

Research Activities at the Kalahari Research Centre

MEERKATS

Meerkats are desert-adapted mongooses that live in groups of 2-50 individuals headed by a dominant pair that monopolise group-level reproduction. To assist the dominant pair in their reproductive efforts, subordinate helpers of both sexes engage in a wide range of cooperative behaviours (pup feeding, allo-lactating, babysitting, sentinel behaviour) that both increase the survival of pups and promote the continued existence of the group in the face of often intense competition with neighbours. For all their cooperation, meerkat societies are also characterised by high levels of conflict in the form of evictions, infanticide, and behaviourally-mediated reproductive suppression, all of which have evolved as strategies to either maintain dominance or secure access to limited mating opportunities

The Kalahari meerkat project has followed dozens of meerkat groups for over twenty years in order to answer fundamental questions about the ecology and evolution of cooperative breeding. This work continues to better our understanding of the organisation of cooperation in mammalian societies, the consequences of individual differences in cooperative behaviour, the hormonal mechanisms underlying suppression and reproductive conflict, and the effects of cooperative breeding on population demography. A large research effort is also dedicated to the communication processes operating between individuals, the coordination of group movement decisions, and the epigenetic changes surrounding dominance acquisition. The volunteers are the heartbeat of the project, collecting core behavioural, life history and faecal data and ensuring the population remains habituated and individually recognisable.



The work of a meerkat volunteer

A typical field day in the life of a volunteer starts at the sleeping burrow of a meerkat group, just after dawn, when the meerkats slowly start emerging. All meerkats in our population are habituated and can be identified by non-toxic dye marks on their body. This enables us to get daily individual weight recordings by having the meerkats stand on an electronic scale in exchange for a small reward of food or water (see photo above). After weighing, volunteers will join the

meerkat group on their foraging trip, recording ad libitum behavioural data and regular GPS locations for 3 hours. Meerkats forage by using their front paws to dig out grubs and insects and they have a particular fondness for scorpions, which they incapacitate by biting off their stinger before eating them. During such trips, meerkats can also encounter various predators or other meerkat groups and such encounters can sometimes turn violent. At the end of the 3-hour observation period all individuals are weighed a second time and volunteers then return to the research station to enter their data and have an afternoon break which includes lunch. Meerkats usually show reduced activity during the hottest parts of the day (between noon and 14:00), especially during the hot summer months.

In the afternoon, two-three hours before sunset, the group is tracked using radio telemetry (see the radio collar in the picture above) and volunteers join the meerkat group once more as they move through their territory. Towards the end of this observation, the group usually picks up the pace as they make their way towards one of their sleeping burrows (not necessarily the same one as the previous night). The meerkats are then weighed one final time, the location of their sleeping burrow is marked, and volunteers return to the research station for data entry and dinner.

While a typical day of data collection might look something like described above, there are a whole range of other tasks and responsibilities that (more experienced) volunteers can pick up, which are mostly, but not exclusively related to field work. Meerkat volunteers work five and a half days a week, with one day completely off and Sundays obtaining morning- and afternoon weights only.

Example references:

Clutton-Brock & Manser. 2016. Meerkats: cooperative breeding in the Kalahari. In *Cooperative breeding in vertebrates* (eds. Koenig & Dickinson). Cambridge University Press, Cambridge.

Demartsev et al. 2018. Vocal turn-taking in meerkat group calling sessions. *Current Biology*, 28, 3661-3666.

Paniw et al. 2019. Life history responses of meerkats to seasonal changes in extreme environments. *Science*, 363, 631-635.

