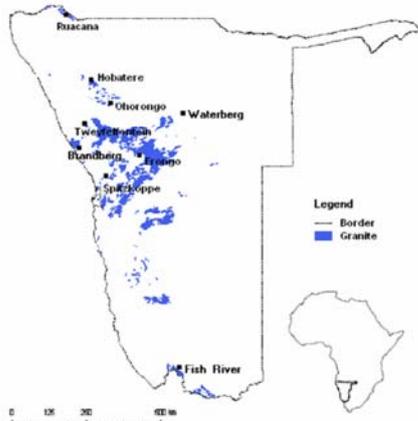




Introducing The Black Mongoose

Figure 1: Study site: granite inselbergs in Namibia



This map was modified from: Atlas of Namibia Project (2002) Directorate of Environmental Affairs, Ministry of Environment and Tourism, Namibia (http://209.88.21.36/Atlas/Atlas_web.htm)

Background

The black mongoose (*Galerella nigrata*) is endemic to Namibia's granite inselbergs north of Spitzkoppe (Fig. 1).

Initially described by Thomas (1928) there has been much controversy surrounding the species status of the black mongoose and it has been assigned numerous classifications over the years based on behavioural and craniometric data as well as pelage colour.

There has been extended debate about the classification of all mongooses in the *Galerella* genus (Fig. 2).

The use of DNA is important when producing phylogenies as it distinguishes similarities due to shared ancestry from misleading phenotypic similarities due to convergence (Bjorklund 1999). However, to date, molecular techniques have not yet been used to elucidate phylogenetic relationships among *Galerella* sp..

In this study we confirm the species status of the black mongoose.

Defining a species

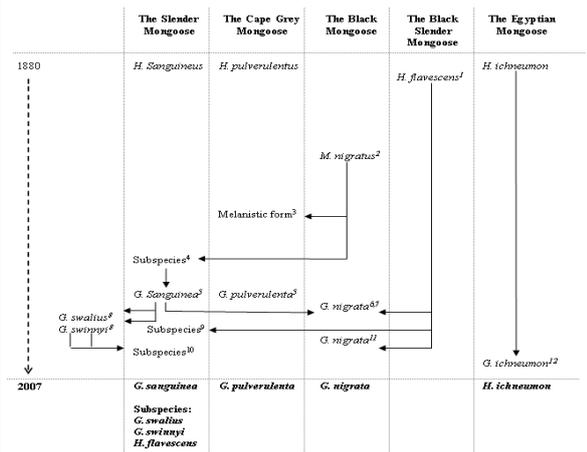
To date, a total of 37 black mongooses and 4 slender mongooses have been trapped. Genetic samples were collected at five different sites (Spitzkoppe, Erongo, Tweyfelfontein, Ohorongo and Hobatere; Fig. 1).

The black mongoose is clearly a monophyletic clade (Fig. 3). Given this evidence as well as craniometric data (Watson and Dippenaar 1987) and the fact that it lives in sympatry with its sister species (the slender mongoose, *Galerella sanguinea*), we conclude that the black mongoose is a species separate from other mongooses in the *Galerella* genus.

Results also suggest that there is some phylogeographical structure among populations of the black mongoose (Fig. 3).



Figure 2: Confusion over the taxonomy of *Galerella* species.



¹ Bocage 1889 – *H. flavescens* is described as a species

² Thomas 1928 – *M. nigritus* is described as a species

³ Ellerman et al. 1953 – suggested *M. nigritus* is a melanistic variant of *H. pulverulentus*

⁴ Cotezce 1977 – assigned *M. nigritus* as a subspecies of *H. sanguineus*

⁵ Watson and Dippenaar 1987 – small African *Herpestes* species are assigned to a new genus: *Galerella*

⁶ Watson and Dippenaar 1987 – the black mongoose is again given species status: *G. nigrata*

⁷ Crawford-Cabral 1989 – suggests *H. flavescens* is same species as *G. nigrata*

⁸ Watson 1990 – *G. swainsoni* and *G. swinnyi* are separated out as species from *G. sanguinea*

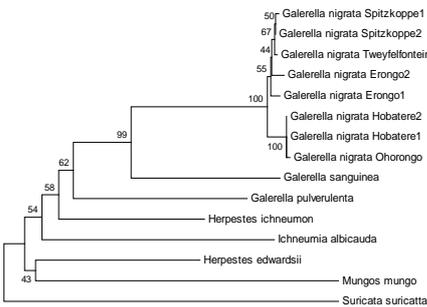
⁹ Taylor and Goldman 1993 – suggests *H. flavescens* is a subspecies of *G. sanguinea*

¹⁰ Taylor and Goldman 1993 – conclude that *G. swainsoni* and *G. swinnyi* are subspecies of *G. sanguinea*.

¹¹ Crawford Cabral 1996 – Crawford-Cabral continues to argue that *H. flavescens* is same species as *G. nigrata*

¹² Perez et al. 2006 – *H. ichneumon* found to have a close association with species in the genus *Galerella* however this has not yet been confirmed and it remains *H. ichneumon*

Figure 3: Cytochrome *b* phylogenetic tree



This tree was created using a Neighbour-Joining method, bootstrap values from 1000 replicates are shown. *G. nigrata* (black mongoose) and *G. sanguinea* (slender mongoose) sequences were obtained from this study. *G. pulverulenta* (Cape grey mongoose), *H. ichneumon* (Egyptian mongoose), *I. albicauda* (white-tailed mongoose), *H. edwardsii* (Indian grey mongoose), *M. mungo* (banded mongoose) and *S. suricatta* (meerkat) sequences were obtained from GenBank.

Where to from here?

1. Use nuclear markers to confirm without doubt that the black mongoose is a species in its own right.
2. Use genetic markers to assess the phylogenetic relationships of all suggested species in the *Galerella* genus.
3. Further studies on the phylogeography of the black mongoose with a focus on the conservation of this species and its unique habitat.



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•Hobatere Lodge
•Ohorongo Safaris
•Erongo Conservancy and Erongo Wilderness Lodge
•Tweyfelfontein Conservancy, Aba husb camp and Mowani Mountain Camp
•Spitzkoppe Conservancy and Community Campsite

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