

Tree climbing and denning by Common Dwarf Mongoose *Helogale parvula*

M. HOFFMANN¹, R. L. ROBERTS¹ and J. KERN²

Abstract

Common Dwarf Mongoose *Helogale parvula* is usually portrayed in the published literature as a wholly ground-dwelling mongoose, poorly adapted to climbing trees. Records from three sites show that, in some habitats, Mongooses do make good use of trees, including for denning purposes, although it remains unclear why trees are used for denning when other preferred den sites such as termitaries are available.

Keywords: arboreal, density, Herpestidae, terrestrial

Common Dwarf Mongoose *Helogale parvula* is a small, social mongoose (Herpestidae) widely distributed from the Horn of Africa to the north-eastern parts of South Africa's KwaZulu-Natal province (Kingdon 1977, Creel 2013). Creel (2013) described it as most common in open woodlands, thickets and wooded savannas, particularly where there are termitaria, rock outcroppings or crevices, or hollow logs for use as dens. Waser *et al.* (1995) suggested that the most important determinant of Common Dwarf Mongoose habitat preference is the density of suitable dens, with active or quiescent termite mounds (especially those of *Macrotermes*) being particularly favoured. While it is often observed clambering on termitaria, rocks or logs or branches of fallen trees, it is not commonly considered a climber and tree denning is rarely recorded. Indeed, Rautenbach (1982: 140) noted that "*Helogale parvula* is terrestrial, with no tree climbing whatsoever recorded", a sentiment echoed by Skinner & Chimimba (2005). In his years studying Common Dwarf Mongoose in the Serengeti National Park in Tanzania, Scott Creel (Dept of Ecology, Montana State University, *in litt.* 2014) never saw it denning in trees, although Rood (1983: 458), who studied the same population for a longer period of time, made reference to den sites in "hollow trees". A year-long study of den use in the extreme south of their range found more than three-quarters of dens were in subterranean termitaria with no use of trees recorded (Hiscocks & Perrin 1991). Kingdon (1977: 195) noted "although they often climb short distances up trees, particularly sloping trunks, they are not skilled at it". Taylor (1974) assigned Common Dwarf Mongoose to his 'terrestrial walking and scrambling' category noting that *Helogale* and *Mungos* are notable for having long distal phalanges, features characteristic of fossorial species.

At about 07h45 on 29 September 2013, less than 5 km along the S3 road between Phabeni Gate and Pretoriuskop rest-camp in the southern sector of South Africa's Kruger National Park (Mpumalanga province; about 25°01'S, 31°17'E), two of the authors (MH and RLR) observed a group of around 10–15 Common Dwarf Mongooses leaving what appeared to be a hollow about 1.5 m above the ground in a tall (>5 m) unidentified tree. The Mongooses descended the trunk of the tree head first, and scampered off one after the other once reaching the ground. Park restrictions prohibited alighting from the vehicle and therefore closer examination of the tree or the hollow. Although it is possible that the Mongooses might

have entered the tree for a purpose other than denning, the early hour of the observation for this unequivocally diurnal species (Creel 2013) suggested that they were using the tree for overnight shelter. Here, we present data from longer-term studies showing that, contrary to available information in the published literature, tree denning is not necessarily unusual.

Roughly 100 km north-west of the September 2013 observation site, at Sorabi Rock Lodge Reserve (24°11'S, 30°46'E) in South Africa's Limpopo Province, where JK has a long-running research project on Common Dwarf Mongoose, individuals not only made use of trees as sentinel posts but also for denning. Of 191 known overnight refuges, the majority were termite mounds (108), but rocky crevices (43) and trees (40) were well used. Of nine groups whose home ranges and refuge use were well known, six used hollow trees; in one group, trees accounted for as many as 44% of known refuges (the remainder comprising 16% termite mounds and 40% rocks). Preferred trees included Knobthorn *Acacia nigrescens* and Leadwood *Combretum imberbe*. Mongooses were seen climbing up several meters (as high as 2.5 m; Fig. 1), even when trunks were vertical. When denning in termitaria, Mongoose groups usually marked latrines communally on the mound surface; however, when using trees, latrines were established a few meters from the base of the tree. In a second study site only 10 km from Sorabi Rock Lodge, at Phuza Moya Private Game Reserve (24°15'S, 30°45'E), Common Dwarf Mongooses have also been recorded using tree hollows for denning, albeit more rarely. During an eight-year study, out of 155 overnight refuges used repeatedly by groups, only three were located in trees (two in Knobthorn and one in Marula *Sclerocarya birrea*) (L. Sharpe, Dept of Botany and Zoology, Stellenbosch University, *in litt.* 2014). Here Mongooses also occasionally climbed trees to forage, either chasing prey up trees or climbing up to excavate arthropods and small vertebrates from bark crevices and tree hollows.

Although Common Dwarf Mongoose is evidently not well adapted to tree climbing, the records reported here suggest that in some habitats it uses trees both for sentinel posts and denning. Although the use of trees for refuge might be more common in habitats where termite mounds are scarce, Mongooses at the two South Africa study sites do not appear to be using tree hollows because of a scarcity of suitable termite mounds (for example, at Phuza Moya all three tree-hollow refuges were located within 30 m of well-used termite



Fig. 1. Common Dwarf Mongoose *Helogale parvula* climbing a Knobthorn *Acacia nigrescens* tree, Sorabi Rock Lodge Reserve, Limpopo Province, South Africa, 17 May 2013 (Photo: J. Kern).

mound refuges; L. Sharpe *in litt.* 2014). In the highest density areas of the Serengeti grasslands, Rood (1983) reported densities reaching 31 individuals per km² at the start of the breeding season and home ranges averaging 0.35 km². In the bushveld of Sorabi, average home-range size is smaller (0.25 km²), but at the start of the breeding season population density reached 42 individuals per km² (based on 73 Mongooses in eight groups). It is possible that tree denning may increase when Mongoose density is high and alternative refuges (such as trees) are more readily available to supplement more preferred refuge sites (termite mounds). Clearly, the determinants

of tree denning in Common Dwarf Mongoose remain poorly understood.

Acknowledgements

Benny Rouwhorst is thanked for allowing JK to work on Sorabi Rock Lodge Reserve. We are particularly grateful to Scott Creel for sharing information on his work in the Serengeti, and to Lynda Sharpe and Peter Waser for their constructive comments on the manuscript, as well as for kindly contributing some of their own observations and data from long-term studies.

References

- Creel, S. 2013. Dwarf Mongoose *Helogale parvula*. Pp. 368–373 in Kingdon, J. & Hoffmann, M. (eds) *Mammals of Africa, V. Carnivores, pangolins, equids and rhinoceroses*. Bloomsbury, London, U.K.
- Hiscocks, K. & Perrin, M. R. 1991. Den selection and use by Dwarf Mongooses and Banded Mongooses in South Africa. *South African Journal of Wildlife Research* 21: 119–122.
- Kingdon, J. 1977. *East African mammals: an atlas of evolution in Africa, IIIA. Carnivores*. Academic Press, London, U.K.
- Rautenbach, I. L. 1982. *The mammals of the Transvaal*. Ecoplan Monograph, Pretoria, South Africa.
- Rood, J. P. 1983. The social system of the Dwarf Mongoose. Pp. 454–488 in Eisenberg, J. F. & Kleiman, D. G. (eds) *Advances in the study of mammalian behaviour*. American Society of Mammalogists (Special Publication 7) and Allen Press, Lawrence, KS, U.S.A.
- Skinner, J. D. & Chimimba, C. T. (eds) 2005. *The mammals of the Southern African subregion*, 3rd edn. Cambridge University Press, Cambridge, U.K.
- Taylor, M. E. 1974. The functional anatomy of the forelimb of some African Viverridae (Carnivora). *Journal of Morphology* 143: 307–336.
- Waser, P. M., Elliott, L. F., Creel, N. M. & Creel, S. R. 1995. Habitat variation and mongoose demography. Pp. 421–447 in Sinclair, A. R. E. & Arcese, P. (eds) *Serengeti II: dynamics, management, and conservation of an ecosystem*. University of Chicago Press, Chicago, U.S.A.

¹IUCN Species Survival Commission, c/o United Nations Environment Programme - World Conservation Monitoring Centre, 219c Huntingdon Rd, Cambridge, CB3 0DL, U.K.

Email: mike.hoffmann@iucn.org

²School of Biological Sciences, University of Bristol, Bristol, U.K.