Research Projects at Samara

Samara Private Game Reserve aims to restore the biodiversity of the Great Karoo and its human and animal populations through judicious land management, sound environmental policies and enlightened employment ethics with a view to sustainability for every generation to come.

Investigating the prey preference of cheetah and developing a model to determine cheetah carrying capacity.

In collaboration with the Nelson Mandela Metropolitan University we are investigating the prey preference and carrying capacity of cheetah. Monitoring of radio-collared cheetah and faecal analysis to determine species, sex and age distributions of cheetah prey, as well as predation rates on Samara. This prey selection data as well as similar information from other reserves would allow for the development of a model determining, given the size and antelope specificities on a reserve, how many cheetahs could be sustained. This would be beneficial to Samara and applicable to many other reserves. Volunteers in Samara’s Wildlife Programme would be involved in cheetah tracking and synthesizing the data. At Samara we have worked closely with the De Wildt Cheetah and Wildlife Trust in our cheetah rehabilitation projects.

Vervet monkey research

Commonly associated with the forests of Tropical Africa, the Karoo’s Vervet Monkeys must deal with the harsh Karoo environment, including boiling summers, freezing winters and rivers that rarely provide them with water. Despite this adversity they thrive in the Great Karoo, however with climate change promising harsher conditions, the questions of how they manage to survive and their complex social lives has become even more important.

Several projects from five universities are researching to; map the vegetation used by Vervets and determine the amount of food available to them; understand how the need to regulate body temperature and avoid predators while also getting enough to eat and drink, drives the monkeys’ use of space across the seasons; identify stress responses and the ability of the animals to deal with disease; and to address the social consequences of life in this difficult environment.

Samara is the ideal research laboratory and some startling discoveries have already been made about this remarkable monkey species. We are working in collaboration with the University of Alberta, the University of South Africa, the University of Lethbridge, Canada, the University of St. Andrews and the University of Aberdeen, Scotland.

Spekboom Project

As environmental awareness increases people are becoming more aware of damaging carbon emissions, however not everyone is conscious of what can be done to reduce the amount of carbon in the atmosphere. Research indicates that pristine thicket areas within South Africa hold more carbon compared to transformed or over-grazed land. Further to this, there are specific plant species that have particularly effective levels of carbon sequestration. One of the most effective plants is the Spekboom (Portulacaria Afra) which grows predominantly in the Eastern Cape. Samara Private Game Reserve is rich in spekboom habitat and has launched a project to facilitate the re-generation of previously over-grazed land on the reserve through the planting of Spekboom. In order to maintain heterogeneity of the area, additional plant species will also be identified and planted. We have been working with the University of Rhodes in planting transects of Spekboom on Samara and will be monitoring these exclosures on an ongoing basis.
Cape Mountain Zebra

In 2009 we participated in research in collaboration with Halszka Hrabar and Professor Graham Kerley of Nelson Mandela Metropolitan University monitoring population growth of this highly endangered species on private reserves and in National Parks.

Other research projects:

Other research projects that we would like to encourage are; research into the social behaviour of meerkats; the reintroduction of leopard and black rhinoceros (*Diceros bicornis bicornis*).

**Developing and Testing Models of Mammal Community Structure in the Eastern Karroo, South Africa**

A. van Cauter

Successful management and sustainable development of a protected area requires reliable information on the distribution and abundance of biodiversity elements. But, because gathering this information from scratch is time consuming, expensive and fraught with logistical challenges, many have taken to modeling approaches as a tool to help inform managers.

To assess whether these modeling techniques produce accurate and reliable information for use at landscape scales, a project (link to MSc on ACE’s website) was developed by Samara, together with researchers from the Centre for African Conservation Ecology at Nelson Mandela Metropolitan University.

Lead by An van Cauter, researchers assessed plant community characteristics, resulting in a map (link to map on Samara website) illustrating ten major vegetation types for correlation with information on use by different mammal species. Map accuracy was tested using Geographical Information Systems techniques, leading to a publication in a scientific journal. (link to PDF of paper on http://www.sabinet.co.za/abstracts/wild/wild v35 n2 a7.html)

Next, the team produced modeled potential distribution maps and carrying capacity estimates for 38 mammal species based on methods used in regional conservation planning initiatives. Finally, these models were compared to published information and observed census data from Samara, to determine the accuracy and value of the models, which in this case, was a great success!

This work has not only provided valuable information for the long-term management of the biodiversity in Samara, but also shows that methods previously only used to assess regional conservation efforts can be equally valuable for medium size private reserves.

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