

Desmodillus auricularis – Cape Short-eared Gerbil



Regional Red List status (2016)	Least Concern
National Red List status (2004)	Least Concern
Reasons for change	No change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

Desmodillus is a monotypic genus falling within the subfamily Gerbillinae. This species can be distinguished from other gerbils by their distinctive white patches behind the ears and their short tails (Skinner & Chimimba 2005).

Taxonomy

Desmodillus auricularis (A. Smith 1834)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - MURIDAE - *Desmodillus* - *auricularis*

Common names: Cape Short-eared Gerbil, Short-tailed Gerbil, Namaqua Gerbil, Namaqua Gerbille (English), Kortstertnagmuis, Namakwalandse Nagmuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: *Desmodillus* is a monotypic genus, restricted to southern Africa, with no recognised subspecies (Nel 2013).

Assessment Rationale

Listed as Least Concern in view of its wide distribution within the assessment region, its common frequency in traps and thus presumed large population, and because there are no major threats that could cause population decline. Additionally, climate change may benefit this species by expanding the arid habitats in which it thrives.

Regional population effects: There is likely to be some dispersal across regional borders of Botswana and

Namibia as the range is continuous across the western parts of southern Africa. However, the dispersal capability of this species is likely to be limited by the species' small size and areas of unsuitable habitat. A rescue effect is possible but will be limited in effect.

Distribution

The Cape Short-eared Gerbil is widely distributed across drier western and central southern Africa, ranging from South Africa northwards through Botswana, Namibia and into southwestern Angola. It may also extend marginally into southwestern Zimbabwe (Skinner & Chimimba 2005).

Within the assessment region, this species is restricted to the arid savannah and desert regions of central, western and northeastern South Africa (Monadjem et al. 2015). Current literature (Nel 2013) suggests that the range is slightly further east than previously described by Skinner and Chimimba (2005). In the North West Province, Power (2014) found that the species was only found on Molopo Nature Reserve, where they prefer sparse open shrubland, such as that along the Molopo riverbed and pan edges. Power (2014), however, notes that they are probably more widespread, as they occur on degraded landscapes (Skinner & Chimimba 2005), which are becoming increasingly more prevalent in the province (DACE 2008; DACERD 2009). There are no records from the southern Cape coastal belt or from any of the Cape Fold Mountains. The recent records from the Saldanha area may indicate a southern movement down the West Coast. A possible range contraction or local extinction may have occurred in the Tussen-die-Riviere Nature Reserve area in Free State Province where Lynch (1983) recorded this species close to the reserve, as they have not been recorded in this area in more recent years (Watson 2006). Extralimital occurrence is possible as they are sometimes kept as pets and escapees can establish local subpopulations.

Population

This is a common species in suitable habitat and is frequently caught in traps. While it is a seasonally abundant species, large fluctuations in numbers rarely occur (Nel 2013).

Current population trend: Stable

Continuing decline in mature individuals: Unknown

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

Typically restricted to the hard soils of arid plains and pans, with a sparse cover of grass or low karroid shrubs, this species occurs throughout the Namib Desert, but is

Recommended citation: Wilson B, Palmer G, Relton C. 2016. A conservation assessment of *Desmodillus auricularis*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

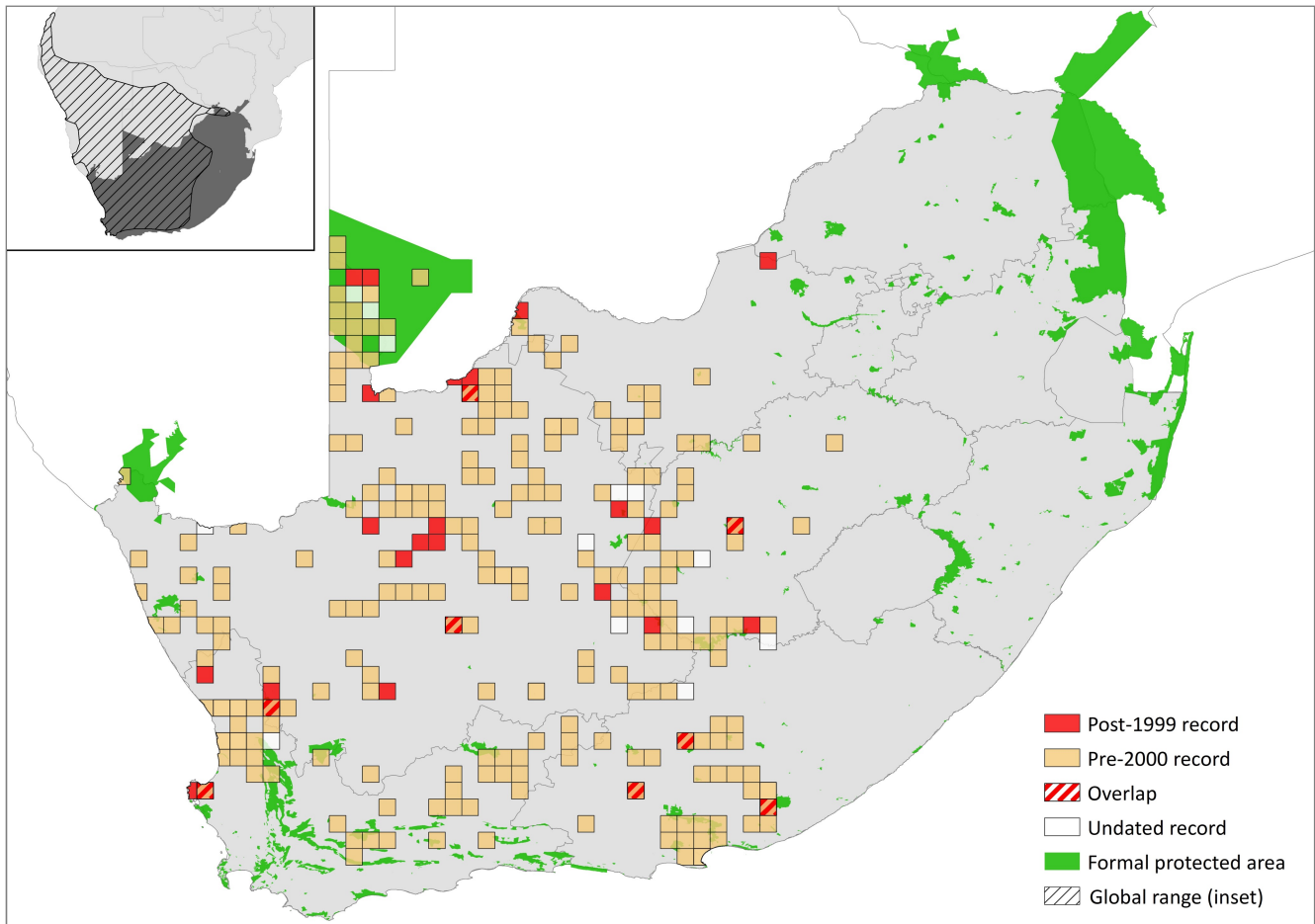


Figure 1. Distribution records for Cape Short-eared Gerbil (*Desmodillus auricularis*) within the assessment region

Table 1. Countries of occurrence within southern Africa

Country	Presence	Origin
Botswana	Extant	Native
Lesotho	Absent	-
Mozambique	Absent	-
Namibia	Extant	Native
South Africa	Extant	Native
Swaziland	Absent	-
Zimbabwe	Possibly extant	Native

absent from soft, shifting dune sand (Skinner & Chimimba 2005). It is one of the few species that may be able to cope with degraded and modified landscapes. In Rolfontein Nature Reserve (Northern Cape Province) three specimens were caught in areas of short grass cover (*Eragrostis truncate* community) with hard calcareous soils (Jooste & Palmer 1982). To avoid the extreme temperatures in the region in which it occurs, these gerbils live in burrows and are nocturnal. The burrow systems are complicated and extensive with well-defined pathways between the burrow entrances (Rautenbach 1982). Despite this, they tend to be asocial and solitary (Nel 2013).

This species is physiologically well-adapted to life in hot, arid conditions, as they produce highly concentrated urine to avoid water loss (Buffenstein et al. 1985; Grobler 1993), and have excellent thermoregulatory capabilities. For example, Grobler (1993) reported that at ambient

temperatures of between 34°C and -5°C, they are able to sustain a normal body temperature of about 36°C. They are independent of free water and also store fat in their tails when conditions are good, resulting in some adults becoming very large (Nel 2013). Although mostly granivorous, on occasion they will also eat insects. Gerbils generally forage and feed up to 30 m from their burrows. Both sexes will hoard seeds (Skinner & Chimimba 2005). Food will be stored in burrows (larder-hoarding) and also at other locations within the home range (scatter-hoarding) (Nel 2013).

Unlike other rodents found in the same environment they breed year-round under favourable conditions, with a prolonged breeding period from March to September, probably due to the fact they are not dependent on water (Lovegrove 2004). Litters average 2–4 young after a



Beryl Wilson

gestation of about 21 days, and are weaned at about 33 days (Nel 2013).

Ecosystem and cultural services: Rodents are both predators and dispersers of plant seeds in the environment. Since these gerbils are hoarders, they may serve in a limited capacity as seed dispersers. Seeds taken into the burrows are likely to be consumed, but some of the seeds scatter-hoarded in caches or buried are often forgotten or abandoned, and if these escape other seed predators, they may germinate and establish seedlings (Nyiramana et al. 2011; Wang et al. 2012). This species is recognised as a major reservoir and vector of the bubonic plague, and resultantly plays a significant role in plague epidemiology in southern Africa (NICD 2005).

Use and Trade

This species is not known to be traded or utilised in any form.

Threats

No major threats have been identified for *D. auricularis*. In fact, climate change may benefit this species to a limited extent, as it is capable of breeding in adverse conditions that may result in a reduction of more sensitive rodent species. This species can also exist on degraded land (Power 2014).

Current habitat trend: Stable

Conservation

This species is found within a large number of protected areas, including Kgalagadi Transfrontier National Park, |Ai-|Ais/Richtersveld Transfrontier Park, Goegap Nature Reserve, Namaqua National Park, Tankwa National Park, Mountain Zebra National Park, Camdeboo National Park, Augrabies National Park, Addo Elephant National Park, Karoo National Park, Doornkloof Nature Reserve and Molopo Nature Reserve. Resultantly, no conservation interventions are deemed necessary at this stage.

Recommendations for land managers and practitioners:

- No conservation actions are currently needed for this species.

Research priorities:

- No species-specific research priorities have been recognised, but the adaptations to changing climate and habitat conditions could be investigated under the auspices of a regional investigation.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.

References

Buffenstein R, Campbell WE, Jarvis JUM. 1985. Identification of crystalline allantoin in the urine of African Cricetidae (Rodentia) and its role in their water economy. *Journal of Comparative Physiology B* **155**:493–499.

DACE. 2008. North West Province: Environment Outlook. North West Department of Agriculture, Conservation & Environment, Mmabatho, South Africa.

DACERD. 2009. North West Provincial Biodiversity Conservation Assessment Technical Report, Version 1.2. North West Department of Agriculture, Conservation, Environment and Rural Development, Mmabatho, South Africa.

Grobler CAF. 1993. Energy and water metabolism in the Namaqua gerbil, *Desmodillus auricularis*. M.Sc. Thesis. University of Pretoria, Pretoria, South Africa.

Jooste JF, Palmer NG. 1982. The distribution and habitat preference of some small mammals in the Rolfontein Nature Reserve. *South African Journal of Wildlife Research* **12**:26–35.

Lovegrove BG. 2004. Animal form and function. Pages 145–162 in Dean WRJ, Milton SJ, editors. *The Karoo: patterns and ecological processes*. Cambridge University Press, Cambridge, UK.

Lynch CD. 1983. The mammals of the Orange Free State, South Africa. Navorsinge van die Nasionale Museum Bloemfontein **18**:1–218.

Monadjem A, Taylor PJ, Denys C, Cotterill FPD. 2015. *Rodents of Sub-Saharan Africa: A Biogeographic and Taxonomic Synthesis*. De Gruyter, Berlin, Germany.

Nel JAJ. 2013. *Desmodillus auricularis*, Cape short-eared Gerbil. Pages 266–268 in Happold DCD, editor. *Mammals of Africa, Volume III: Rodents, Hares and Rabbits*. Bloomsbury Publishing, London, UK.

NICD. 2005. Plague control guidelines for South Africa. National Institute for Communicable Diseases, Department of Health, South Africa.

Nyiramana N, Mendoza I, Kaplin BA, Forget P. 2011. Evidence for Seed Dispersal by Rodents in Tropical Montane Forest in Africa. *Biotropica* **43**:654–657.

Data Sources and Quality

Table 2. Information and interpretation qualifiers for the Cape Short-eared Gerbil (*Desmodillus auricularis*) assessment

Data sources	Museum records, informal trappings, pellet analyses.
Data quality (max)	Estimated
Data quality (min)	Suspected
Uncertainty resolution	Author consensus
Risk tolerance	Evidentiary

Assessors and Reviewers

Beryl Wilson¹, Guy Palmer², Claire Relton³

¹McGregor Museum, ²CapeNature, ³Endangered Wildlife Trust

Contributors

Matthew F. Child¹, Nico L. Avenant², Margaret Avery³, Rod Baxter⁴, Duncan MacFadyen⁵, Ara Monadjem⁶, Guy Palmer⁷, Peter Taylor⁴, Beryl Wilson⁸

¹Endangered Wildlife Trust, ²National Museum, Bloemfontein, ³Iziko South African Museums, ⁴University of Venda, ⁵E Oppenheimer & Son, ⁶University of Swaziland, ⁷Western Cape Nature Conservation Board, ⁸McGregor Museum

Details of the methods used to make this assessment can be found in *Mammal Red List 2016: Introduction and Methodology*.

Power RJ. 2014. The Distribution and Status of Mammals in the North West Province. Department of Economic Development, Environment, Conservation & Tourism, North West Provincial Government, Mahikeng, South Africa.

Rautenbach IL. 1982. Mammals of the Transvaal. No. 1, Ecoplan Monograph. Pretoria, South Africa.

Skinner JD, Chimimba CT. 2005. The Mammals of the Southern African Subregion. Third edition. Cambridge University Press, Cambridge, UK.

Wang B, Wang G, Chen J. 2012. Scatter-hoarding rodents use different foraging strategies for seeds from different plant species. *Plant Ecology* **213**:1329–1336.

Watson JP. 2006. Check list of the mammals of Tussen-die-Riviere Provincial Nature Reserve, Free State Province, South Africa. *Koedoe* **49**:111–117.