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.
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 term structural chances using aerial photography.

Research:


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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.