

# WORKING WITH FACTORS AFFECTING THE NATURAL FOREST HABITAT OF THE CAPE PARROT

<sup>1</sup>C.L. Henderson and <sup>2</sup>C.T. Downs

<sup>1</sup>BirdLife South Africa (BLSA), Randburg

<sup>2</sup>School of Biological & Conservation Sciences, University of KwaZulu-Natal, Pietermaritzburg

## Abstract

The Cape Parrot, *Poicephalus robustus*, is an Endangered species that relies almost entirely on Afromontane *Podocarpus* forest patches for its survival. These forest patches are shrinking due to several factors including collection of firewood, clearing of land for agriculture or forestry, uncontrolled fires, illegal and legal logging. The forest patches may be losing larger trees and some food sources trees for the Cape Parrot are becoming scarce.

Cape Parrots are closely associated with yellowwood species (*Podocarpus*) and use them as nesting sites as well as their major food source. Yellowwoods, however are a sought-after commodity and are exposed to illegal felling in poorly regulated areas. In other areas private contractors harvest old dead trees. These dead trees (snags) are vital to the continued existence of the parrots, as these snags readily form hollows, left by fallen branches, which are the preferred nesting sites for the Cape Parrot.

What can we do to help save the Cape Parrot and its forest habitat? What projects can we initiate or participate in that will promote sustainable living in communities around forest patches - and how do we get funding for these projects? These and other questions on the effects of utilisation of indigenous forest patches on Cape Parrots and other wildlife are discussed in this article.

## 1. Introduction

This presentation is not a scientific paper but rather an introduction to the Endangered Cape Parrot and its forest habitat, and to the objectives and projects of the BirdLife South Africa - Cape Parrot Working Group (CPWG), in a bid to promote the conservation of South Africa's only endemic parrot. The talk I am presenting is based on slides put together by Colleen Downs for the working group, and includes work done by Mike Perrin, the late Olaf Wirminghaus, Craig Symes, Louise Warbuton and numerous other members of the CPWG. This written version of the talk follows the presentation. Finally, as Cape Parrots are restricted to forest habitat, this Natural Forest and Woodlands Savanna Symposium seemed the ideal forum to raise conservation issues surrounding the parrot and its habitat and to invite discussion on projects to help conserve them.

## 2. The Cape Parrot

The Cape Parrot, *Poicephalus robustus*, is classified as Endangered under IUCN/Birdlife International threat criteria and is listed on CITES Appendix II. The Red Data Book for Birds of South Africa, Lesotho and Swaziland lists Cape Parrots as Rare and Endangered (Downs, 2000), but they are seen as Critically Endangered in the Eastern Cape where the bulk of the population is found. In each annual census over the past 3 years, around 1000 individual parrots have been counted, but as not all potential sites are surveyed, it is likely that around 1200 individual Cape Parrots are left in the wild.

Cape Parrots were previously considered a subspecies in a group which included Grey-headed Parrots (*Poicephalus fuscicollis fuscicollis*) and Brown-necked Parrots (*Poicephalus fuscicollis suahelicus*) (Forshaw, 1989). Clancey (1997), however, suggested that Cape Parrots should be seen as a separate species due to ecological and biogeographical distinctness. Clancy's work was supported by Wirminghaus *et al.* (2002a), with the added weight of morphometric analysis. Cape Parrots are now accepted as a full species by the majority of people, as seen in new bird guides (Sinclair *et al.*, 2005; Hockey *et al.*, 2005), even though the genetic analysis study of the group still needs to be completed. Brown-necked Parrots occur far north in Africa (Gambia area) and are completely isolated from Cape Parrots. Grey-headed Parrots are a savanna woodland-miombo species that occurs in the low-lying woodlands of southern central Africa. They do not occur in KwaZulu-Natal or the Eastern Cape, but do occur near the Woodbush area where a small isolated population of Cape Parrots occurs in the *Podocarpus* (yellowwood) forests (edge of north-eastern Mpumalanga and the Limpopo Province).

### 3. Distribution

The distribution of the Cape Parrot is very fragmented. It extends from forest patches at Katberg, in the Eastern Cape, through the Hogsback and the Amatola ranges around Stutterheim, patches along the inland and coastal escarpments near Mthatha and Port St Johns, and in KwaZulu-Natal, through various Afromontane forest patches around Weza, Creighton and the midlands as far as Karkloof (see on the map!) (Wirringhaus *et al.*, 1999). These patches are discontinuous and not much exchange of parrots or genes is likely to occur between most of the patches. The relic population in Limpopo is completely isolated from the rest of the Cape Parrot populations.

### 4. A bird that does not help itself...

Cape Parrots are slow to breed, they need specific breeding sites and they are specialist feeders: these factors combine to make it hard for them to survive habitat loss and degradation.

Cape Parrots breed after 5 to 6 years in secondary cavities, mainly in *Podocarpus* species. The secondary cavities are mostly found in snags (old dead trees sticking out above the canopy of the forests). Two to five eggs are laid but only one or two chicks survive to fledging. Cape Parrots have a long incubation period of 24 to 28 days and a very long fledging period of 62 to 72 days (Wirringhaus *et al.*, 2002b). Recruitment in populations, therefore, can be very slow.

The kernels of seeds from *Podocarpus* species make up a large part of the Cape Parrot diet. Their bills are strong enough to allow them to crack open the kernels of the seeds and extract the contents. The parrots, therefore, do not distribute the seeds by eating the fruit, like most frugivorous birds. The availability of fruiting yellowwood trees influences the parrots seasonal movements (Wirringhaus *et al.*, 2002c). The parrots do feed on other forest trees (see table below) and will feed outside forests when food is scarce (Wirringhaus *et al.*, 2002c). They have learnt to feed on pecan nuts and in fruit orchards, however, this has made them very unpopular in some areas. Two decades ago many Cape Parrots were shot for raiding orchards (they do a great deal of damage), now farmers are using various methods to scare them off.

**Table 1. List of food trees for Cape Parrots, taken from various sources**

<b>Tree Species</b>	<b>Fruiting Time</b>
<i>Podocarpus falcatus</i> (Outeniqua yellowwood)	Aug – Mar / all year (peaks Dec-Jan)
<i>Podocarpus latifolius</i> (Real yellowwood)	Jul – Sep (ripen Dec – Feb)
<i>Celtis africana</i> (White stinkwood)	Oct - Feb
<i>Protea caffra</i> (Highveld protea)	Nov – Feb (flowers) fruits thereafter
<i>Scutia myrtina</i> (Cat-thorn)	Feb - Apr
<i>Podocarpus henkelli</i> (Henkel's yellowwood)	Aug – Mar
<i>Ptaeroxylon obliquum</i> (Sneezewood)	Dec - Feb
<i>Rapanea melanophloeos</i> (Cape beech)	Sep - Mar
<i>Apodytes dimidiata</i> (White pear)	Dec - Jun
<i>Calodendrum capense</i> (Cape chestnut)	Jan - May
<i>Prunus africana</i> (Red stinkwood)	Sep - Jan
<i>Olea capensis</i> (Ironwood)	Feb - Sep
<b>Some sources give the following:</b>	<b>(not confirmed in research papers)</b>
<i>Pittosporum viridiflorum</i> (young leaves)	May - Sep
<i>Harpephyllum caffrum</i> (Wild plum / Umgwenya)	Nov - Mar
<i>Commiphora woodii</i> (Forest commiphora)	Feb - Apr
<i>Mimusops caffra</i> (Coast red-milkwood)	Apr - Sep
<i>Erythrina caffra</i> (Coast erythrina) (nectar)	Oct - Dec
<i>Scolopia mundii</i> (Red pear)	Mar - Aug
<i>Pterocelastrus</i> (Candlewood)	(not sure which species)
<i>Kiggelaria africana</i> (Wild peach)	Feb - Jul
<i>Ficus ingens</i> var. <i>ingens</i> (Red-leaved rock fig)	Jun - Dec
<i>Ficus sur</i>	Sep - Mar
<i>Halleria lucida</i> (Tree –fuchsia)	Jun - Feb
<i>Mystroxydon aethiopicum</i>	Jun - May
<i>Olea europaea</i> subsp <i>africana</i> (Wild olive)	Mar - Aug
<i>Rhus chirindensis</i> (Bostaabos)	Dec - Mar

Some of the alien species eaten, include:

*Acacia mearnsii* (Black wattle)

*Melia azedarach* (Syringa)

*Caraya illinoensis* (Pecan nuts)

*Eucalyptus* spp (Gums)

Wild Cherry, Peaches, Apricots, Apples, Pears

## 5. Possible reasons for decline

Interactions and effects of threatening processes on Cape Parrots are not well understood but the following factors seem to have played a roll in their observed decline: forest degradation and habitat loss, removal of birds from the wild, disease and predation.

### 5.1 Forest degradation

Forest Degradation has resulted largely from the following:

- i. The long history of logging by settlers, recent selective logging and current illegal logging.
- ii. Removal of dead trees (snags) with the resulting loss of nest / potential nest-sites.
- iii. Change in quality and availability of the forest-food
- iv. Current great pressure on forest fragments in rural areas of Eastern Cape & KwaZulu-Natal (firewood, grazing, building material, muthi collection)

### 5.2 Trade

Removal of birds from the wild for the avicultural and pet trade:

- i. Ten years ago Cape Parrots sold at R2 000 per pair, currently they are around R45 000 per pair in the avicultural trade
- ii. No Cape Parrots are found in USA (there are Grey-headed Parrots there which are still called Cape Parrots by some breeders, which sometimes causes confusion)
- iii. A few Cape Parrots occur in Zoos in Europe (recent reports of new arrivals)
- iv. There are possibly a few Cape Parrots in Asia
- v. Cape Parrots are still being sold at the side of road for R50 in some places, especially in rural areas where education is lacking.

The fine for trading illegally in Cape Parrots is unsuited to this sort of incident as those involved are often children or unemployed people. Fines of R100 000, added to the value of the bird, are being set in some provinces, or a jail sentence of up to 10 years. We hope rather to address the opportunistic trading by local people through education and awareness programmes.

### 5.3 Disease

- i. Psittacine Beak & Feather Disease Virus (PBFDV) occurs in both wild and captive Cape Parrots; work done on this (Heath *et al* 2004) has shown different strains in wild and captive parrots, as well as in the different provinces
- ii. Various types of Avian flu can affect Cape Parrots.

### 5.4 Predators

Impacts from predators are not easy to assess and further ecological study is required:

- i. Gymnogenes may take chicks
- ii. Various mammals may predate young birds as well as adults ( the parrots are very vulnerable when they come to seepages to drink)
- iii. There has been an increase in Black Sparrowhawks with forestry

## 5.5 Other

Various human impacts, some of which are not currently relevant include: trade for financial gain, crop protection, collection for muthi, or hunting of parrots for food or to be traded to buy food.

## 6. What is being done

### 6.1 Cape Parrot Working Group

The Cape Parrot Working Group was set up in 2001 by concerned individuals, after results from PhD research by the late Olaf Wirminghaus highlighted the conservation threats to the Cape Parrot (seen as a separate species to the Grey-headed Parrot). The group aimed to conserve the Cape Parrot and its habitat. Later workshops were held, in conjunction with BLSA, to identify stakeholders for the group, assess the threats to both the parrots and their habitat, prioritise the actions required to conserve them, and thereafter to compile a Species Action Plan for the Cape Parrot and its habitat. The group was taken on by BLSA in 2003 and the Species Action Plan was compiled by the November of that year.

The CPWG consists of a wide variety of stakeholders, from foresters, conservationists, educators and academics to farmers, bird enthusiasts, aviculturists and other interested people. Stakeholders can focus on activities that are most important / pertinent to them in the protection of the Cape Parrot and its environment. There are research groups at three universities as well as volunteers and champions for the cause who help with the annual count, a committee to steer the group, a studook keeper to keep records of all the captive birds and a co-ordinator to facilitate these various activities, to write fundraising proposals and to interact with other relevant groups (such as the Indigenous Forests and Woodlands conference). During the year, articles by various members of the group appear in newspapers, magazines and scientific journals. Talks are given at schools, universities and to private groups such as nature or bird clubs. Television and radio interviews and documentaries have also allowed the group to reach a wider audience and to raise awareness about the plight of the parrot and its forest habitat.

### 6.2 Objectives of the Species Action Plan

The working group is committed to follow the objectives set out in the Species Action Plan. In brief these are:

Objective 1: *To provide alternative development opportunities for the communities living close to the forests within the Parrot's range in order to enhance the livelihoods of adjacent communities.*

This objective has proved the most difficult to implement without sufficient funding. Various development opportunities have been investigated such as indigenous and exotic tree planting schemes combined with the setting up of nurseries for indigenous trees and medicinal plants, alternative firewood schemes, and the promotion of fuel-efficient stoves or alternate fuel sources. Proposals for funding such schemes have been submitted or are still being written. I am sure many at this symposium are involved in forest management committees and community projects around forests. Please contact us as we would very much like to discuss these projects with you.

Objective 2: *Develop an environmental education programme.*

The CPWG is a stakeholder in the Biodiversity and Environmental Education Programme (BEEP), run by KZN-Wildlife and the Endangered Wildlife Trust. The programme introduces educators to Endangered species (and their habitats) in their areas. One of these species is the Cape Parrot and its forest habitat. The educators are then able to take the information back to their schools in a way that slots into their curricula. A mini-summit is held each year for learners to present their ideas on what they have learnt and the presentations / outcomes are very encouraging.

The CPWG is also involved in National Bird Week (first week of May), initiated by BLSA, where schools and the general public are educated about the importance of birds and their habitats (here, the Cape Parrot). The week culminates in the annual census of the Cape Parrot (first weekend in May) and allows volunteers for the count to become familiar with the Cape Parrots and threats to the parrots' survival. The CPWG has had interactive exhibitions at the last two National Schools Science Festivals, in order to reach a wider audience than the regional schools reached by the BEEP programme. This year we encouraged the

children to explore various scenarios in computer models of extinction risk, showing them how vulnerable small populations are to various threats and environmental instability.

Objective 3: *To set up a comprehensive national policy on the conservation and sustainable utilisation of the Cape Parrot in captivity and the wild*

Members of the CPWG from conservation bodies, special services, trade in endangered species, forestry and other bodies have made good progress in this regard. Legislation is slower and more difficult to deal with in some of the provinces, but recent work by the chairman and committee have made great strides in achieving this objective. An Operations Manual has been set up to collate this information.

Objective 4: *To reduce the ongoing illegal felling of Yellowwood trees within the Cape Parrot's range*

This objective involves working closely with the Department of Water Affairs and Forestry, private forestry companies and small commercial loggers. In most places the felling of yellowwoods has been discontinued or reduced greatly. Illegal loggers pose a larger problem, which many people here are trying to address. Fortunately, scenes such as the one shown of the pile of yellowwoods illegally logged in 2001, are not common.

Objective 5: *Increase the food supply of Cape Parrots by planting food source trees*

This objective is being partly addressed in some of the current seed and tree planting schemes but more community involvement is required, to tie this to the first objective. Again I am sure that relevant schemes are already in place or have been thought about by many of the delegates at this symposium and we would love to discuss these ideas with you.

Objective 6: *Successfully complete research projects investigating Cape Parrot movements, social organisation, breeding biology, status as a crop pest, disease, and habitat quality in terms of Cape Parrot requirements*

Research is ongoing at the University of KwaZulu-Natal (UKZN). At the moment a forensic project is investigating DNA finger printing of Cape Parrots to help prevent illegal trade. All captive birds could be fingerprinted and any confiscated birds compared with them.

The data from the annual census is collated and analysed at UKZN and other projects on the Cape Parrot, such as the setting up of artificial nest boxes, are being undertaken there. Funding for a major ecological study on Cape Parrots, however, has not been forthcoming but is sorely needed to generate base-line data for conservation planning.

Research on Psitticine Beak and Feather Disease virus and vaccines for this disease has been carried out at both the University of Cape Town and the University of the Free State. Progress has been made with vaccines. Further funding is required to take these projects further.

Objective 7: *Enable the CPWG to develop an infrastructure to realise the objectives of the action plan*

The working group has struggled for funding since its inception and needs a long-term sponsor to remain effective. Support from BLSA and UKZN allows the group to continue but many projects cannot be undertaken without the necessary funding and people to implement them. Working with other organisations allows further projects to be undertaken and we look forward to collaboration with many of you.

### **6.3 Important ongoing project: The Annual Census (Cape Parrot Big Birding Day - CPBBD)**

For the past nine years an annual census has been undertaken for the Cape Parrot, organised by Colleen Downs from University of KwaZulu-Natal. Over the years more volunteers have participated and more forest patches have been covered which has enabled the count to become more reliable. I recognise many DWAF and other people here who help with the count in their areas – thank you. Without all of you, the count would not be possible. Next year will be the tenth successive year for the count and we ask you to put in a big effort to cover all the forest patches in your areas. It will be a milestone count and is scheduled for **Saturday 5th May and Sunday 6th May**. Please contact us to participate!

The census has been developed around Cape Parrot behaviour. The parrots roam widely each day in search of food and are not predictably detectable in forest patches during the day. They are active in the early morning and late afternoon as they fly from and to their nightly roosts. Counters, therefore, use this time to count the individuals as the parrots leave and return to forest patches.

Counters are set up at good vantage points above or below forest patches from late afternoon until after sunset on the Saturday afternoon and again from just before first light until a few hours after sunrise on the Sunday morning. They record number of birds seen, time, direction of flight, the presence of males, females or juveniles, where these can be distinguished, and other relevant details. Adjoining counts are compared to prevent duplication. Some difficulties pertaining to such a count are bad weather, incomplete coverage of the parrots' distribution, bad vantage points for the volunteers and volunteers who lack experience.

Below are figures taken from the CPBBD report for 2005 (Downs, 2005). As the number of volunteers (and the number of forest patches surveyed) have increased, so has the number of parrots detected; the last four years were comparable in numbers of volunteers – and parrots (2002 was lower because bad weather made it impossible to count in some forest patches).

**Table 2. Number of Observers and Parrots for CPBBD 1998-2005**

<b>Year</b>	<b>Number of observers</b>	<b>No. parrots pm Saturday</b>	<b>No. parrots am Sunday</b>
1998	136	179	321
1999	155	237	282
2000	118	460	459
2001	153	316	356
2002	339	476	634
2003	332	717	885
2004	336	1021	994
2005	339	894	969

**Table 3. Summary of Cape Parrot Numbers 2004**

<b>Area</b>	<b>Cape Parrots in afternoon</b>	<b>Cape Parrots in morning</b>
KZN	323	365
NE Eastern Cape	177	175
Central Eastern Cape	494	421
Limpopo Province	27	33
	<b>1021</b>	<b>994</b>

**Table 4. Summary of Cape Parrot Numbers 2005**

<b>Area</b>	<b>Cape Parrots in afternoon</b>	<b>Cape Parrots in morning</b>
KZN	350	244
NE Eastern Cape	181	127
Central Eastern Cape	403	488
Limpopo Province	35	35
	<b>969</b>	<b>894</b>

We held our 2006 count on the weekend of 7<sup>th</sup> and 8<sup>th</sup> May and look forward to the results.

## 7. Conclusion

The CPWG is committed to conserving the Cape Parrot and its habitat. We hope to have raised awareness about its plight and its dependence on indigenous forest, at this symposium. Conversely, I will take away ideas for further projects, to the Cape Parrot Working Group, and we hope to be able to implement them in conjunction with groups here.

## Acknowledgements

The BLSA-CPWG is indebted to the following sponsors and volunteers: WWF-SA, World Parrot Trust, BirdLife International, BLSA and its branches, Mazda Wildlife, Wildlands Trust, Natal Ornithological Trust, DWAF, KZN Wildlife, Eastern Cape Nature Conservation, University of KwaZulu-Natal, CPBBB Co-ordinators & Volunteers, Green Belt Mapping. Jean Pattison & American Aviculturists, The Tony and Lisette Lewis Foundation and many private individuals.

Photographs used in the presentation were taken by: O. Wirminghaus, C.T. Downs, M. Hammerton, W. Horsfield, C. Symes, M. Brown, L. Warburton & M. Cunningham.

## References

- CLANCEY, P.A. (1997). The Cape Parrot: an Additional Valid Species. *Honeyguide* 43: 61-62.
- DOWNS, C.T. (2000). Cape Parrot *Poicephalus robustus*. In: BARNES K.N. (ed.). The Eskom Red Data Book of South Africa, Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- DOWNS, C.T. (2005). Counting Parrots-Report on the 2005 Cape Parrot Big Birding Day.
- FORSHAW, J.M. (1989). *Parrots of the World*, 3rd edition. Lansdowne Editions.
- HEATH, L., MARTIN, D.P., WARBURTON, L., PERRIN, M., HORSFIELD, W., KINGSLEY, C., RYBICKI, E.P. & WILLIAMSON, A. (2004). Evidence of unique genotypes of beak and feather disease virus in Southern Africa. *Journal of Virology* 78 (17): 9277-9284.
- HOCKEY, P.A.R., DEAN, W.R.J. & RYAN, P.G. (2005). *Roberts – Birds of Southern Africa (7<sup>th</sup> edition)*. John Voelcker Bird Book Fund and Black Eagle Publishing, Cape Town.
- SINCLAIR, I. & RYAN, P. (2005). *Birds of Africa South of the Sahara*. Struik Publishers
- WIRMINGHAUS, J.O. (1997). Cape Parrot *Poicephalus robustus*. In: Harrison J.A., Allan D.G., Underhill L.L., Herremans M., Tree A.J., Parker V. & Brown C.J. (eds.). *The Atlas of Southern African Birds*. Volume 1, BirdLife South Africa, Johannesburg, pp. 526-527.
- WIRMINGHAUS, J.O., DOWNS C.T., SYMES C.T. & PERRIN M.R. (1999). Conservation of the Cape Parrot in southern Africa. *South African Journal of Wildlife Research* 29:118-129.
- WIRMINGHAUS J.O., DOWNS C.T., PERRIN M.R. & SYMES C.T. (2002a). Taxonomic relationships of the subspecies of the Cape Parrot *Poicephalus robustus* (Gmelin). *Journal of Natural History* 36: 361-378.
- WIRMINGHAUS J.O., DOWNS C.T., SYMES C.T. & PERRIN M.R. (2002b). Breeding biology of the Cape Parrot *Poicephalus robustus*. *Ostrich* 72: 159-164.
- WIRMINGHAUS, J.O., DOWNS, C.T., SYMES, C.T. & PERRIN, M.R. (2002c). Feeding ecology and feeding behaviour of the Cape Parrot *Poicephalus robustus*. *Ostrich* 73: 20-25.

## **SECTION 2**

---

### **SAVANNAH WOODLANDS: SCIENTIFIC CONTRIBUTIONS**