Petromus typicus – Dassie Rat

Regional Red List status (2016)	**Least Concern***
National Red List status (2004)	Near Threatened B
Reasons for change	Non-genuine change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA)	None
CITES listing	None
Endemic	No

*Watch-list Threat

Neither a dassie, nor a rat; with its short limbs and long, furry tail, this species resembles a squirrel.

Taxonomy

Petromus typicus (A. Smith 1831)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - PETROMURIDAE - *Petromus* - *typicus*

Common names: Dassie Rat, Rock Rat (English), Dassierot (Afrikaans), Noki (Damara, Nama)

Taxonomic status: Species

Taxonomic notes: The Petromuridae family consists of a single species, *Petromus typicus*, which is endemic to the southwest arid region of Africa (Sénégas 2004; Monadjem et al. 2015). A number of forms of this species have been described (Skinner & Chimimba 2005), but de Graaf (1981) proposed a revision of the Petromuridae family, due to the large number of subspecies described over a limited area. Additionally, Musser and Carleton (1993) proposed that many of these subspecies should be discredited. Further analyses are required to delineate the taxonomic structure of this genus.

Assessment Rationale

This species is endemic to the arid regions of Namibia and South Africa, with the majority of the population confined to Namibia. It is locally common and inhabits inaccessible rocky areas, particularly granite koppies, which are unlikely to be rapidly transformed. There are no major identified threats, although climate change may represent an emerging threat as this species relies on moisture-rich vegetation, and research should be undertaken to assess its effects (such as water stress). Additionally, parts of its range are ear-marked for wind and solar developments, resulting in potential habitat loss and fragmentation of subpopulations. The impacts of such renewable energy developments should be monitored. Presently, however, we list as Least Concern in view of no evidence for decline and a relatively large extent of occurrence (96,705 km^2) within the assessment region.

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

Distribution

Dassie Rats are restricted to the southwestern arid, and semi-arid regions of Africa from southwestern Angola, southwards through the xeric, rocky regions of western Namibia and into the northwestern parts of South Africa (Figure 1). Monadjem et al. (2015), however, show the distribution as being restricted to Namibia and not extending into Angola. Their distributional limits, as described by Coetzee (2002), range from 16°S 12°E in the north to 30°S 18°E in the south (Namaqualand, South Africa). Although they have been recorded at altitudes of up to 1,200 m asl, this is limited only to warm, dry regions, thus they are absent from the cloudy Eselfontein Plateau (Shortridge 1942), where it is considered too moist and cold (Coetzee 2002). Similarly, Dassie Rats are not present within the moist, semi-tropical savannahs of western Angola (Coetzee 2002). The estimated extent of occurrence using all records is 96,705 km^2.

Population

The Dassie Rat is considered relatively common through much of its range, which extends only marginally into the assessment region in the Northern Cape and Western Cape provinces. No published population densities are available for this species. In the Augrabies Falls National Park their abundance is considered to be sparse (George 1981), due to competition for rocky shelters with the Rock Hyrax (*Procavia capensis*). Their abundance is limited by the availability of shelter within rocky outcrops and by mean annual rainfall, while vegetation composition is less significant (Coetzee 2002).

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

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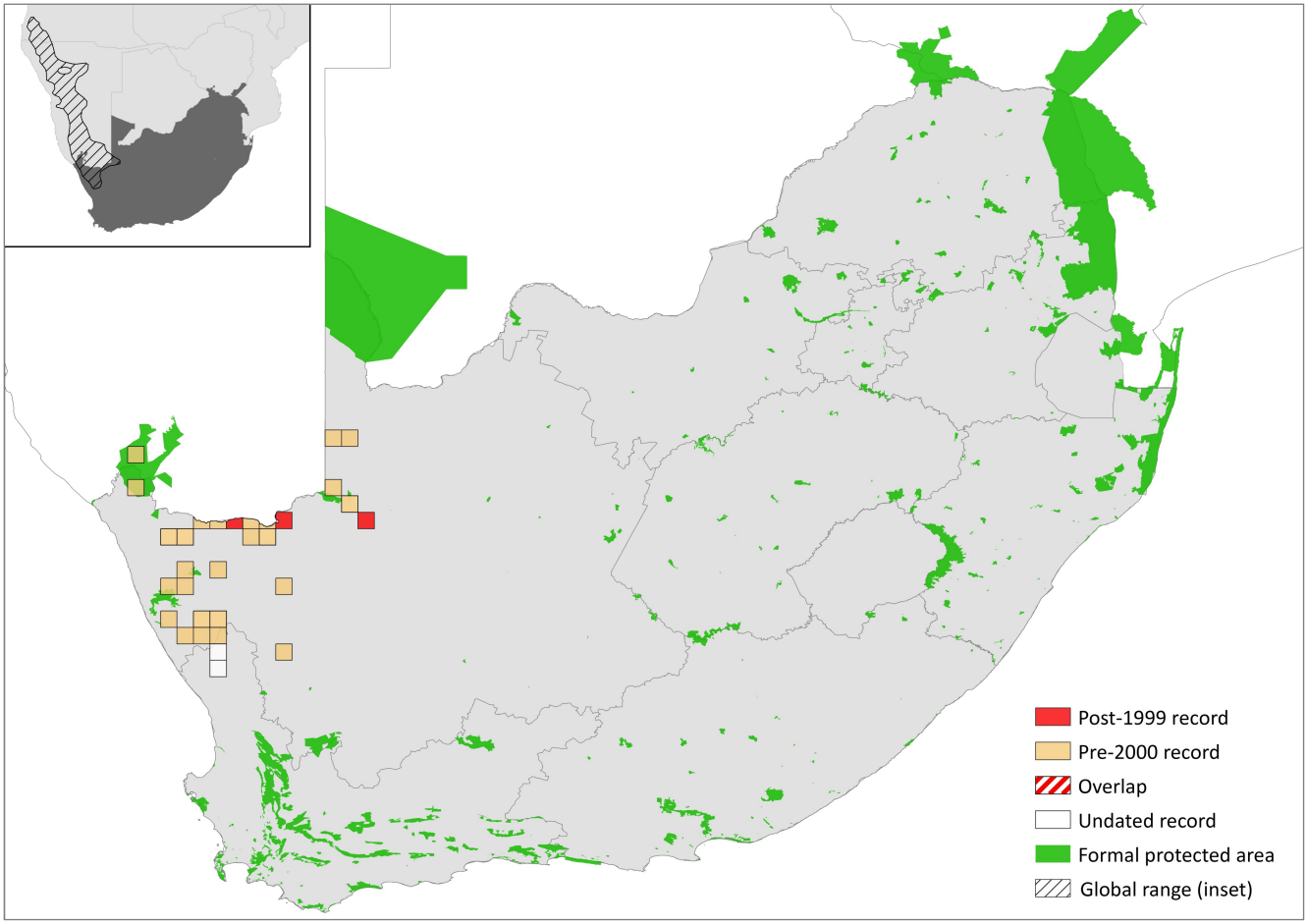

Figure 1. Distribution records for Dassie Rat (*Petromus typicus*) within the assessment region

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	-

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

Confined to the southwestern arid and semi-arid regions of Africa, the Dassie Rat is associated with rocky areas of mountainous habitats and inselbergs (de Graaff 1981; Skinner & Smithers 1990). This species lives among rocky outcrops, seeking shelter for nest sites in crevices and under large boulders (George 1981; Skinner & Chimimba 2005). In the Augrabies Falls National Park this species co-occurs with the Rock Hyrax, where they compete for rocky shelters. Dassie Rats have a flattened skull and are restricted to rocky microhabitats that are too small for Rock Hyraxes to enter (George & Crowther 1981).

Dassie Rats may live in colonies (Coetzee 2002), or form monogamous pairs (Rathbun & Rathbun 2006), defending territories comprised of rocky cracks and crevices for shelter, and open areas for predator surveillance and basking, which are close enough to forage resources (Skinner & Chimimba 2005). Having low energy and water requirements, Dassie Rats are well adapted to arid areas, and in the largest portion of their range, the Namib Desert, they may acquire moisture from advective fog or from the consumption of succulent plants (Withers 1979). This species is diurnal, and peak activity occurs during the early mornings and late afternoons.

The herbivorous diet of this species is highly varied (Rathbun & Rathbun 2005). In Augrabies Falls National Park their diets comprised mostly of monocotyledonous grasses, such as *Enneapogon scaber*, *Cenchrus ciliarus* and *Triraphis ramossissima*, while the dicotyledons, such as *Schotia afra* and *Hermannia stricta* made up a lesser proportion (George 1981). George (1981) describes how Dassie Rats feed off the water-rich bases of grass stems, which contain three times more moisture than the top portion of grass stems. This species has also been recorded feeding on leaves of *Tribulus* spp., flowers and the fruit of *Cucumis dinteri* (Skinner & Chimimba 2005). As it is unable to survive on air-dried seeds in the laboratory (Withers et al. 1980), the consumption of moisture-rich vegetation may be critical for its survival in the wild.

The timing of breeding varies, but is closely related to rainfall, occurring predominantly in late spring and autumn (Coetzee 2002). Following a gestation period of about three months, between one and three (usually two) young are born in nests within rocky cracks (Coetzee 2002; Mess 2002).

Table 2. Threats to the Dassie Rat (*Petromus typicus*) 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	*11.2 Droughts*: climate change leading to a decline in forage resources. Current stress *1.2 Ecosystem Degradation*.	Rutherford et al. 1999 Hoffmann et al. 2009	Indirect Simulation	Local Regional	In light of increased temperatures, a net decrease in plant species diversity is expected in Augrabies Falls National Park.
2	*3.3 Renewable Energy*: habitat loss from solar and wind farm developments.	-	Anecdotal	-	Increasing
3	*3.2 Mining & Quarrying*: granite mining leading to disturbance and habitat loss.	-	Anecdotal	-	Increasing
4	*1.1 Housing & Urban Areas*: increased predation by domestic pets. Current stress *2.1 Species Mortality*.	-	Anecdotal	-	Possibly increasing with settlement expansion.

Ecosystem and cultural services: This species been recognised as a valuable prey resource for aerial predators, as well as Black Mongooses (*Galerella nigrata*) (Rathbun & Cowley 2008). Rathbun and Rathbun (2005) suggest that the association between this species and Rock Hyraxes may be mutually beneficial, due to enhanced vigilance for predators.

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, they may be preyed upon by domestic cats, where their range extends into urban areas. Additionally, an increased severity and frequency of drought, associated with climate change, is projected to have contrasting effects on resource availability and distribution for small herbivorous species in the semi-arid Succulent Karoo (Hoffman et al. 2009). The apparent dependence of this species on advective fog or green plant material for moisture is likely to increase its vulnerability to climate-induced increases in aridity or the severity of droughts. The rapidly expanding construction of major solar farms in the Northern Cape in the vicinity of the Upington corridor, as well as wind farms in the northwestern parts the Western Cape, may signify an emerging threat to this species as its range partially overlaps with these approved or in progress developments (van der Westhuizen 2013). Additionally, there is an increase in granite mining activities in Namaqualand which usually target similar areas to the preferred habitat of *Petromys*. This will result in some habitat loss and disturbance for this species, but as the extent of this activity is currently still low, this would have a local impact only.

Current habitat trend: Stable. However, climate change may make habitat increasingly unsuitable for this species.

Conservation

The Dassie Rat is present within certain protected areas of northwestern South Africa, including Augrabies National Park, |Ai-|Ais/Richtersveld Transfrontier Park (B. Wilson unpubl. data), Goegap Nature Reserve and Namaqua National Park. No direct interventions are required at present. However, this species is likely to benefit from continued research into the potential threat of enhanced aridity associated with climate change, and how this may affect food resources for this species, as well as spatial research into potential habitat loss from renewable energy developments and granite mining.

Recommendations for land managers and practitioners:

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

Research priorities:

- Population size, distribution and trend estimates.
- Associated threats to this species, specifically with regards to the perceived threats of climate change.
- Analysis of potential impacts of renewable energy developments, and granite mining.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Save electricity and fuel to mitigate CO_2 emissions and hence the rate of climate change.

Data Sources and Quality

Table 3. Information and interpretation qualifiers for the Dassie Rat (*Petromus typicus*) assessment

Data sources	Museum records, field study (unpublished), indirect information (expert knowledge)
Data quality (max)	Inferred
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.*