Minimum Goal: Collect information from existing sources within a particular area within 1 year.

Maximum Goal: Comprehensive analysis and recommendations within 3 years.

Action Step 1: Collect information from existing resources.	
Responsibility:	DEAET and SANBI
Timeline:	June 2007.
Resources needed:	Already allocated.
Collaborators:	Rhodes University, Schonland Herbarium (Tony Dold and Michelle Cocks).
Measurable outcomes:	Preliminary report.
Obstacles:	None.

Action Step 2:	Initiate a comprehensive national analysis of medicinal use to derive management recommendations.
Responsibility:	SANBI.
Timeline:	By December 2009.
Resources needed:	Student / contract person.
Collaborators:	Institute of Natural Resources, traditional healers association and universities.
Measurable outcomes:	Complete report with recommendations.
Obstacles:	None.

PROBLEM STATEMENT 4

LEGAL NURSERIES ARE UNABLE TO MEET THE DEMAND FOR PLANTS.

Solution 1

Resolve CITES and provincial regulations, restricting sale of plants from wild collected seed.

Minimum Goal: By end of 2006.

Dealt with by the Trade and Communication Working Group.
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Solution 2

National audit on seedlings produced in nurseries and private collections (incorporates Problem Statement 5, Solution 1).

Minimum Goal: Botanical gardens and legal nurseries.

Maximum Goal: All sources.

Action Step 1:	Undertake an audit of the Eastern Cape permits and botanic garden collections.
Responsibility:	SANBI (botanic gardens) and DEAET (permits).
Timeline:	December 2009.
Resources needed:	Data capturers.
Collaborators:	
Measurable outcomes:	Database and audit report.
Obstacles:	Security of database.

Action Step 2:	Expand the audit to national level, including surveys of the Cycad Society and analysis of permits in other provinces.
Responsibility:	DEAET to approach other provinces and the Cycad Society to approach members.
Timeline:	December 2009.
Resources needed:	<ul style="list-style-type: none"> ▪ Table audit at the Botanic Gardens Conservation meeting and publish in Cycad Society magazine. ▪ Coordinator within Cycad Society and representative at the Botanic Gardens Conservation meeting to advise.
Collaborators:	Provinces and society members.
Measurable outcomes:	National <i>E. latifrons</i> database.
Obstacles:	Security and access to information.

Solution 3

Conduct research into market and demand for cycads, to understand who requires plants, volumes and sizes.

Minimum Goal: 3 years.

Action Step 1: Initiate research programme.	
Responsibility:	SANBI.
Timeline:	January 2007 – December 2009.
Resources needed:	Student and coordination within the Cycad Society.
Collaborators:	Cycad Society of South Africa.
Measurable outcomes:	Report on trends, projections of demand and recommendations.
Obstacles:	Access to information.

Solution 4

Facilitate genetically pure legal propagation through a collaborative network.

Minimum Goal: Increased informal cooperation and networking to increase production.

Maximum Goal: Establish a formal system for accreditation.

Action Step 1: Develop studbook for botanic garden plants and accredited collections to provide specific genotypes for re-introduction.	
Responsibility:	Kirstenbosch (Werner Voigt).
Timeline:	December 2007.
Resources needed:	SANBI student for laboratory analyses.
Collaborators:	SANBI DNA laboratory and any willing participants.
Measurable outcomes:	Studbook.
Obstacles:	Non-participation by collectors.

Action Step 2: Investigate establishing a network among collectors for pollination of plants and propagation of seeds.	
Responsibility:	Cycad Society (Morne Ferreira).
Timeline:	December 2007.
Resources needed:	Capacity to coordinate and SANBI DNA analysis where necessary.
Collaborators:	SANBI DNA laboratory and any willing participants
Measurable outcomes:	Recommendations network.
Obstacles:	Non-participation by collectors.

PROBLEM STATEMENT 5

LACK OF KNOWLEDGE ABOUT GARDEN PLANTS IN TERMS OF NUMBERS, AGE, SEX, ORIGIN AND USE IN PROPAGATION, THIS MEANS THAT IT IS DIFFICULT TO ASSESS THE POTENTIAL TO SATISFY DEMAND, DO RESTORATION AND ESTIMATE ORIGINAL NUMBERS.

Solution 1

Expand the National Audit in Problem Statement 4, Solution 2, to include all adult plants.

Action Step 1: Completed under Problem Statement 4, Solution 2.
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Solution 2

Identify genotypes in key large collections for potential supplementation of wild populations.

Minimum Goal: Collections in major public institutions.

Maximum Goal: Major private collections and aforementioned.

Action Step 1: Include additional genotypes in genetic analysis of <i>E. latifrons</i> (da Silva, 2005). DNA fingerprinting of the critically endangered cycad, <i>E. latifrons</i> , using AFLP markers. MSc Thesis. University of Cape Town, Whitelock, L. M. 2002. The Cycads. Timber Press, Oregon, U.S.A.).	
Responsibility:	SANBI.
Timeline:	December 2007.
Resources needed:	Student and laboratory time.
Collaborators:	DEAET, Cycad Society and Botanic Gardens.
Measurable outcomes:	<ul style="list-style-type: none">▪ Genotypes included in studbook.▪ Updated analysis of genotype diversity.
Obstacles:	Participation.

PROBLEM STATEMENT 6

THE PECULIARITIES OF *E. LATIFRONS* LIFE HISTORY (SLOW GROWTH AND RECRUITMENT) MAKE IT DIFFICULT TO IMPLEMENT ACTIONS AND MEASURE SUCCESS.

Solution 1

Management plan must incorporate long-term objectives and measures to monitor success.

Action Step 1: Annual audit of existing adults and supplemented plants, plus presence of pollinators, to ensure survival and health of adult plants (as the primary source for future populations).	
Responsibility:	Landowners; DEAET and reserve managers.
Timeline:	Ongoing.
Resources needed:	<ul style="list-style-type: none">▪ Landowner time.▪ DEAET capacity.
Collaborators:	SANBI.
Measurable outcomes:	Audit of existing plants.
Obstacles:	<ul style="list-style-type: none">▪ Allocation of resources.▪ Lack of capacity.

Solution 2

Develop a research programme of controlled experiments to understand long-term responses.

Action Step 1: Initiate a long-term research programme.	
Responsibility:	SANBI.
Timeline:	June 2007.
Resources needed:	Students (in longer term).
Collaborators:	Universities; botanic gardens and volunteer researchers.
Measurable outcomes:	<ul style="list-style-type: none">▪ Active research projects.▪ Inputs into the management plan.
Obstacles:	Availability of material and timeframes.

Solution 3

Coordinated and integrated data collection and information system.

Action Step 1:	Collate information on growth rates, suckering, longevity etc.
Responsibility:	Cycad Society (Morne Ferreira).
Timeline:	December 2007.
Resources needed:	Support for booklet on experience and best practice.
Collaborators:	SANBI and collectors.
Measurable outcomes:	Database and best practice booklet.
Obstacles:	Lack of cooperation / active resistance from collectors.

Trade and Communication Working Group

WORKING GROUP PARTICIPANTS

- | | |
|---------------------|------------------------|
| 1. Mike Eksteen | DEAET (Port Elizabeth) |
| 2. Ricky Hannan | DEAET (East London) |
| 3. Solly Duna | DEAET (Bhisho) |
| 4. Jaap Pienaar | DEAET (Bhisho) |
| 5. Wendy Schultz | DEAET (East London) |
| 6. Colin Fletcher | Landowner |
| 7. Frikkie Conradie | Cycad Society |
| 8. David Newton | TRAFFIC |

ASSEMBLY AND SYNTHESIS OF DATA

PROBLEM STATEMENT 1

THE LACK OF AGREEMENT AMONGST STAKEHOLDERS ON PERMIT CONDITIONS, AND STRICTER DOMESTIC APPLICATION OF CITES MEASURES PERTAINING TO THE PROPAGATION AND SALE OF SEEDLINGS FROM WILD COLLECTED SEEDS. LACK OF FINANCIAL INCENTIVES (FOR INSTANCE TAX REBATES) PROVIDES INSUFFICIENT INCENTIVE TO CONSERVE NATURAL POPULATIONS OF *E. LATIFRONS*.

Facts

- There is no consensus on the percentage of seedlings to be retained by landowner.
- DEAET in implementing CITES does not allow for the exportation of seeds and seedlings cultivated from wild collections of seeds.
- Currently: Garden plants cultivated from seeds are allowed to be exported whilst seedlings cultivated from seed collected in nature may not be CITES exported. This appears to be a catch-22 situation.

Assumptions

- Landowners may agree to a 5% restoration to nature. Of this amount the landowner may plant (on his / her own farm) or give plants to a second party to establish in other areas of the range. This 5% may be increased to 10% with negotiations with DEAET. 95% may be sold by the farmer.
- Landowners should be given custodianship in order to encourage them to protect and conserve the species.
- Plants do not belong to the landowner and they cannot be sold.

Justification for assumptions

- A manageable quantity to be restored to nature for both parties (owner and state agency). Any more than this may present a management problem for the owner and state agency that places plants in reserves.
- As landowners are responsible for and care for the plants, they should be given custodial rights to be defined and negotiated with the relevant authorities (may include the right to propagate and sell seedlings).

Limited data

Recent data on the following points are not available:

- The number of landowners.
- The number of plants (male / female).

- The number of plants removed from their natural habitat.

PROBLEM STATEMENT 2

CONSERVATION OF *E. LATIFRONS* IS HINDERED BY SHORTAGE OF STAFF CAPACITY, CAUSED BY REGULAR RESIGNATIONS AND DISPERSAL OF SKILLS AMONGST TOO MANY OTHER DUTIES.

Facts

- Due to lack of staff, unable to fulfil all obligations for *E. latifrons*.

Assumptions

- Could or should get assistance from other stakeholders, NGOs and higher education facilities.
- Require dedicated staff member to work specifically on *E. latifrons*.

Justification for assumptions

- Benefit of working together (i.e. sharing information, manpower, research etc.).
- Need extra capacity to work on *E. latifrons*.

Limited data

- No research data are available on *E. latifrons*, for instance DNA analysis and the number of landowners, number of plants (male versus female) and the number of plants removed from their natural habitat. Capacity is required to collate such baseline data.

PROBLEM STATEMENT 3

COMMUNICATIONS WITH CURRENT STAKEHOLDERS ARE INCONSISTENT AND NEGATIVE PERCEPTIONS OF SOME PROJECTS HAVE RESULTED IN INADEQUATE LEVELS OF PARTICIPATION. THESE FACTORS COLLECTIVELY CONTRIBUTE TO THE POOR MANAGEMENT OF *E. LATIFRONS*.

Facts

- There is poor and inconsistent communication with stakeholders.

Assumptions

- Relationships between stakeholders should be stronger.

Justification for assumptions

- Stronger relationships could have avoided misunderstandings.

Limited data

- No database of stakeholders.

PROBLEM STATEMENT 4

CONSERVATION OF *E. LATIFRONS* IS HINDERED BY LACK OF EXTENSION WORK BY GOVERNMENT, NGOS AND OTHER INTERESTED PARTIES.

Facts

- Stakeholder details are not available.
- Inadequate awareness raising activities targeting key stakeholders e.g. sangomas, farmers, etc.
- There is a lack of capacity to do research on this species.
- Do not have data required for extension work.

Assumptions

- Once the level of awareness has been raised there could be a decline in the incidence of poaching and unregulated gathering. “An informed mind makes an informed decision”.
- Reduced damage caused by sangomas during collection.
- Collection and collation of data suitable for use in extension work.

Justification for assumption

- To reduce instances of illegal trade and unregulated harvesting but also to enhance conservation actions on the ground.
- Stakeholders have sufficient information to make informed decisions.

Limited data

- No research data are available for useful extension work.
- Lack of research data (physiological, ecological and geographical information systems, pathological).

PROBLEM STATEMENT 5

STAKEHOLDERS INVOLVED OR POTENTIALLY INVOLVED WITH CYCAD CONSERVATION HAVE NOT ALL BEEN IDENTIFIED (E.G. THE TRADITIONAL MEDICINE TRADE; FARMERS; NGOS ETC.) RESULTING IN INADEQUATE INVOLVEMENT.

This item was seen as being a repeat or very similar to Problem Statement 4.

PROBLEM STATEMENT 6

LIMITED SUPPLY OF *E. LATIFRONS* STIMULATES HIGH PRICES AND ILLEGAL COLLECTION.

Facts

- Less than a hundred plants in the wild.
- Growers hang onto seedlings until about five years old to maximise the price.
- Low production levels of seedlings. Demand exceeds availability (1500 seedlings cultivated from seeds taken from the wild).
- Price data are available to prove high prices (registered growers and sellers; R126 000 for mature plant at recent auction in Cape Town).

Assumptions

- By supplying the need for plants the price will decrease and poaching and theft will decrease.
- Need research to justify the assumption that the price will fall if many seedlings are supplied.

Justification for assumption

- “Conservation through cultivation”.

Limited data

- No knowledge of the number of plants coning (frequency).
- Numbers of viable seeds being produced is unknown.
- Exact number of seedlings produced per annum is unknown.

PROBLEM STATEMENT 7

THE LACK OF KNOWLEDGE PERTAINING TO THE UTILISATION OF *E. LATIFRONS* FOR MEDICINAL USE AND THE LACK OF AWARENESS AMONGST SANGOMAS ABOUT THE CONSERVATION STATUS OF *E. LATIFRONS* RESULTS IN SERIOUS DAMAGE TO INDIVIDUAL PLANTS.

Facts

- Bark harvesting from *Encephalartos* species is common in parts of the Eastern Cape and a small amount of bark harvesting has been observed on *E. latifrons*.

Assumptions

- Providing harvesters with alternatives to using cycads or teaching sustainable harvesting techniques, will reduce plant damage and mortality.

Justification for assumption

- None.

Limited data

- Alternative medicinal products to cycads.
- No knowledge on sustainable harvest techniques for medicinal use.

SOLUTIONS AND ACTION TO BE TAKEN

PROBLEM STATEMENT 1

THE LACK OF AGREEMENT AMONGST STAKEHOLDERS ON PERMIT CONDITIONS AND STRICTER DOMESTIC APPLICATION OF CITES MEASURES PERTAINING TO THE PROPAGATION AND SALE OF SEEDLINGS FROM WILD COLLECTED SEEDS. LACK OF FINANCIAL INCENTIVES (E.G. TAX REBATES) PROVIDES INSUFFICIENT INCENTIVE TO CONSERVE NATURAL POPULATIONS OF *E. LATIFRONS*.

Much of the debate centred on the ownership of the plants. Nature Conservation is of the opinion that landowners do not own the plants whereas landowners believe they do. However, Nature Conservation seemed to be willing to make allowances for the owner to use the plants in some way to provide incentive for the owner to protect the species even though they cannot harvest or sell the parent plants. Legally binding contracts between Nature Conservation and the landowner were suggested, however concern was raised that this could potentially scare off farmers. A contract should therefore cover both parties. Participants still questioned if there was a need for contracts?

Due to a lack of capacity within Nature Conservation, there is a need to appoint an independent organisation to initiate and coordinate the proposed Cycad Forum. This agency should be responsible for implementing the solutions listed below and working towards reaching agreement on permit conditions and management of the stricter domestic measures under CITES.

Comments:

- The official representative from DEAET is likely to be the Director.
- The Cape Parrot Working Group is a possible model.
- Traditional healers and related disciplines to be included.

Minimum Goal: Agreement on permit conditions between DEAET and landowners.

Maximum Goal: To achieve agreement amongst stakeholders on permit conditions that will maximise the conservation of seeds, seedlings and plants. The goal will include replenishing

seedlings in the wild and for research. An essential goal will be to finalise the number of seedlings left with grower versus Nature Conservation. The permit conditions will include sale, import, export, land management, propagation, translocation / relocation under supervision, essential ecological / biological research, permitted harvest for traditional healers, transport, etc.

Solution 1

Identify a lead agency to implement the process.

Action Step 1: The Cycad Forum to decide on a lead agency and / or individual to coordinate the functioning of the forum.	
Responsibility:	Cycad Forum.
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Cycad Forum.
Measurable outcomes:	Decision on identity of coordinating person or agency.
Obstacles:	Funding to pay for a coordinator.

Solution 2

Identify stakeholders to invite to the forum.

Action Step 1: Identify stakeholders to invite to the 1 st Cycad Forum meeting.	
Responsibility:	Quintus Hahndiek.
Timeline:	To be determined.
Resources needed:	DEAET.
Collaborators:	Secretary from DEAET.
Measurable outcomes:	List of stakeholders.
Obstacles:	None.

Solution 3

Establish a forum in which all stakeholders participate to obtain agreement on permit conditions, CITES measures and financial incentives required to maximise conservation of the species.

Action Step 1: Formalise the terms of reference, structure and work programme of the Cycad Forum.	
Responsibility:	Cycad Forum (SANBI; DEAET and five farmers).
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Secretary from DEAET.
Measurable outcomes:	Minutes of meeting including terms of reference, structure and work programme.
Obstacles:	One day meeting may be too short?

Solution 4

Establish agreement between DEAET and stakeholders regarding reinterpretation of stricter domestic measures for CITES and domestic use of seedlings from wild stock so as to establish an incentive for stakeholders to conserve the resource.

Action Step 1: Revise the Eastern Cape policy on the use of <i>E. latifrons</i> seeds and seedlings for conservation on private farms.	
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Responsibility:	Cycad Forum and Thembinkosi Tyali and Quintus Hahndiek of DEAET for provincial policy.
Timeline:	Draft policy to be completed during the 1 st meeting of the Cycad Forum; final policy to be completed by July 2007.
Resources needed:	None.
Collaborators:	Cycad Forum.
Measurable outcomes:	Finalised provincial policy accepted by the Biodiversity Technical Committee of DEAET.
Obstacles:	Slow process within DEAET.

Action Step 2: DEAET to write letter to national DEAT (Pretoria), requesting the revision of the national policy on ownership and sale of wild collected cycad seeds, in light of the revised artificial propagation definition agreed at the CITES CoP13 in Bangkok. DEAET will also regularly follow-up with DEAT and ensure that the national revision is concluded.	
Responsibility:	<ul style="list-style-type: none"> ▪ Thembinkosi Tyali and Quintus Hahndiek of DEAET to write a letter, to ensure completion of the revision and report back at all Cycad Forum meeting; ▪ Pieter Botha and Sonja Meintjies at DEAT for revising the national policy through Working Group I of DEAT in Pretoria.
Timeline:	Achieved by end 2007.
Resources needed:	DEAT.
Collaborators:	Cycad Forum and DEAT.
Measurable outcomes:	Completed national policy.
Obstacles:	Slow process of developing national policy within DEAT.

PROBLEM STATEMENT 2

CONSERVATION OF *E. LATIFRONS* IS HINDERED BY SHORTAGE OF STAFF (CAPACITY), CAUSED BY REGULAR RESIGNATIONS AND DISPERSAL OF SKILLS AMONGST TOO MANY OTHER DUTIES.

Solution 1

Based on outcome of the Cycad Forum, a coordinator should be appointed to manage and guide the *E. latifrons* conservation programme, due to a lack of official capacity.

Minimum Goal: To coordinate discussions between farmers and DEAET on permit conditions.

Maximum Goal: Appoint a coordinator to establish and manage the Cycad Forum and to compile and implement a work programme.

Action Step 1: Appointment of Cycad Forum Coordinator.	
Responsibility:	Cycad Forum (SANBI; DEAET and five farmers).
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Secretary from DEAET.
Measurable outcomes:	Minutes of meeting including terms of reference, structure and work programme.
Obstacles:	No funding for the coordinator.

Solution 2

DEAET Regional Manager, farmers, and other interested parties to resolve issues highlighted in Problem Statement 1 and to work with the coordinator where necessary.

The idea is to include as many stakeholders as possible in the process, under the guidance of a coordinator. Although DEAET have a mandated role to play in cycad conservation and will be fully represented on any forum, they will not need to appoint a dedicated staff member and will therefore fit this function in with other duties.

Action Step 1: Same as in Problem Statement 1 - namely formalise terms of reference, structure and work programme for the Cycad Forum.	
Responsibility:	Cycad Forum (SANBI; DEAET and five farmers).
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Secretary from DEAET.
Measurable outcomes:	Minutes of meeting including terms of reference, structure and work programme.
Obstacles:	One day meeting may be too short?

PROBLEM STATEMENT 3

COMMUNICATION WITH CURRENT STAKEHOLDERS IS INCONSISTENT AND NEGATIVE PERCEPTIONS OF SOME PROJECTS HAVE RESULTED IN INADEQUATE LEVELS OF PARTICIPATION. THESE FACTORS COLLECTIVELY CONTRIBUTE TO THE POOR MANAGEMENT OF *E. LATIFRONS*.

Solution 1

This will be solved by the formation of a forum at which issues and problems will be discussed and resolved.

It is envisaged that the establishment of a forum will solve this problem by pulling together the various role players and facilitating the process from here into the future.

Minimum Goal: To resolve the current disputes between landowner and DEAET.

Maximum Goal: To reach all relevant cycad stakeholders and regularise communications and negative perceptions. It is envisaged this will solve many of the current conservation challenges facing the species.

Action Step 1: Same as in Problem Statement 1 - namely formalise the terms of reference, structure and work programme of the Cycad Forum but specifically enhance communication and foster good relationships.	
Responsibility:	Cycad Forum (SANBI; DEAET and five farmers).
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	Costs for meeting and Secretary from DEAET.
Collaborators:	As required.
Measurable outcomes:	Minutes of meeting including terms of reference, structure and work programme.
Obstacles:	One day meeting may be too short?

Solution 2

Appoint a coordinator to drive all communications between stakeholders including the elimination of negative perceptions amongst farmers.

Action Step 1:	Same as in Problem Statement 2, Solution 1, appointment of a coordinator.
Responsibility:	Cycad Forum (SANBI; DEAET and five farmers).
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	Secretary from DEAET and costs for 1 st meeting.
Collaborators:	As required.
Measurable outcomes:	Decision on appointment of a coordinator in minutes of meeting including terms of reference, structure and work programme.
Obstacles:	<ul style="list-style-type: none"> ▪ One day meeting may be too short? ▪ No funding for a coordinator.

Comments:

Funding availability through farmers association?

The Coordinator could appoint a student, to help with farmer situation.

PROBLEM STATEMENT 4

CONSERVATION OF *E. LATIFRONS* IS HINDERED BY LACK OF EXTENSION WORK BY GOVERNMENT, NGOs AND OTHER INTERESTED PARTIES.

Solution 1

The Cycad Forum will identify and establish a programme of extension work that will focus on the provision of practical advice and assistance to stakeholders such as farmers and traditional healers.

The aim of this solution is to have one person (coordinator and / or extra student – Rhodes student) to compile and communicate all the information regarding the conservation of *E. latifrons* to relevant parties. This activity could include species identification, advice on translocation, obtaining pollen for female cones.

Minimum Goal: To resolve the immediate problems between DEAET and the farmers.

Maximum Goal: To provide a comprehensive programme of extension work.

Comments:

- Sub-committees a possibility.
- Awareness programme (posters and information brochures).
- Extension – is both awareness and provision of technical information but very much on the ground and practical.
- Harvesting techniques for sangomas and other traditional medicine users.

Action Step 1:	Cycad Forum to formulate extension work programme
Responsibility:	Cycad Forum Coordinator when appointed and / or Cycad Forum (SANBI; DEAET; Five farmers)
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	Secretary from DEAET; Costs for 1 st meeting.
Collaborators:	As required
Measurable outcomes:	Extension work programme or other decision on the process for formulating work programmes in the minutes of the 1 st meeting, including Terms of Reference, structure and work programme.
Obstacles:	One day meeting too short for volume of work required to formulate this work programme; No funding for coordinator or extension work.

**PROBLEM STATEMENT 5
STAKEHOLDERS INVOLVED OR POTENTIALLY INVOLVED WITH CYCAD
CONSERVATION HAVE NOT ALL BEEN IDENTIFIED (E.G. TRADITIONAL MEDICINE
TRADE; FARMERS; NGOs ETC.) RESULTING IN INADEQUATE INVOLVEMENT.**

Solutions 1

Identification of stakeholders dealt with in Problem Statement 1.

**PROBLEM STATEMENT 6
LIMITED SUPPLY OF *E. LATIFRONS* STIMULATES HIGH PRICES AND ILLEGAL
COLLECTION.**

The limited supply of plants is driving up the price of this species. Therefore it is necessary to devise a method to produce more seedlings for sale that will ultimately reduce the price. The main emphasis will be on trying to get as many plants as possible to produce seeds. Hence the need for the pollen bank and coordinated pollination programme along with re-establishing confiscated specimens back into a dedicated sanctuary. The sanctuary could be on private or government land and the emphasis will be to produce seeds and seedlings.

Minimum Goal: Establish sanctuary for all confiscated plants and to facilitate seed and seedling production.

Maximum Goal: Establish a pollen bank under management of the coordinator. The coordinator will further identify pure species coning female plants and facilitate pollination within private land and the sanctuary for confiscated plants.

Comments:

- Collection of all female cones for pollination.
- Formation of a controlled pollen bank who will distribute information re: pollen and female cones or will take deposits. One expert may be required to ensure that pure species are maintained and that there is no hybridization.
- Communication between landowners and garden owners to co-ordinate all cone pollination.
- Clearly marked.
- Question of whether the coordinator is exempted from permit requirements for moving materials around.

Solution 1

Establish a coordinated process for the identification of female cones, in private collection (e.g. farms and in home gardens), for collection of pollen that will result in the increased production of seeds and therefore seedlings. This will result in greater availability of seeds, seedlings and plants and hence will cause prices to reduce in due course.

Action Step 1: Discussion and finalisation of how this coordination of fertile female cones and collection of pollen will be incorporated into the Terms of Reference of the Cycad Forum	
Responsibility:	Cycad Forum for provincial policy
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None
Collaborators:	Cycad Forum
Measurable outcomes:	Agreement on way forward with this process reflected in minutes of 1 st meeting.
Obstacles:	No funding for coordinator to manage this process

Action Step 2: Compile permit data for <i>E latifrons</i> owners for Eastern Cape Province as a contribution to identifying all owners that could become involved in a breeding programme and present to 1 st meeting of the Cycad Forum.	
Responsibility:	Thembinkosi Tyali and Quintus Hahndiek of DEAET
Timeline:	Comprehensive list completed by end June 2007 but draft list available for the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Provincial departments and DEAT.
Measurable outcomes:	Compiled permit data on <i>E. latifrons</i> owners and growers.
Obstacles:	Paper based permit system does not allow rapid compilation of data therefore slow.

Solution 2

Establish a sanctuary for mature plants that have been confiscated (nationally and internationally) whose origin are known and can be re-established. This will assist in due course with the production of seeds and seedlings.

Dealt with by the Ecological Priorities Working Group.
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Solution 3

Plants confiscated internationally must be returned to South Africa and re-established in the sanctuary

Action Step 1: DEAET to request DEAT to compile data on the species and number of South African cycad confiscations (all species but specifically looking for <i>E. latifrons</i>) that have occurred in other countries over the past five years and to report back on results to the Cycad Forum.	
Responsibility:	Quintus Hahndiek and Thembinkosi Tyali of DEAET; Sonja Meintjies and Pieter Botha of DEAT.
Timeline:	Letter by end January 2007 and results of correspondence by end April 2007.
Resources needed:	None
Collaborators:	Cycad Forum
Measurable outcomes:	<ul style="list-style-type: none"> ▪ Letter to DEAT. ▪ Report back on correspondence from DEAT.
Obstacles:	Slow process within DEAT;

Action Step 2: DEAET to request DEAT to write to the main cycad importing countries asking them to provide data on the species and number of cycads confiscated in their country over the past five years. DEAET to report back to the Cycad Forum on results of correspondence.	
Responsibility:	Quintus Hahndiek and Thembinkosi Tyali of DEAET; Sonja Meintjies and Pieter Botha of DEAT.
Timeline:	Letter by end January 2007 and results of correspondence by end April 2007.
Resources needed:	None.
Collaborators:	Cycad Forum.
Measurable outcomes:	<ul style="list-style-type: none"> ▪ Letter to DEAT. ▪ Report back on correspondence from importing countries.
Obstacles:	Slow process within DEAT.

Action Step 3: Based upon results of previous two actions, DEAET to request DEAT to request the CITES Secretariat to submit Notification to the CITES Parties requesting that all confiscated <i>E. latifrons</i> (or all endangered cycads) be returned to Eastern Cape Nature Conservation authority, South Africa, for rehabilitation into the Cycad Forum recovery programme. DEAET to report back on response to Notification to the Parties.	
Responsibility:	DEAET and DEAT.
Timeline:	By end July 2007.
Resources needed:	None.
Collaborators:	Cycad Forum.
Measurable outcomes:	Letter to DEAT, Notification to the Parties and response from Parties.
Obstacles:	<ul style="list-style-type: none"> ▪ Slow processes within DEAT; ▪ Complexity of issuing notification for only one cycad species when all species are listed on CITES and regarded as endangered in the Eastern Cape. ▪ How to cover cost of bringing plants back from country of confiscation (perhaps South African Airways may be convinced to carry out a patriotic duty).

Solution 4

Establish a Code of Conduct amongst members of the Cycad Forum that specifies minimum standards of conduct to counter illegal and unregulated trade in wild collected cycads.

Minimum Goal: For all participants on the Cycad Forum to agree to sign the Code of Conduct, binding them to oppose and report instances of illegal trade.

Comments:

- Name and shame.
- Assistance with investigations.

Action Step 1: Develop a short one to two page Code of Conduct that will include normal permit conditions but also measures to actively oppose and undermine the illegal trade in cycads for instance, name and shame; assistance with investigations.	
Responsibility:	Cycad Forum to develop a Code of Conduct.
Timeline:	During the 1 st meeting of the Cycad Forum.
Resources needed:	None
Collaborators:	Cycad Forum
Measurable outcomes:	A document (Code of Conduct) for signing by all members and future members of the Cycad Forum.
Obstacles:	Acceptance of the code by all parties.

Action Step 2: DEAET to provide copy of PHASA's Code of Conduct to the Cycad Forum to assist with ideas for drawing up the cycad Code of Conduct.	
Responsibility:	Solly Duna of DEAET.
Timeline:	Distributed to all members before the 10 th of January 2007.
Resources needed:	None.
Collaborators:	Cycad Forum.
Measurable outcomes:	PHASA document received by all Cycad Forum members.
Obstacles:	None.

Solution 5

Establish a “studbook” to ensure that pure samples of the species are conserved.

Any doubt in an individual plants genetic purity should ensure that it is not placed back into the main populations but instead be used for other purposes.

Action Step 1: This action step was dealt with by the Ecological Priorities Working Group however the following aspects must be included:

- How to organise pollination of all female cones in private gardens and collections.
- Formation of a controlled pollen bank to distribute information re: pollen and female cones or will take deposits.
- One expert may be required to ensure that pure species are maintained and that there is no hybridization.
- Communication between landowners and garden owners to coordinate all cone pollination.
- Plants in programme must be clearly marked.
- Address question of whether the coordinator is exempted from permit requirements for moving materials.

PROBLEM STATEMENT 7

A LACK OF KNOWLEDGE, PERTAINING TO UTILISATION OF *E. LATIFRONS* FOR MEDICINAL PURPOSES AND AWARENESS AMONGST SANGOMAS ABOUT THE CONSERVATION STATUS OF THE SPECIES RESULTS IN SERIOUS DAMAGE TO INDIVIDUAL PLANTS.

Solution 1

Conduct research into the magnitude of the medicinal utilisation of *E. latifrons* to assess whether it is a significant problem or not.

This research needs to be done before further action is formulated as it may be that harvesting for traditional medicine is no longer an issue and consultation with healers may not be necessary. If identified as a problem conduct necessary follow-up activities.

Minimum Goal: Conduct research into the magnitude of the medicinal trade in this species and determine whether further actions are required.

Action Step 1: Develop Terms of Reference for the researcher to conduct an assessment of damage caused by medicinal collectors (including sangomas, herbalists etc) to survival of *E. latifrons* plants in the wild.

Responsibility:	Cycad Forum.
Timeline:	Terms of Reference for researchers to be developed during the 1 st meeting of the Cycad Forum.
Resources needed:	None.
Collaborators:	Rhodes University and SANBI
Measurable outcomes:	Terms of Reference.
Obstacles:	Funding?

Action Step 2: Appoint a researcher.

Responsibility:	John Donaldson of SANBI.
Timeline:	From 1 st January 2007 to end April 2007.
Resources needed:	Funding for a researcher.
Collaborators:	Researcher.

Measurable outcomes:	Report on assessment.
Obstacles:	Funding?

Solution 2

Ensure that traditional healers, herbalists etc. are included in the stakeholder consultation.

Action Step 1: Based on results and recommendation of the assessment into the impact of medicinal collection, design a follow-up plan of action. The plan should include a decision on the necessity of including traditional healers in the Cycad Forum.	
Responsibility:	Cycad Forum.
Timeline:	By end November 2007.
Resources needed:	None.
Collaborators:	Researcher.
Measurable outcomes:	Plan of action recorded in minutes of second meeting of the Cycad Forum.
Obstacles:	Based on assumption that research assessment is conducted in time.

Population Modelling and Dynamics Working Group

WORKING GROUP PARTICIPANTS:

- | | |
|--------------------|---------|
| 1. Phil Miller | CBSG |
| 2. Kerryn Morrison | EWT |
| 3. Brenda Daly | CBSG SA |

PROBLEM STATEMENT

HOW MANY BREEDING ADULTS ARE REQUIRED FOR LONG-TERM VIABILITY (I.E. SELF-SUSTAINABILITY OF WILD POPULATIONS).

Assumptions:

- In the absence of natural reproducing individuals caused by the absence of synchronous coning (assumption based on lack of evidence to the contrary) and geographic proximity of male and female plants, the species is currently functionally extinct in the wild.
- In the absence of human impact such as collecting and cattle trampling, the very long lifespan and relatively high demographic stability leads to high relative viability of smaller cycad populations. Viability = reconstitution of natural pollination in the short-term.
- Viability is enhanced by increasing local breeding population size to improve likelihood of coning synchronicity.
- Observed coning frequency in *E. latifrons*.

Female: 1 in 10 years (Tommy Gleaves *pers. comm.*)

Female: 1 in 35 years (Colin Fletcher *pers. comm.*)

Male: 1 in 2 years (Tommy Gleaves *pers. comm.*)

Male: 1 in 5 years (John Donaldson *pers. comm.*)

- Given these data and our definition of short-term viability (refer to problem statement above).
- Assuming that minimal male “synchrony” of coning is greater than female coning during the same year.

Most conservative:

35 adult females

5 adult males

Minimum number:

12 (10 females and 2 males) given the higher coning frequency.

x = suckers

y = seedlings greater than 2 years

z = adults from ?

$\Sigma > 40$ based on mortality and bias sex ratio leads to reduced numbers.

This needs to be done in duplicate and triplicate, assuming the wild habitat is of optimal size to allow natural pollination between any two individuals.

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ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa

WORKSHOP REPORT



SECTION 5

FINAL PLENARY: THE WAY FORWARD

The Way Forward for Cycad Conservation

1. Proposal to establish an Albany Cycad Forum

As many of the plants occurring in the wild are located outside formally protected areas, it is clear that private landowners need to contribute to the conservation of this threatened plant species if it is to survive. Good collaboration and communication between all stakeholders is needed and workshop participants therefore suggested that a Cycad Forum be established that incorporates all stakeholders so as to facilitate decision-making and obtain agreement. Yolán Friedmann therefore gave a guiding perspective on the Wild Dog Advisory Group (WAG) and the South African Leopard Forum (SALF).

Background on SALF:

- Based on PHVA outcomes and comprising all legitimate stakeholders (Leopard specialists, field workers, provincial government, academics and landowners, etc.).
- Focuses on implementation of the PHVA.
- Terms of reference were developed at the first management meeting.
- Decided to remain an informal and advisory body.

Background on WAG:

- More formalised code of conduct.
- National decision-making body for Wild Dog conservation and management in South Africa.
- Designed to carry workshop momentum forward with broad participation being the key to success (African Wild Dog (*Lycaon pictus*) PHVA held October 1997).

Participants at the Albany Cycad Workshop agreed on the following formal structure. Quintus Hahndiek suggested nine members, which include two DEAET representatives (local and regional level authority). As proactive decisions may be required, these individuals should include decision-makers in order to facilitate progress in the short-term. Five members will comprise landowners as well as Paris breeders with plants from the Eastern Cape. One representative from SANBI is needed and one or two academic researchers.

Potential additions to the committee include:

- Independent facilitator and secretary.
- Independent taxonomic / conservation organisation.
- Other groups (i.e. Bathurst Biodiversity Programme).
- A suggestion was made to include traditional healers (sangomas) at a later stage.

The purpose of establishing this forum included:

- To facilitate implementation of *E. latifrons* conservation and management plan (PHVA results).
- To provide opportunity for all stakeholders to raise and continue discussion on species conservation issues.
- To identify gaps in the plan related to implementation.
- Central point of information.
- Become an advisory body to DEAET and oversee global process.
- Need for distribution of annual progress report.

All agreed that the forum should be seen as a volunteer-based committee and DEAET agreed to take on the secretariat type tasks and hosting.

The group identified members who would be able to act as contact points:
 Charlie Shackelton (Researcher)
 John Donaldson (SANBI)
 Quintus Hahndiek (DEAET)
 Thembinkosi Tyali and Secretary (DEAET)
 Colin Fletcher (Landowner)
 Tommy Gleaves (Landowner)
 Rodney Mahon (Landowner)
 Jan Venter (Eastern Cape Parks Board)
 Fanie Fouche (Port Alfred Municipality)

It was agreed that the first meeting is scheduled by Quintus Hahndiek by mid-August; this will be a one day meeting.

Actions to be taken before the meeting:

- Draft PHVA report to be completed by management date.
- Quintus Hahndiek to call for agenda items at invitation.
- Bathurst to be considered as a venue.

2. Discussion on the Operational Policy 4 / 2003 for the Protection of endangered cycad species (*Encephalartos* species) in the Eastern Cape Province

During the workshop input was given into the Eastern Cape policy on propagation and sustainable utilisation of *E. latifrons*, details of the suggested changes to the policy are provided below.

Protection of endangered cycad species (*Encephalartos* species) in the Eastern Cape Province. Operational Policy 4 / 2003 (Original document compiled on 4th September 2002; revised on 9th September 2002 and 28th March 2003.

This Chief Directorate shall, in the interest of the conservation of cycads, take the following steps that are deemed necessary for the achievement of the objectives and purposes of the following legislation. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Legal status of cycads

Nature and Environmental Conservation Ordinance (No 19 of 1974), ex-Cape Province		Nature Conservation Act (No 10 of 1987), ex-Ciskei	Environmental Conservation Decree (No 9 of 1992), ex-Transkei
Schedule 3: Endangered Flora	Appendix 1: CITES species threatened with extinction which are or may be affected by trade	Schedule 5: Specially Protected Flora	Schedule 5: Endangered Flora

Policy 4

1. No plant or any part (such as pollen, seeds, cones, bark) thereof of the *Encephalartos* species may be removed from the natural state. The Chief Directorate may consider issuing permits for scientific and / or conservation purposes.
2. Should the owner of an adult plant in his possession, no longer wish to own the plant, he may donate the plant to the Directorate who, if it is found to be suitable, will re-establish it within its natural range.
3. All plants suitable for reintroduction must be treated against pests or diseases.
4. Permits must be obtained to move any adult specimens within gardens on the same premises.
5. Permits to collect seeds from plants in the natural state may only be issued to a landowner who has the above species on his property or a nursery specifically identified on the landowners property as defined in an agreement and approved by the Chief Director. Seeds collected may only be propagated on that property on the on condition that such landowner has entered into a management agreement with the Chief Directorate.
6. Any person who has a permit to collect seeds from plants in the natural state, the Chief Directorate reserves the right to designate an Official from the Chief Directorate to accompany the collector. [Maybe excessively strict as originally stated? Requires considerable capacity from Chief Directorate... may require some personal contact for case-by-case consideration of accompaniment, and sufficient communication among interested parties in advance of the intended collection.]
7. Any person who propagates endangered flora must be registered as a grower of endangered flora / registered nursery.
8. Fifteen percent of the plants cultivated from seeds collected from the natural state must be returned to the natural state, within its natural distribution range. This portion is composed of 5% on property belonging to the person who cultivated the plants and 10% on any Conservation Area designated by the Chief Director, or suitable private property (including property of origin), provided that it falls within the natural distribution range. The remaining 85% may be sold as well as exported out of the Province. These percentages are to be currently viewed as guidelines only, and will be subject to review and refinement on a case-by-case basis on the advice of the Albany Cycad Forum and other relevant management authorities. [Suitable age for viability in the wild? Needs to be discussed.]
9. Should the population on the private property where seedlings have been cultivated, be of sufficient numbers, the landowners' 5% may be re-established on other properties within the distribution range.
10. The Chief Directorate reserve the right to seize, or confiscate any of the above species, without compensation, from any person or permit holder, either from the natural state or garden specimens, if it is considered to be in the interests of the survival of the species.

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ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa





WORKSHOP REPORT












John Donaldson






SECTION 6 APPENDICES



Appendix 1: Albany Cycad Workshop Participants List

CONTACT	ORGANISATION	EMAIL	ADDRESS	TEL	FAX	CELL	PHOTOGRAPH
Burden, Ian	Lowlands Nursery	lowlandsnursery@cybertrade.co.za	P.O. Box 13, Kei Road, 4920	043 7820733	043 7820731	084 4622393	
Childs, Simon	Nursery	schild@xsinet.co.za	6 Darling Street, Grahamstown, 6139	046 6229615		072 8459556	
Conradie, Frikkie	Cycad Society of South Africa, Western Cape	fconradi@pgwc.gov.za	Van Riebeeckstraat 14, Protea Hoogte, Brackenfell, 7560	021 4833247	021 483 3337	084 9510550	
Daly, Brenda	CBSG Southern Africa / EWT	brendad@ewt.org.za	Private Bag X11, Parkview, 2122	011 4861102	011 4861506		

Donaldson, John	IUCN Cycad Specialist Group / SANBI	donaldson@sanbi.org	Kirstenbosch Research Centre, Private Bag X7, Claremont, Cape Town, 7735	021 7998672	021 7628534	083 2901170	
Duna, Solly	Department of Economic Affairs Environment and Tourism	solly.duna@deaet.ecape.gov.za	Private Bag X0054, Bhisho, 5605	040 6094718	040 6094700	082 4614151	
Eksteen, Mike	Department of Economic Affairs Environment and Tourism	mike.eksteen@deaet.ecape.gov.za	Private Bag X5001, Green Acres, Port Elizabeth, 6057	041 5085803	041 5085850		
Ferreira, Morne	Cycad Society of South Africa, Transvaal Branch	cycad@lantic.net	98 Grysduiker Rd, Florauna, Pretoria, 0182	012 5656175	012 5656175		
Fletcher, Colin	Landowner	colinfletcher@telkomsa.net	P.O. 200, Port Alfred, 6170	046 6250650		082 8909638	

Friedmann, Yolán	CBSG Southern Africa / EWT	yolanf@ewt.org.za	Private Bag X11, Parkview, 2122	011 4861102	011 4861506	082 9903534	
Gleaves, Tommy	Landowner	bgleaves@imagnet.co.za	P.O. Box 6022, Market Square, Grahamstown, 6141	046 6228234	046 6228234	082 5572629	
Hahndiek, Quintus	Department of Economic Affairs Environment and Tourism	Quintus.Hahndiek@deaet.ecape.gov.za	Private Bag X1006, Grahamstown, 6140	046 6227216	046 6227270		
Hannan, Ricky	Biodiversity and Coastal Management: Amathole	ricky.hannan@deaet.ecape.gov.za	Private Bag 9060, Southernwood, 5200	043 7420340	043 7420323	082 9393506	No picture available
King, Nick	Endangered Wildlife Trust	nickk@ewt.org.za	Private Bag X11, Parkview, 2122	011 4861102	011 4861506		

Miller, Phil	Conservation Breeding Specialist Group (CBSG)	pmiller@cbsg.org	12101 Johnny Cake Ridge Road, Apple Valley, MN 55124-8151 USA	01 9529979802	01 9529979803		
Morrison, Kerryn	Endangered Wildlife Trust (EWT)	kerryn@ewt.org.za	Private Bag X11, Parkview, 2122	011 4861102	011 4861506	082 8775126	
Newton, David	TRAFFIC East / Southern Africa	david.newton@ewt.org.za	Private Bag X11, Parkview, 2122	011 4861102	011 4861506	082 4374006	
Pienaar, Jaap	Department of Economic Affairs Environment and Tourism	jaap.pienaar@deaet.ecape.gov.za	Private Bag X0054, Bhisho, 5605	040 6094717	040 6094700	082 8531844	
Schultz, Wendy	Permit Officer	Wendy.Schultz@deaet.ecape.gov.za	Private Bag 9060, Southernwood, 5200	043 7420340	043 7420323		

Tyali, Thembinkosi	Department of Economic Affairs Environment and Tourism	Thembinkosi.Tyali@deaet.ecape.gov.za	Private Bag X5001, Green Acres, Port Elizabeth, 6057	041 5085800	041 5851958		
Voigt, Werner	South African National Biodiversity Institute (SANBI)	voigt@sanbi.org	Kirstenbosch Botanic Gardens, Private Bag X7, Claremont, Cape Town, 7735	021 7998899	021 7976570	082 5934256	

Appendix 2: Participants Goals and Hopes

Workshop participants were asked to write down the answers to the following two questions:

1. What do you want to accomplish at this workshop?
2. What do you think you can contribute to this workshop?

I wish to accomplish	I wish to contribute	Primary challenge for sustainable
A better relationship with Nature Conservation.	My 50 years experience in looking at <i>E. latifrons</i> .	<ul style="list-style-type: none"> ▪ Sustain present adult populations. ▪ Breed seedlings to bring down the value of adult plants.
Preservation of the species.	Will see what the outcome will be.	Mainly pollination and control of the plant.
<ul style="list-style-type: none"> ▪ Management plan for <i>E. latifrons</i>. ▪ Strategy to implement such a plan. 	My experience and expertise.	<ul style="list-style-type: none"> ▪ To establish <i>E. latifrons</i> reserve. ▪ Enough incentive for landowners to protect the species. ▪ Improve capacity of compliance and enforcement staff in the province (Eastern Cape) to ensure effective law enforcement. ▪ Determine total status <i>in-situ</i> and <i>ex-situ</i> of <i>E. latifrons</i>.
Find a way forward to help <i>E. latifrons</i> to survive in nature.	What ever knowledge I have on this species.	To get landowners together with conservation to protect and help this species survive.
<ul style="list-style-type: none"> ▪ To find a way or ways to ensure the continued survival of cycads starting with <i>E. latifrons</i>. ▪ Also on awareness of the species biology, etc. ▪ Management plans. 	The little knowledge I know.	Awareness and education of the importance of the continued survival of the species and a sense of responsibility to protect these custodians.
Bevorder samewerking tussen die verskillende organisasies betrokke by Broodbome.	Versamelaar se standpunt en rol.	
Discuss threats to the conservation of <i>E. latifrons</i> and ways to combat them.	I can offer commitment to law enforcement with my skills.	Enough law enforcement personnel and incentives to retain staff, discourage relocation to other provinces.
<ul style="list-style-type: none"> ▪ A mediated resolution to the current friction 	Dedication to the conservation of the species.	Establish sense of ownership and

<p>between <i>E. latifrons</i> landowners and DEAET to achieve a common goal.</p> <ul style="list-style-type: none"> ▪ The re-establishment and conservation of the problem population. 		<p>partnership in the conservation of <i>E. latifrons</i> and contribute to the establishment of the species within the distribution range.</p>
<ul style="list-style-type: none"> ▪ Contribute to plans to save <i>E. latifrons</i> from extinction. ▪ Improve cooperation between all the role players. 	<p>Participate in discussions and groups and share some experiences.</p>	<ul style="list-style-type: none"> ▪ Poaching. ▪ Poor cooperation between role players.
<ul style="list-style-type: none"> ▪ To have a workable / sustainable strategy / action plan in place in order to ensure the survival of <i>E. latifrons</i> in the wild. ▪ Buy-in from all stakeholders in such strategy / action plan. 	<p>Provide input in ensuring the above is indeed achieved.</p>	<p>Successful implementation of strategy / action plan.</p>
<p>Effective conservation of rare cycads in South Africa, taking into account the regional nature of the trade.</p>	<p>Trade perspectives.</p>	<p>Illegal trade.</p>
<p>Implementable strategy that will ensure survival of species in the wild and possible improve the numbers through some plan / intervention, must be developed in the workshop.</p>	<p>Experience / knowledge, gained from 20 years work in conservation both as a scientist and later as a manager.</p>	<ul style="list-style-type: none"> ▪ Illegal collections / high commercial value. ▪ Landowner apathy. ▪ Landowner, conservation conflict. ▪ Authority.
<ul style="list-style-type: none"> ▪ Find common ground – agreements between participants ▪ Build good networks and relationships with all stakeholders. ▪ Come up with a framework of strategies, plans, tasks with achievable goals. 	<ul style="list-style-type: none"> ▪ Willingness to assist in fieldwork. ▪ Contribute some knowledge on cultivation. 	<p>Buy-in and cooperation of all stakeholders.</p>
<ul style="list-style-type: none"> ▪ Setting up action plan ▪ Cooperation between stakeholders ▪ Conservation 	<p>Practicalities regarding cycads in habitat and trade.</p>	<ul style="list-style-type: none"> ▪ Action to be taken. ▪ Effective cooperation between stakeholders. ▪ Allowing landowners to benefit from their plants.
<ul style="list-style-type: none"> ▪ Survival plan. ▪ Do-able actions. ▪ Clear role for different stakeholders. ▪ Testing of PHVA process for cycads. 	<ul style="list-style-type: none"> ▪ Scientific expertise. ▪ Big picture for cycads. ▪ Will to find a solution. 	<ul style="list-style-type: none"> ▪ Getting effective conservation on private land. ▪ Boosting population numbers.
<p>An optimal strategy to conserve <i>E. latifrons</i>.</p>	<p>Interest.</p>	<ul style="list-style-type: none"> ▪ To bring private collections back into

		<p>the gene pool. Also, overseas plants?</p> <ul style="list-style-type: none"> ▪ Root and basal suckers? ▪ South African Fisheries etc. to donate plant food etc.
<ul style="list-style-type: none"> ▪ Solid understanding of <i>E. latifrons</i> population dynamics over 100's of years and potential for conservation interventions. ▪ Establish template for other cycad species. 	<ul style="list-style-type: none"> ▪ Ideas on conservation strategy to link top-down policy with bottom-up hands-on conservation work. ▪ Ensure we get a field-trip or two to actually see plants in the wild! 	<ul style="list-style-type: none"> ▪ Monitoring adults in the wild, understanding population dynamics and implementing interventions. ▪ Multi-stakeholder cooperation and common objectives.
<ul style="list-style-type: none"> ▪ Greater awareness of the danger of the species. ▪ To ensure survival of the species. ▪ Trust. 	<ul style="list-style-type: none"> ▪ To listen and learn and pass on information. ▪ To other <i>E. latifrons</i> owners 	Greater cooperation between plant owners and Nature Conservation – must be benefit for both parties.
A conservation plan with buy-in from all stakeholders.	A bit of modelling where I can.	Getting all stakeholders to work together to ensure the future for the cycad.

Appendix 3: Workshop Programme

ALBANY CYCAD POPULATION AND HABITAT VIABILITY ASSESSMENT

17 – 21 July 2006

Protea Hotel, Bathurst, Eastern Cape, South Africa

MONDAY 17TH JULY 2006

18h30 - Delegates arrive, registration and icebreaker

19:00 – 20:00 DINNER

Ice Breaker sponsored by the South African National Biodiversity Institute

TUESDAY 18TH JULY 2006 - DAY 1

BREAKFAST

08:30 – 09:00 Welcome - John Donaldson (SANBI) and Nick King (EWT)

09:00 – 10:30 Presentations

- Dinosaurs of the plant kingdom.
(**Colin Fletcher, Landowner**)
- Government conservation efforts – *E. latifrons*
(**Jaap Pienaar, Eastern Cape Department of Economic Affairs, Environment and Tourism**)

10:30 – 11:00 TEA BREAK

11:00 – 11:30 Introduction to the CBSG, CBSG Southern Africa and the workshop process

11:30 – 12:00 Introduction to Vortex

12:00 – 13:00 Plenary Session: Identify key issues

13:00 – 14:00 LUNCH BREAK

14:00 – 14:30 Formation of Working Groups and overview of task one

14:30 – 15:30 Working groups convene and begin on first task

15:30 – 16:00 TEA BREAK (future breaks self-regulated)

16:00 – 16:30 Working Group sessions

16:30 – 17:30 Plenary – First Working Group Reports

19:00 – 20:00 DINNER

WEDNESDAY 19TH JULY 2006 - DAY 2

07:30 – 08:30 BREAKFAST

08:30 – 09:30 Working groups convene to make changes to first reports

09:30 – 10:30 Plenary on goals / solutions and filters

10:30 – 11:00 TEA BREAK and group photos taken

11:00 – 13:00 Working groups convene and begin second task

13:00 – 14:00 LUNCH BREAK

14:00 – 15:00	Plenary session to present and discuss goals / solutions
15:00 – 15:30	Working Groups convene to continue with second task
15:30 – 16:00	TEA BREAK
16:00 – 17:30	Working Groups convene and finalise second task
19:00 – 20:00	DINNER

THURSDAY 20TH JULY 2006 - DAY 3

07:30 – 08:30	BREAKFAST
08:30 – 09:30	Plenary session to complete task two
09:30 – 10:30	Discussion of third task: Strategies and Action plans
10:30 – 11:00	TEA BREAK
11:00 – 13:00	Working Groups reconvene to carry on with task three
13:00 – 14:00	LUNCH BREAK
14:00 – 15:00	Plenary Session to report back on task three
15:00 – 15:30	TEA BREAK
15:30 – 17:30	Working Groups reconvene to carry on with task three Plenary session to finalise task three
19:00 – 20:00	DINNER

FRIDAY 21ST JULY 2006 - DAY 4

07:00 – 08:00	BREAKFAST
08:00 – 10:30	Working Groups reconvene to finalise reports Group integration: Prioritise all solutions
10:30 – 11:00	TEA BREAK
11:00 – 12:30	Plenary session to present working group reports, discuss management recommendations and report completion Workshop closure and survey
13:00 – 14:00	LUNCH BREAK Departure by delegates

Appendix 4: The Endangered Wildlife Trust and CBSG Southern Africa



Endangered Wildlife Trust



**CONSERVATION BREEDING
SPECIALIST GROUP**
SOUTHERN AFRICA



The Endangered Wildlife Trust (EWT) is one of the largest non-governmental conservation organisations in southern Africa and was established in 1973. Widely recognised by its prominent red cheetah spoor logo, the EWT conserves biodiversity through the hands-on conservation of threatened species and their habitats, in a sustainable and responsible manner. Coordinating more than 100 field-based conservation projects and with 18 specialist Working Groups operating throughout southern Africa, Endangered Wildlife Trust programmes cover a wide variety of species and eco-systems and play a pivotal role in conserving southern African biodiversity and natural resources.

Vision Statement:

A healthy planet and an equitable world that values and sustains the diversity of all life.

Mission:

The Endangered Wildlife Trust is dedicated to conserving threatened species and ecosystems in southern Africa to the benefit of all people.

The Endangered Wildlife Trust with its access to a rich and diverse range of conservation expertise established CBSG Southern Africa in partnership with the CBSG, SSC / IUCN in 2000. Nine CBSG regional networks exist worldwide, including CBSG Indonesia, India, Japan, Mesoamerica, Mexico, Sri Lanka, Europe and South Asia. Regional CBSG networks are developed in regions requiring intensive conservation action and each network operates in a manner best suited to the region and local species. CBSG tools are adapted according to the needs and requirements of regional stakeholders and species and local expertise is utilised to best effect.

CBSG Southern Africa's mission is: To catalyse conservation action in southern Africa by assisting in the development of integrated and scientifically sound conservation programmes for species and ecosystems, building capacity in the regional conservation community and incorporating practical and globally endorsed tools and processes into current and future conservation programmes.

CBSG Southern Africa, operating under the banner of the Endangered Wildlife Trust is a non-profit, non-governmental organisation, serving the needs of the *in-situ* and *ex-situ* conservation community in southern Africa through the provision of capacity building courses, species and organisational Action Planning, Population and Habitat Viability Assessment (PHVA) and Conservation Assessment and Management Planning (CAMP) workshops, communication networks, species assessments and a host of other CBSG processes for species and ecosystem conservation. CBSG Southern Africa works with all stakeholders in the pursuit of effective biodiversity conservation throughout southern Africa.

Contact CBSG Southern Africa on:

+27 (0)11 486 1102 / cbsgsa@ewt.org.za / www.ewt.org.za / [cbsg](http://cbsg.org)