Petromyscus monticularis – Brukkaros Pygmy Rock Mouse

Beryl Wilson

Regional Red List status (2016)	**Least Concern***
National Red List status (2004)	Not Evaluated
Reasons for change	Non-genuine change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

*Watch-list Threat

This species can be distinguished from other *Petromyscus* species by its shorter tail and smaller ears (Monadjem et al. 2015).

Taxonomy

Petromyscus monticularis (Thomas & Hilton 1925)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - NESOMYIDAE - *Petromyscus* - *monticularis*

Common names: Brukkaros Pygmy Rock Mouse, Brukkaros Rock Mouse, Short-eared Pygmy Rock Mouse (English), Brukkaros-dwergklipmuis, Brukkaros Klipmuis (Afrikaans)

Taxonomic level: Species

Taxonomic notes: The taxonomic status of this genus has been historically controversial, however, most recently *Petromyscus* was listed under the family Nesomyidae, along with its closest relatives *Mystromys* and *Delanymys* (Schenk et al. 2013). The phylogenetic relationships between each species of this genus are currently unknown, thus urgent molecular analysis and revision of the *Petromyscus* genus is needed. Within the assessment region *P. monticularis* occurs sympatrically with *P. collinus*, from which the Brukkaros Pygmy Rock Mouse can be distinguished by its shorter tail (slightly less than its combined head and body length) and smaller ears (less than 13 mm) (Monadjem et al. 2015). Currently, there are no recognised subspecies of *P. monticularis* (Skinner & Chimimba 2005).

Assessment Rationale

The Brukkaros Pygmy Rock Mouse is listed as Least Concern because of its relatively wide distribution (although only scattered records are available) including a few protected areas, presumed large population, and because its population is not believed to be declining at present. It occurs on flat plains or open rocky areas, and is not found in mountainous terrain. There are no major threats as its habitat is unlikely to be rapidly transformed. However, climate change and renewable energy projects in some areas may represent emerging threats. Additionally, habitat disturbance by domestic sheep and goats may be a problem, particularly during drought periods. More research needs to be conducted and further field surveys are required to estimate extent and occupancy more accurately. This species should be reassessed once its taxonomy has been resolved.

Regional population effects: Occasional dispersal of this species across the Orange River between South Africa and Namibia is likely, thus rescue effect is possible.

Distribution

This species was originally collected from a rocky koppie at the base of the Great Brukkaros Mountain in southern Namibia, from where it gets its name (Skinner & Chimimba 2005). Although the extent of its range is uncertain, this species is probably limited to arid, rocky habitats of southern Namibia, extending into the Northern Cape Province of South Africa (Figure 1, Skinner & Chimimba 2005; Monadjem et al. 2015). Further vetting of museum records is necessary to delimit distribution more accurately. For example, Monadjem et al. (2015) only list one verified record within South Africa. It is predicted to occur from 100 m to 2,000 m asl.

Population

Although originally considered to be rare when it was known from only one locality in southern Namibia (Coetzee 2013), this species is now believed to be relatively common in some portions of its range. No population estimates are available for this species.

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

Very little information regarding the life history of this species is available, although it is known to favour rocky outcrops within semi-arid shrubland habitats. It is

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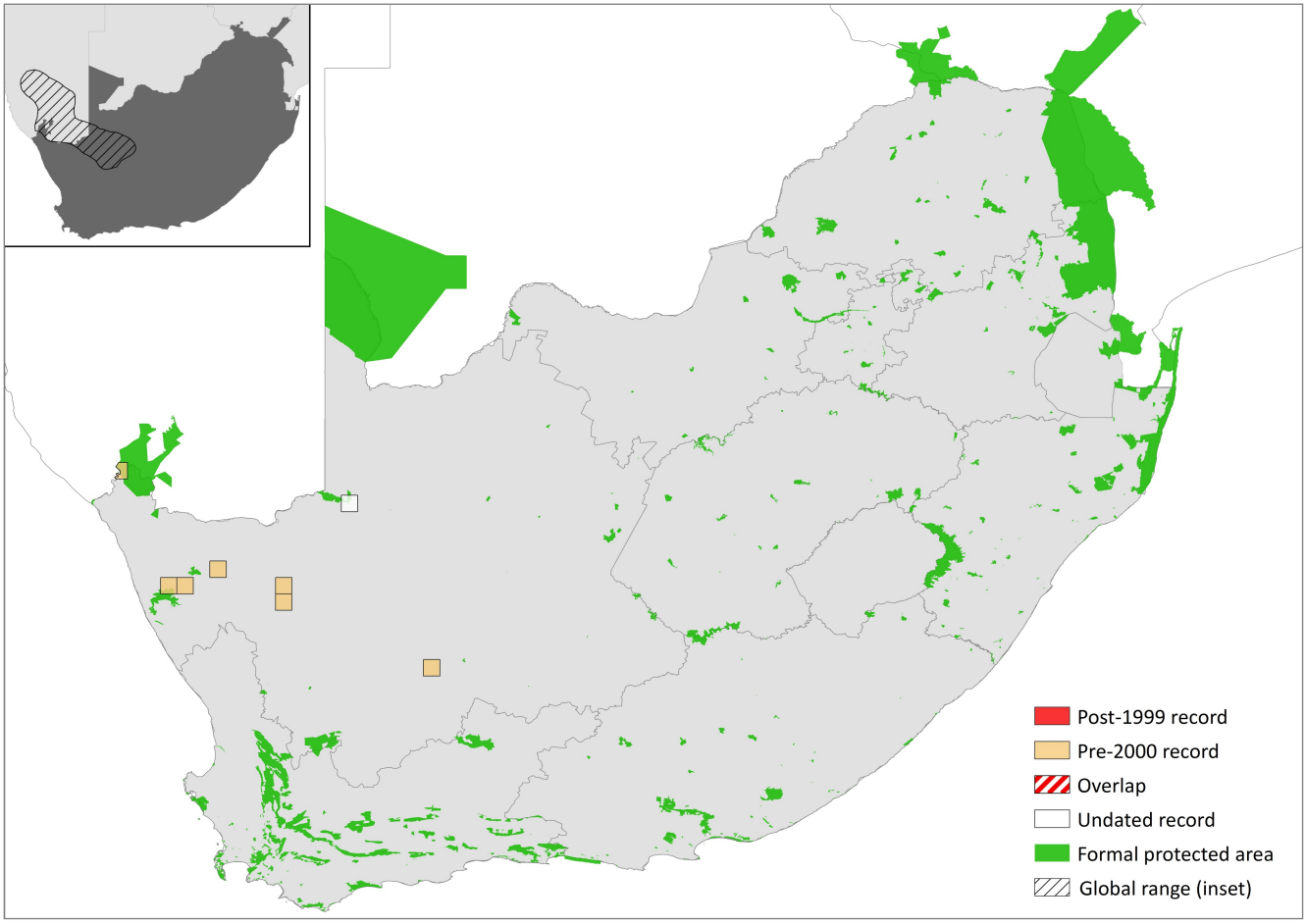

Figure 1. Distribution records for Brukkaros Pygmy Rock Mouse (*Petromyscus monticularis*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

sympatric (and probably syntopic) with the Pygmy Rock Mouse (*P. collinus*). It is nocturnal and mainly granivorous but more than half of the stomachs examined also contained insects (Skinner & Chimimba 2005). Grass seeds blowing in from the plains and accumulating amongst stones are an additional source of food, apart from the local plants (Coetzee 2013).

Ecosystem and cultural services: Aside from the prospect of small-scale seed dispersal, it may be a prey item of several other snake, owl or mammal species such as mongooses.

Use and Trade

This species does not appear to be utilised or traded in any form.

Threats

No major threats have been identified for this species. However, in association with global climate change, the projected vegetation shift in the semi-arid Succulent Karoo may represent a future threat to this species (Rutherford et al. 1999). Increased temperatures, in conjunction with an enhanced frequency and duration of drought, is predicted to have negative effects on resource availability for small herbivorous mammals in the arid regions of southern Africa (Hoffman et al. 2009). Similarly to *P. collinus*, prolonged droughts and concomitant shortages of food resources during summer, such as climate change-exacerbated droughts, are likely to have severe energetic consequences for this species (Bragg 2000).

The rapidly expanding construction of renewable (in particular solar) energy projects in the Northern Cape may signify an emerging threat to this species as its range partially overlaps with earmarked areas (van der Westhuizen 2013). Additionally, habitat degradation through overgrazing by domestic sheep and goats may be a threat, particularly during drought periods (Coetzee 2013).

Current habitat trend: Stable

Conservation

No specific conservation initiatives have been identified for the Brukkaros Pygmy Rock Mouse. The range of this species extends into a number of protected areas, including Augrabies Falls National Park, Richtersveld National Park, and possibly into Namaqua National Park.

Table 2. Threats to the Brukkaros Pygmy Rock Mouse (*Petromyscus monticularis*) 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	*11.1 Habitat Shifting & Alteration* and *11.2 Droughts*: climate change leading to a decline in forage resources. Current stress *1.2 Ecosystem Degradation*.	Bragg 2000	Indirect	Local	Increasing
2	*2.3.2 Livestock Farming & Ranching*. Current stress *1.2 Habitat Degradation*: from overgrazing.	-	Anecdotal	-	Increasing
3	*3.3 Renewable Energy*: habitat loss from renewable energy projects.	-	Anecdotal	-	Increasing

Further research is needed into the potential threat of enhanced aridity associated with climate change, and how this may affect food resources, as well as potential habitat loss from renewable energy projects.

Recommendations for land managers and practitioners:

- Systematic field surveys needed to gather information on population size and trends.

Research priorities:

- Population size, distribution and trends.
- Analysis of potential impacts of renewable energy projects.
- Taxonomic resolution using molecular techniques and vetting of museum records.
- Analysis of potential impacts of increased resource constraints and increased temperature extremes on energetics of the species under climate change scenarios.
- Ecological niche modelling to identify areas to focus sampling.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas. However, due to their morphological similarities, misidentification of this species with other *Petromyscus* species is common. See **Taxonomic notes** for distinguishing characteristics.
- Encourage the inclusion of mitigation measures specific to the species in the Environmental Management Plans for new renewable energy developments overlapping with this species' distribution.

References

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Data Sources and Quality

Table 3. Information and interpretation qualifiers for the Brukkaros Pygmy Rock Mouse (*Petromyscus monticularis*) assessment

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

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

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