

Research and Monitoring

Published literature

The Addo elephants are probably the world's most comprehensively recorded elephant population. Elephant research began in earnest in 1976 when Dr. Anthony Hall-Martin researched the Addo elephant population. In this study he built up a complete photographic identification file for the population (a total of 96 elephants in May 1978), documented the sex, estimated age, and developmental status of all individuals, and kept records of births and deaths within the population. Additionally, notes were kept on observed association patterns and social behaviour.

Further intensive research began in 1996 when Anna Whitehouse identified, named and compiled photographic identification files of all elephants. When Anna completed her work in 2001 she had identified 325 individuals. This identification work continues as a component of other projects currently being undertaken on the elephant by the Terrestrial Ecology Research Unit (TERU) at the Nelson Mandela Metropolitan University. Association patterns were observed to determine which elephants belonged to which family group and which calves belonged to which cows. Maternal family trees dating back to the creation of the park in 1931 were reconstructed using photographs and written records. Other factors investigated included ranging behaviour, impact on vegetation and population genetics and paternity. Students from the TERU are currently continuing with elephant research in the park in the Nyati concession area and main camp looking at size sex, and population specific foraging behaviour as well as social organisation within the family groups.

Research funded by the National Science Foundation in the USA determines how elephant use chemical signals to communicate. A number of projects have already been completed at Masters level. Research includes topics such as determining if adult male African elephants discern between receptive and non-receptive urine from cycling female African elephants, which would suggest the presence of a pheromone that signals sexual readiness.

Researchers from the University of Oldenburg in Germany have studied the breeding colony of the Southern Red Bishop bird since 1993 in terms the environmental factors that influence the breeding success of the population, as well as factors influencing reproductive success of individuals. Reproductive behaviour and sexual selection of breeding males are key focal areas in this research. Territories, pair bonds, number of eggs per nest and number of fledglings are recorded. This research has mostly been conducted at the wetland area near reception.

Black rhino research has included research funded by the San Diego Zoological Society to determine how black rhino use chemical signals to communicate, specifically by means of olfactory reception will hopefully shed light on how this species adapts to new environments after translocation into areas with or without resident rhino. Another TERU project focuses on the different browse strata used by black rhino; the effect that elephants have on rhino habitats and the competition between elephant and black rhino in terms of feeding. The implications of such interspecific interactions are likely to affect how the species are managed in future.

SANParks own rehabilitation ecologist, Ayanda Sigwela was recently awarded his Ph.D. in Zoology and conducted research in Addo that investigated the ecosystem services associated with transformed and untransformed thicket using forage value and seed dynamics as indicators of such services. Ayanda currently works within the Arid Ecosystems Research Unit based in Port Elizabeth.

addo elephant
agulhas
augrabies falls
bontebok
camdeboo
garden route
golden gate highlands
karoo
kgalagadi transfrontier
kruger
mapungubwe
marakele
mokaia
mountain zebra
namaqua
table mountain
tankwa karoo
west coast
|ai-|ais/richtersveld

Following the inclusion of the Alexandria dune field and Bird and St. Croix island groups into the park there are also a number of projects that monitor the populations of seabirds and marine fish and mammals in Algoa Bay.

Most recently, new research projects have begun on the newly introduced large predators (lion and spotted hyena) in the park. A post-doctoral researcher affiliated to the TERU is looking at their behaviour, diet, social interactions and habitat use while AERU researchers are investigating the prey response in terms of behaviour and habitat use to the release of the predators.

Monitoring of the ecological parameters within national parks is an integral part of park management. Monitoring effort is usually focused on the vegetation communities and large mammal components as it is felt that these will act as surrogates for many species, habitats and processes that cannot be monitored as easily.

Annual total count aerial helicopter surveys of all large mammal species has been carried out in the AENP since 1978. Additional surveys are also undertaken to monitor the performance of threatened species such as the black rhino. These surveys were largely restricted to the original elephant camp that has grown slowly over the years but recently these surveys have been expanded to include the Greater Addo sections such as Darlington Dam, Zuurberg and Nyati.

Additional monitoring activities include assessing the population status of African black oystercatchers along the stretch of sandy beach between the Sundays River mouth and Wood Cape, as well as vegetation monitoring programmes that have been initiated to look at the long terms structural changes using aerial photography.

Research:

- Lombard, A.T., Johnson, C.F., Cowling, R.M. & Pressey, R.L. 2001. Protecting plants from elephants: botanical reserve scenarios within the Addo Elephant National Park, South Africa. *Biological Conservation* 102: 191-203.
- Knight, M.H., Kshatriya, M., Van Jaarsveld, A.S., Nicholls, A.O. & Hall-Martin, A.J. 2001. Evaluating herbivore extinction probabilities in Addo Elephant National Park, South Africa. *African Zoology* 36(1): 13-22.
- Karczmarski, L., Cockcroft, V.G., McLachlan, A. & Winter, P.E.D. 1998. Recommendations for the conservation and management of humpback dolphins *Sousa chinensis* in the Algoa Bay region, South Africa. *Koedoe* 41(2): 121-129.
- Landman, M. & Kerley, G.I.H. 2001. Dietary shifts: do grazers become browsers in the Thicket Biome? *Koedoe* 44(1): 31-36.
- Woodd, A.M. 1999. A demographic model to predict future growth of the Addo elephant population. *Koedoe* 42(1): 79-100.
- Paley, R.G.T. & Kerley, G.I.H. 1998. The winter diet of elephant in Eastern Cape Subtropical Thicket, Addo Elephant National Park. *Koedoe* 41(1): 37-46.
- Castley, J.G., Bruton, J-S., Kerley, G.I.H. & McLachlan, A. 2001. The importance of seed dispersal in the Alexandria Coastal Dunefield, South Africa. *Journal of Coastal Conservation* 7: 57-70.

addo elephant

agulhas

augrabies falls

bontebok

camdeboo

garden route

golden gate highlands

karoo

kgalagadi transfrontier

kruger

mapungubwe

marakele

mokaia

mountain zebra

namaqua

table mountain

tankwa karoo

west coast

|ai-|ais/richtersveld



- Castley, J.G., Kerley, G.I.H. & McLachlan, A. 2001. Biotic processes in a coastal dunefield: an assessment of seed removal, with non-native seed removal experiments. *Journal of Coastal Conservation* 7: 49-56.
- Whitehouse, A.M. & Harley, E.C. 2001. Post-bottleneck genetic diversity of elephant populations in South Africa, revealed using microsatellite analysis. *Molecular Ecology* 10: 2139-2149.
- Whitehouse, A.M., Hall-Martin, A.J. & Knight, M.H. 2001. A comparison of methods used to count the elephant population of the Addo Elephant National Park. *African Journal of Ecology* 39: 140-145.
- Whitehouse, A.M. & Hall-Martin, A.J. (2000) Elephants in Addo Elephant National Park, South Africa: reconstruction of the population's history. *Oryx* 34: 46-55.
- Whitehouse, A.M. (2002) Tusklessness in the elephant population of the Addo Elephant National Park, South Africa. *Journal of Zoology* 257: 249-254.
- Whitehouse, A.M. & Irwin, P.R. (2002) A field guide to the Addo elephants. International Fund for Animal Welfare / Rhodes University Environmental Education Unit, Port Elizabeth
- Whitehouse, A.M. & Kerley, G.I.H. (in press) Retrospective assessment of long-term conservation management of elephants in Addo Elephant National Park, South Africa. *Oryx*.
- Whitehouse, A.M. & Harley, E.H. (in press) Paternity in the Addo elephant population, south Africa. Is a single male monopolising matings? *African Zoology*
- Whitehouse, A.M. & Schoeman, D.S. (in press) Ranging behaviour of elephants within a small, fenced area in Addo Elephant National Park, South Africa. *African Zoology*.
- Whitehouse, A.M. (2001) The Addo elephants: conservation biology of a small, closed population. Unpublished PhD thesis, University of Port Elizabeth, Port Elizabeth.

addo elephant

agulhas

augrabies falls

bontebok

camdeboo

garden route

golden gate highlands

karoo

kgalagadi transfrontier

kruger

mapungubwe

marakele

mokaia

mountain zebra

namaqua

table mountain

tankwa karoo

west coast

|ai-|ais/richtersveld

Recent Published Literature:

Lombard, A.T., Johnson, C.F., Cowling, R.M. & Pressey, R.L. 2001. Protecting plants from elephants: botanical reserve scenarios within the Addo Elephant National Park, South Africa. *Biological Conservation* 102: 191-203.

Knight, M.H., Kshatriya, M., Van Jaarsveld, A.S., Nicholls, A.O. & Hall-Martin, A.J. 2001. Evaluating herbivore extinction probabilities in Addo Elephant National Park, South Africa. *African Zoology* 36(1): 13-22.

Karczmarski, L., Cockcroft, V.G., McLachlan, A. & Winter, P.E.D. 1998. Recommendations for the conservation and management of humpback dolphins *Sousa chinensis* in the Algoa Bay region, South Africa. *Koedoe* 41(2): 121-129.

Landman, M. & Kerley, G.I.H. 2001. Dietary shifts: do grazers become browsers in the Thicket Biome? *Koedoe* 44(1): 31-36.



Woodd, A.M. 1999. A demographic model to predict future growth of the Addo elephant population. *Koedoe* 42(1): 79-100.

Paley, R.G.T. & Kerley, G.I.H. 1998. The winter diet of elephant in Eastern Cape Subtropical Thicket, Addo Elephant National Park. *Koedoe* 41(1): 37-46.

Castley, J.G., Bruton, J-S., Kerley, G.I.H. & McLachlan, A. 2001. The importance of seed dispersal in the Alexandria Coastal Dunefield, South Africa. *Journal of Coastal Conservation* 7: 57-70.

Castley, J.G., Kerley, G.I.H. & McLachlan, A. 2001. Biotic processes in a coastal dunefield: an assessment of seed removal, with non-native seed removal experiments. *Journal of Coastal Conservation* 7: 49-56.

Whitehouse, A.M. & Harley, E.C. 2001. Post-bottleneck genetic diversity of elephant populations in South Africa, revealed using microsatellite analysis. *Molecular Ecology* 10: 2139-2149.

Whitehouse, A.M., Hall-Martin, A.J. & Knight, M.H. 2001. A comparison of methods used to count the elephant population of the Addo Elephant National Park. *African Journal of Ecology* 39: 140-145.

Whitehouse, A.M. & Hall-Martin, A.J. (2000) Elephants in Addo Elephant National Park, South Africa: reconstruction of the population's history. *Oryx* 34: 46-55.

Whitehouse, A.M. (2002) Tusklessness in the elephant population of the Addo Elephant National Park, South Africa. *Journal of Zoology* 257: 249-254.

Whitehouse, A.M. & Irwin, P.R. (2002) A field guide to the Addo elephants. International Fund for Animal Welfare / Rhodes University Environmental Education Unit, Port Elizabeth

Whitehouse, A.M. & Kerley, G.I.H. (in press) Retrospective assessment of long-term conservation management of elephants in Addo Elephant National Park, South Africa. *Oryx*.

Whitehouse, A.M. & Harley, E.H. (in press) Paternity in the Addo elephant population, south Africa. Is a single male monopolising matings? *African Zoology*

Whitehouse, A.M. & Schoeman, D.S. (in press) Ranging behaviour of elephants within a small, fenced area in Addo Elephant National Park, South Africa. *African Zoology*.

Whitehouse, A.M. (2001) The Addo elephants: conservation biology of a small, closed population. Unpublished PhD thesis, University of Port Elizabeth, Port Elizabeth.

addo elephant

agulhas

augrabies falls

bontebok

camdeboo

garden route

golden gate highlands

karoo

kgalagadi transfrontier

kruger

mapungubwe

marakele

mokaia

mountain zebra

namaqua

table mountain

tankwa karoo

west coast

|ai-|ais/richtersveld

To develop, manage and promote a system of national parks that represents the biodiversity and heritage assets by applying best practice, environmental justice, benefit sharing and sustainable use.



South African
NATIONAL PARKS

Contact details/enquiries:

Dr Ayanda Sigwela

Tel: +27(0)41 508 5411

E-mail: asigwela@upe.ac.za

Dr. Matt Hayward is studying the newly introduced lions.

The Southern Red Bishop has been the subject of more than ten years of research in the park.

[addo elephant](#)

[agulhas](#)

[augrabies falls](#)

[bontebok](#)

[camdeboo](#)

[garden route](#)

[golden gate highlands](#)

[karoo](#)

[kgalagadi transfrontier](#)

[kruger](#)

[mapungubwe](#)

[marakele](#)

[mokaia](#)

[mountain zebra](#)

[namaqua](#)

[table mountain](#)

[tankwa karoo](#)

[west coast](#)

[|ai-|ais/richtersveld](#)

643 Leyds Street
MUCKLENEUK
0002

P.O. Box 787
PRETORIA
0001

Tel: 012 426-5000

central reservations: 012 428 9111
reservations@sanparks.org
www.sanparks.org