# The Meyer's Parrot
## - an African parrot

**By STEVE BOYES, Research Centre for African Parrot Conservation, University of KwaZulu-Natal**

**With the widest distribution of any other African parrot and common throughout its range, the Meyer's Parrot (*Poicephalus meyeri*) can be considered to be the parrot best suited to life on the African continent. The Meyer's Parrot has previously not been studied in the wild and their habitat requirements are relatively unknown. No prior conservation action for the Meyer's Parrot has been implemented. Changes on the continent may align to threaten this little known parrot, as we see live capture and persecution escalating. The species has been observed as a crop pest throughout its range predominantly due to man's encroachment on their habitat, the resultant conflict between the two species is escalating and needs to be managed correctly.**

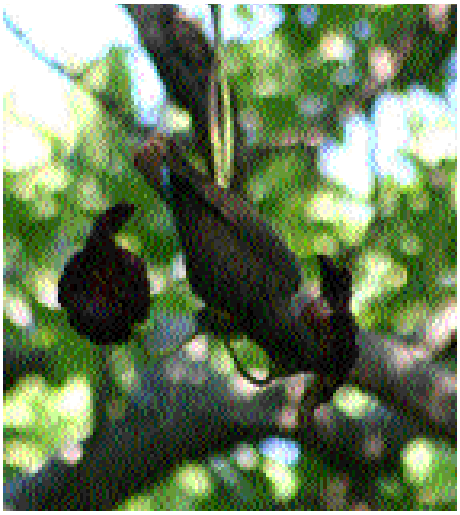

Photo: Steve Boyes

*Meyer's Parrot feeding on a Sausage Tree flower (Kigelia africana).*

The Research Centre for African Parrot Conservation (RAPC) has done work on the Brown-headed Parrot (*Poicephalus cryptoxanthus*), the Ruppel's Parrot (*Poicephalus rueppelli*), and the Cape Parrot (*Poicephalus robustus*), thus specializing in the *Poicephalus* species that have seen decline in or have limited population and/or distribution. The Meyer's Parrot Project was started in the Okavango Delta, Botswana, on the southern tip of its range in 2004. This project looked at the interaction of two subspecies of the parrot, *Poicephalus m. damarensis* and *Poicephalus m. transvaalensis*, distinguished from each other by a yellow patch on their crown and forced together by the persecution of the species as a crop pest in the Northern Province, South Africa. From this study, the designs for a broader project were generated, a project looking at answering questions as to why this parrot has been so successful in Africa and maintained six similar sub-species through its range. The study in the Okavango Delta indicates that its wide distribution is supported by habitat-tolerance with a preference for broad-leaved or savanna woodland. For 2006, the study will remain in the Okavango Delta, continuing to look at nest site characteristics, habitat preferences, the food item calendar, daily flight activity, breeding biology, and vocalisations, thus providing the tools for the analysis of the other subspecies through Africa in 2007. These data will provide us with a clear picture of the continental requirements of this species for the first time, and set a benchmark for parrot conservation in Africa.

I would like to put forward the hypothesis that all the *Poicephalus* species have a common lineage from the Meyer's Parrot. This is supported by the fact that the distribution of the Meyer's touches on (with limited discontinuity) the known distributions of all the other *Poicephalus* species - no other species is geographically continuous with all the others. The Meyer's Parrot has been found to be a food item generalist throughout its range, while the other *Poicephalus* species researched have shown, to varying degrees, a dependence on a limited number of food items within their primary habitat. I put forward that this could be used as an indicator of the age of the species. Basically, a precursor for speciation is the isolation of the gene pool through a vicariance event. Time is an important factor that needs to be accounted for, and feeding behaviour could be an indicator of this. It can be hypothesized that once a subspecies becomes more and more dependant on specific food items to enable them to move into new habitat types and plant communities as they become available, thus allowing the subspecies to isolate itself and divergent evolution to set up a new species over time. DNA sequencing of blood samples taken from as many *Poicephalus* species and subspecies as possible could be used to distinguish convergence and true phylogenetic relationships between the *Poicephalus* species. A considerable amount of time is required for physiology to change in line with food items and conditions in a new habitat type (e.g. a bigger bill or smaller size), and thus there should be a long period during which the species is vulnerable to changes in the habitat, especially if these changes impact on the food items or nest cavities the "emergent" species is specialising in (e.g. the harvesting of Yellowwood (*Podocarpus falcatus*) in South Africa contributing to the rapid decline of the Cape Parrot). Hybridisation between the different *Poicephalus* species has been observed in captivity and reported in the wild. The Meyer's Parrot has been confirmed to hybridise with the Ruppell's Parrot and the Brown-headed Parrot in captivity, and has been reported to "hybridise extensively" in the wild in a contact zone between their distributions. This is evidence of the close genetic association between the *Poicephalus* species.

How do we then prioritise biodiversity conservation? Should we focus on endangered species in the wild and allocate resources reactively? Yes, investment should focus on programs that support endangered species, but how are we

Photos: Steve Boyes

*Typical lanscape of the Okavango Delta in flood 2005. Riverine forest is the primary habitat of the Meyer's at this time of year.*

Photo: Steve Boyes

*Fledgling Meyer's Parrot feeding on the Sausage fruit Kigelia africana. Stripping the fruit in half to expose the seeds.*

assessing status and are the methods we are using proactive? The Meyer's Parrot Project could be used to tackle these theoretical problems by examining the possibility of divergent evolution from the Meyer's Parrot, the possible correlation of the age of the species and susceptibility to decline due to disturbance, and the possibility of using DNA analysis as a means of identifying species that are younger and thus more vulnerable. This, used in conjunction with existing indicators, could be used as a conservation prioritisation tool in the future. Of course, discussions such as these are overshadowed by the fact that any relationship finds itself influenced by innumerable other relationships and factors. For the relationship between age of the species and susceptibility to decline to stand climate must remain constant, no exotic species are to be introduced, and live capture and trade must be constant for all species being assessed.

The Meyer's Parrot Project has already yielded some quite interesting results over the past one and half years in the Okavango Delta. The intensive study site was located in Kwedi Concession on the NE edge of the Okavango Delta, an area reputed for its diversity of habitat types (with all 11 land classifications represented). The first year of the project was aimed at the study of the breeding biology, feeding biology and nest site characteristics of the species, while mapping the study site, delineating the vegetation communities, recording climate, and developing a food item calendar for frugivorous birds in the Okavango Delta (for comparison with the food item calendar generated for the Meyer's). There were 51 potential food items, including the Sausage Tree flowers and fruits (*Kigelia Africana*), the pods from the Silver Terminalia (*Terminalia sericea*), the unripe fruits from the African Ebony (*Diospyros mespiliformis*), African Mangostene Garcinia livingstoni and Marula (*Sclerocarya birrea subsp. Caffra*), and the figs from the Sycamore Fig (*Ficus sycamorus*) throughout the year. The parrots were observed to be feeding on 38 different food items in the study area over 2004/2005, and preferences mirrored availability on the food item calendar. Consistently you would find the parrots feeding on the unripe fruits, so as to avoid competition with baboons and monkeys. The parrots were never present if the baboons or monkeys were feeding in the canopy. The parrots only feed on the kernels or seeds of the fruits and pods, and very seldom were observed eating the flesh. We will do crop analysis of the chicks in the coming season. The parrots were observed to freely associate with other frugivorous birds feeding in the canopy, only becoming competitive and defensive when around an active nest site or roosting cavity.

They were observed to successfully ward off attempts to capture fledglings by a Little Sparrowhawk (*Accipter minulius*), and nest were observed to be robbed by a Gymnogene (*Polyboroides typus*), Fish Eagle (*Haliaectus vocifer*) and Tree Monitor. Gymnogene were observed frequently investigating nest sites, so would be assumed to be primary predator of the Meyer's Parrot. The Meyer's was observed to compete for nest cavities with Lilac-Breasted Roller (*Coracius caudatus*), Burchell's starlings (*Lamprotornis australis*), Woodland Kingfishers (*Halcyon senegalensis*), and Red-billed Woodhoopoes (*Phoeniculus purpurea*).

Even though the parrots are secondary cavity nesters, they were observed to modify the nest cavities by widening the entrance and excavating the main chamber of the nest hole. Over the period, April - June, the primary breeding season of the Meyer's, ten out of the twelve active sites were in Knobthorn Acacia (*Acacia nigrescens*), with the other two being in a Baobab (*Adansonia digitata*) and Mopane (*Colophospermum mopane*). Basically, the parrots seemed to be selecting nest cavities excavated by barbets or woodpeckers, 6-12m above the ground, and in a dead tree or a tree with a large portion of dead canopy. From this an interesting association can be drawn. Knobthorn Acacias are heavily disturbed by elephant throughout their range, whereby they strip the bark past the cambium, thus killing off portions of the canopy or eventually ring-barking the tree. So, in the absence of elephant disturbance there would be less dead branches, less open parts of the canopy, and thus less potential nest sites for the Meyer's Parrot. Every Knobthorn Acacia with a nest cavity had a dead portion of the canopy and evidence of elephant disturbance on the trunk. This is probably not a limiting factor, but an interesting interrelationship nonetheless.

Up until this point we have been supported by exclusively by the RAPC and Wilderness Safaris, and thus have been limited in our resources. Our trusty vehicle at the moment is a 1972 Series 3

Photos: Steve Boyes

*Meyer's Parrot nesting in a dead Knobthorn Acacia (Acacia nigrescens) - this was an active nest site producing one fledgling.*

Photo: Caitlin Lepper

*Young Meyer's Parrot socialising in the mid-morning. Arch-angelling, allo-preening and preening in the sun. In the winter.*

LandRover, and has taken us through two rainy seasons with the odd crank and a bit of care. Okavango Wilderness Safaris has provided us with access to these remote wilderness areas and the ideal study site. Otherwise, we gathered together the radio telemetry, vocalisation and climbing equipment from past RAPC projects and the university community. Acquiring funding has been difficult in that the Meyer's is not threatened. We need future donors or funding to enable us to venture forward into the next stage of the project, whereby we use the Meyer's Parrot as the centre piece in a broader project looking at all nine *Poicephalus* species in Africa. The project would require transport and living costs for a 9-month research trip through Central and Eastern Africa. The project would focus on gathering data on the six sub-species of the Meyer's Parrot, and gathering blood samples from as many of the *Poicephalus* species and sub-species, thus enabling us to distinguish convergence and true phylogenetic relationships between the *Poicephalus* species through DNA analysis. The project would complete the story of the Meyer's Parrot and that of the Poicephalus parrots, an African story and a valuable project.

If any person or agency would like to contribute as a donor or provide technical assistance (e.g. DNA sequencing) to the Meyer's Parrot Project, then they can contact myself, Steve Boyes, on meyersproject@yahoo.com or Prof. Mike Perrin on perrin@ukzn.ac.za. The World Parrot Trust could also be contacted for further details.

The Research Centre for African Parrot Conservation at the University of KwaZulu-Natal is a non-profit organisation and experienced in administering research grants and donations to the fund.