Micaelamys granti – Grant's Rock Mouse

Photograph wanted

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

*Watch-list Data †Watch-list Threat

This endemic species is named after the British Army Captain C. H. B. Grant who collected the original specimen from Deelfontein, Northern Cape during the Second South African War in February 1902 (Skinner & Chimimba 2005).

Taxonomy

Micaelamys granti (Wroughton 1908)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - MURIDAE - *Micaelamys - granti*

Synonyms: *Aethomys granti*

Common names: Grant's Rock Mouse, Grant's Rock Rat (English), Grant se Klipmuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Although formerly included in the genus *Aethomys,* chromosomal, morphological and molecular evidence support the recognition of *Micaelamys* as a distinct genus (Baker et al. 1988; Russo 2003; Chimimba 2005; Lecompte et al. 2008). *Micaelamys granti* can be distinguished from *M. namaquensis* on morphological and chromosomal grounds (Visser & Robinson 1986, 1987; Chimimba et al. 1999). In *M. namaquensis* the tail is relatively longer, the ventral pelage is often pure white, and there are only three pairs of nipples; whereas, in *M. granti*, the ventral pelage is never pure white (usually grey or greyish), and there are five pairs of nipples (Monadjem et al. 2015).

Assessment Rationale

This species is endemic to the Karoo regions of South Africa and remains Least Concern due to its wide distribution and because it exists in rocky habitat in a generally arid area that is unlikely to be transformed. Thus, there are no major threats that are suspected to be causing population decline. However, it is unknown whether this species can exist in agricultural landscapes and thus local declines are likely as climate change makes rocky habitats more suitable for agricultural expansion (for example, rooibos plantations in the Cederberg). Field surveys are also required to collate localities where the species is currently present and thus enable the estimation of area of occupancy. If such data indicate a restricted area of occupancy (AOO), this species could qualify for a threatened category given an inferred continuing decline in habitat. This species should be reassessed as new data become available.

Distribution

This species is endemic to the Karoo regions of south-central South Africa, south of the Gariep River, where it occupies rocky outcrops in arid or semi-arid landscapes (Monadjem et al. 2015). It is sometimes sympatric with *M. namaquensis* (for example, Kok et al. 2012). They are confined to the southern and southeastern areas of the Northern Cape Province, the northern and north-eastern areas of the Western Cape Province and the north-western regions of the Eastern Cape Province (Skinner & Chimimba 2005). Based primarily on museum records (Figure 1), it has an estimated extent of occurrence of 236,027 km^2. There are very few recent (post–2000) records available. For example, no new records were discovered for this species from Barn Owl (*Tyto alba*) pellet analysis in either the Western Cape or Northern Cape provinces (Avery et al. 2005; Avery & Avery 2011), although it is perhaps not preyed upon extensively by Barn Owls. Recently, however, Kok et al. (2012) confirmed its presence in the Sneeuberg Mountain Complex (all sites above 1,700 m asl) of the Eastern Cape Province (sampling conducted between 2009 and 2010), where it occurred at low densities in the Sneeuberg Nature Reserve and Asante Sana Nature Reserve but not the Mountain Zebra National Park. It is uncertain whether the overall lack of recent records is due to lack of current field surveys (low search effort) or a genuine loss in area of occupancy from anthropogenic transformation of habitat. Further vetting of museum specimens is also required.

Population

The abundance and population size is not known. However, it is certainly rarer and far less abundant than *M. namaquensis*. For example, it comprised only 8.9% of total *Micaelamys* captures (N = 90 specimens) at three sites in the Sneeuberg Mountains, Eastern Cape Province (Kok et al. 2012). Its habitat currently does not appear to be extensively fragmented by human activities and thus the population is unlikely to be declining rapidly, but

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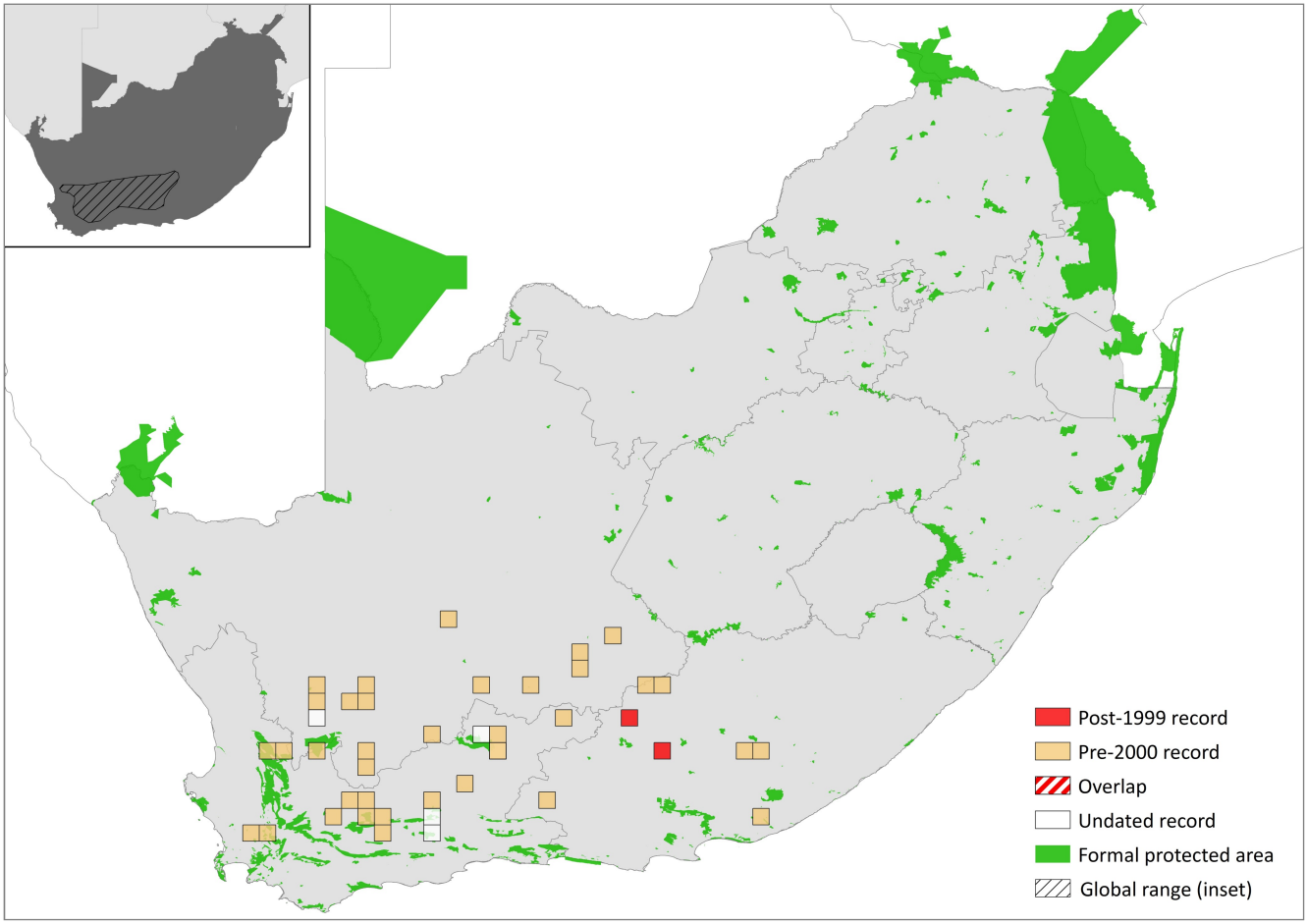

Figure 1. Distribution records for Grant's Rock Mouse (*Micaelamys granti*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

further field studies to assess occupancy and monitor the impacts of agricultural expansion into its habitats are needed to evaluate population trends. The lack of significant differences in cranial size across its geographical range suggests at least some connectivity between subpopulations and does not support any subspecies delineation (Chimimba et al. 1998).

Current population trend: Stable (assumed)

Continuing decline in mature individuals: No

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: Naturally. Lives in high-altitude rocky habitats.

Habitats and Ecology

This species occurs in shrubland and rocky areas on mountain slopes. It is not known if it can persist in disturbed or modified habitats, such as agricultural landscapes. It is likely that its biology and ecology is similar to *M. namaquensis*.

Ecosystem and cultural services: Potential flagship species of the Karoo for biodiversity stewardship agreements.

Use and Trade

This species is not traded or utilised in any form.

Threats

There are no known major threats as its habitat is largely intact and inaccessible. However, although no threats were listed for this species in the previous assessment (Friedmann & Daly 2004), habitat loss from new forms of agricultural expansion may represent an emerging threat to this species. For example, the clearing of vegetation patches in rocky areas in the Cederberg region for rooibos tea plantations may lead to localised declines.

Current habitat trend: Stable with localised declines. The majority of the habitat will likely remain unchanged as it lives in rocky areas inaccessible to transformation. However, climate change is projected to make higher-altitude habitats more suitable for agriculture. For example, the suitability of upslope habitats for viticulture is projected to increase the footprint of winelands by 14% by

Table 2. Threats to Grant's Rock Mouse (*Micaelamys granti*) ranked in order of severity with corresponding evidence (based on IUCN threat categories, with regional context)

Rank	Threat description	Evidence in the scientific literature	Data quality	Scale of study	Current trend
1	*2.1.3 Annual and Perennial Crops*: localised habitat loss from rooibos tea plantations.	-	Anecdotal	-	Possibly increasing due to climate change.
2	*11.1 Habitat Shifting & Alteration:* habitat loss from climate change enabling viticulture on higher elevations.	Hannah et al. 2013	Simulation	National	Project 14% increase in potential habitat loss from Cape winelands by 2050.

2050 (Hannah et al. 2013). Such trends in transformation of mid and upper slopes should be monitored.

Conservation

We assume this species occurs in several protected areas within its range, for example, along the Cape Fold Mountain belt. However, its current presence has recently only been confirmed for Sneeuberg Nature Reserve and Asante Sana Nature Reserve in the Eastern Cape Province (Kok et al. 2012).

No specific conservation interventions are necessary but it will benefit from protected area expansion to connect habitat and thus increase resilience to climate change and the effects of agricultural expansion onto higher elevations. Biodiversity stewardship schemes should also be pursued to achieve this, particularly if the landowner possesses pristine rocky outcrops and shrublands.

Recommendations for land managers and practitioners:

- Conserve/restore buffer strips of natural vegetation around rocky outcrops.

Research priorities:

- Field surveys are needed to collate current distribution data and thus estimate area of occupancy.
- There is no information on their habits, food or reproduction. Thus, basic ecological and biological information is required.

Encouraged citizen actions:

- Landowners and city planners can conserve natural vegetation around rocky outcrops.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Grant's Rock Mouse (*Micaelamys granti*) assessment

Data sources	Museum records, field survey (literature), indirect information (expert knowledge)
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
Risk tolerance	Evidentiary

References

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Table 3. Conservation interventions for Grant's Rock Mouse (*Micaelamys granti*) ranked in order of effectiveness with corresponding evidence (based on IUCN action categories, with regional context)

Rank	Intervention description	Evidence in the scientific literature	Data quality	Scale of evidence	Demonstrated impact	Current conservation projects
1	*1.1 Site/Area Protection:* protected area expansion to connect core habitats to mitigate climate change effects.	-	Anecdotal	-	-	-
2	*1.2 Resource & Habitat Protection:* biodiversity stewardship agreements for areas with natural rocky outcrops.	-	Anecdotal	-	-	-

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