



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

**Behavioural ecology and population genetics of the African wild
cat, *Felis silvestris* Forster 1870, in the southern Kalahari**

by

Marna Herbst

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To my parents and my brother, for their love and support



**Radio collared African wild cat, *Felis silvestris*
in the Kgalagadi Transfrontier Park**

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Forster 1870, in the southern Kalahari**

Marna Herbst

Supervisors: Prof. M.G.L. Mills
Tony and Lisette Lewis Foundation

Prof. P. Bloomer
Head Department of Genetics
Molecular Ecology and Evolution Program
University of Pretoria

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Summary

The motivation for this study was to increase our knowledge on the natural history of the African wild cat and to investigate the genetic status of the Kalahari population. Hybridisation with the domestic cat is a global threat to the genetic integrity of the species. The Kalahari population was selected due to the isolation of the area and the slight possibility of contact with domestic cats. Radio telemetry and direct visual observations (1,538 hours) of eight habituated African wild cats (five male and three female) were used to address the feeding habits, foraging behaviour, spatial organisation and reproduction in wild cats. Throughout the study small skin biopsies were collected from both African wild cats and domestic cats from surrounding communities in order to address the potential of hybridisation and population genetic structure.

The Kalahari ecosystem not only experience annual dry and wet seasons but also longer lean and abundant periods that in turn influence rodent abundances and hence prey availability for the cats. This plays an important role in nearly all aspects of African wild cat behavioural ecology. The feeding habits of the African wild cat were discussed in the view of the optimal foraging theory. The lean season were characterised by a high species richness and high dietary diversity. African wild cats adapt their diet and foraging behaviour to seasonal prey abundances and availability. Male African wild cats were significantly larger than female cats and both sexes predominantly fed on smaller rodents, although there were

differences in diet composition with males hunting larger mammals and females favouring birds and reptiles.

Despite sexual dimorphism male and female cats show little differences in time budgets and both exhibit a two peak activity period with a strong seasonal shift from predominantly nocturnal during the hotter seasons to more diurnal activity in the colder seasons. The major factors influencing activity patterns and habitat use appears to be prey abundances and temperature extremes.

As predicted male African wild cats had significantly larger annual home ranges than female cats (MCP 95%, $\sigma = 7.7 \pm 3.5 \text{ km}^2$ and $\sigma = 3.5 \pm 1.0 \text{ km}^2$). Female cats shows extensive overlap of home ranges, however the core areas were mostly exclusive while male-male overlap were limited and show no overlap of core areas. There were no differences in seasonal ranges between male and female cats and thus reproduction seems to be aseasonal and depending on food availability. Urine spray marking in males were prominent with territorial behaviour and aggression observed, while female spray marking seems to be related to their reproductive status.

In our study we report the genetic variation and admixture analysis of 57 wild living African wild cats and 46 domestic cats using 18 microsatellite loci. Bayesian cluster analysis support the classification of African wild cats and domestic cats as two distinct entities and identified four cryptic hybrids among the wild cats. Although all hybrids were outside or on the periphery of the KTP, suggesting that levels of introgression are low, this is still a concern to the genetic integrity of African wild cats as a species.



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God is in the details

~ Unknown ~



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