Rhinolophus denti – Dent's Horseshoe Bat


Ara Monadjem

Regional Red List status (2016)	**Near Threatened D1***
National Red List status (2004)	Near Threatened B2
Reasons for change	No change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

*Watch-list Data

Herselman and Norton (1985) considered this species to be possibly extinct in the assessment region, but it has since been observed on numerous occasions. The most recent record is from citizen scientists in 2012 and extends the known range southwards.

Taxonomy

Rhinolophus denti Thomas 1904

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - RHINOLOPHIDAE - *Rhinolophus* - *denti*

Common names: Dent's Horseshoe Bat (English), Dent se Saalneusvlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Though previously believed that *Rhinolophus swinnyi* might be a subspecies of *R. denti* (Csorba et al. 2003), both are now considered separate species (Monadjem et al. 2010). Two subspecies are recognised but only the nominate subspecies is recognised in the region (Monadjem et al. 2010). The subspecies *R. denti knorri* Eisentraut 1960, which occurs in West Africa, is separated from the nominate subspecies by at least 4,000 km and may eventually be shown to be a separate species (Monadjem et al. 2010).

Assessment Rationale

Currently known from eight colonies within the assessment region with a recent colony being recorded in 2012 that extends its range south in the Northern Cape. This species depends predominantly on caves, abandoned mines and similar habitats for roosting and thus its area of occupancy is suspected to be less than 100 km^2 (with an estimated extent of occurrence of 41,073 km^2). There is no evidence of decline, but as it is locally rare and fewer than 2,000 mature individuals are suspected to occur within the assessment region, the species is listed as Near Threatened as it is approaching the thresholds for Vulnerable under criterion D1. Field surveys and monitoring are required to more accurately estimate population size and trend. Reassessment will be necessary once more comprehensive data are available.

Regional population effects: *R. denti* is a small bat with short and broad wings with low wing loading (Schoeman & Jacobs 2008), this suggests limited ability to disperse long distances, and thus immigration into the assessment region by individuals from subpopulations occurring outside of the region is unlikely.

Distribution

This species is widely, but patchily, recorded in West and southern Africa. It ranges from southeastern Senegal, through northern parts of West Africa to northeastern Ghana; in Central Africa it appears to have only been recorded from eastern Congo and southern Angola; in southern Africa, it is present in Namibia, western Botswana and northern parts of South Africa (Monadjem et al. 2010; ACR 2015). Within the assessment region it occurs predominantly in the Northern Cape, but marginally in the North West and Free State provinces. The type specimen is from Kuruman, Northern Cape, South Africa (Monadjem et al. 2010). Citizen scientists recorded a single bat roosting in a small cave in 2012, which was verified through its echolocation structure, and thus represents the most southerly record for the species within the assessment region. Its area of occupancy is suspected to be less than 100 km^2. The extent of occurrence is estimated to be 41,073 km^2.

Population

This species is known from fewer than 200 colonies in southern Africa. It is known from only eight colonies within the assessment region. Colonies are small (Monadjem et al. 2010; ACR 2015), typically up to a few dozen individuals (Smithers 1971), and this species is a slow reproducer. Over 80 specimens were examined in Monadjem et al. (2010). The total population within the assessment region is suspected to consist of less than 2,000 mature individuals. While Herselman and Norton

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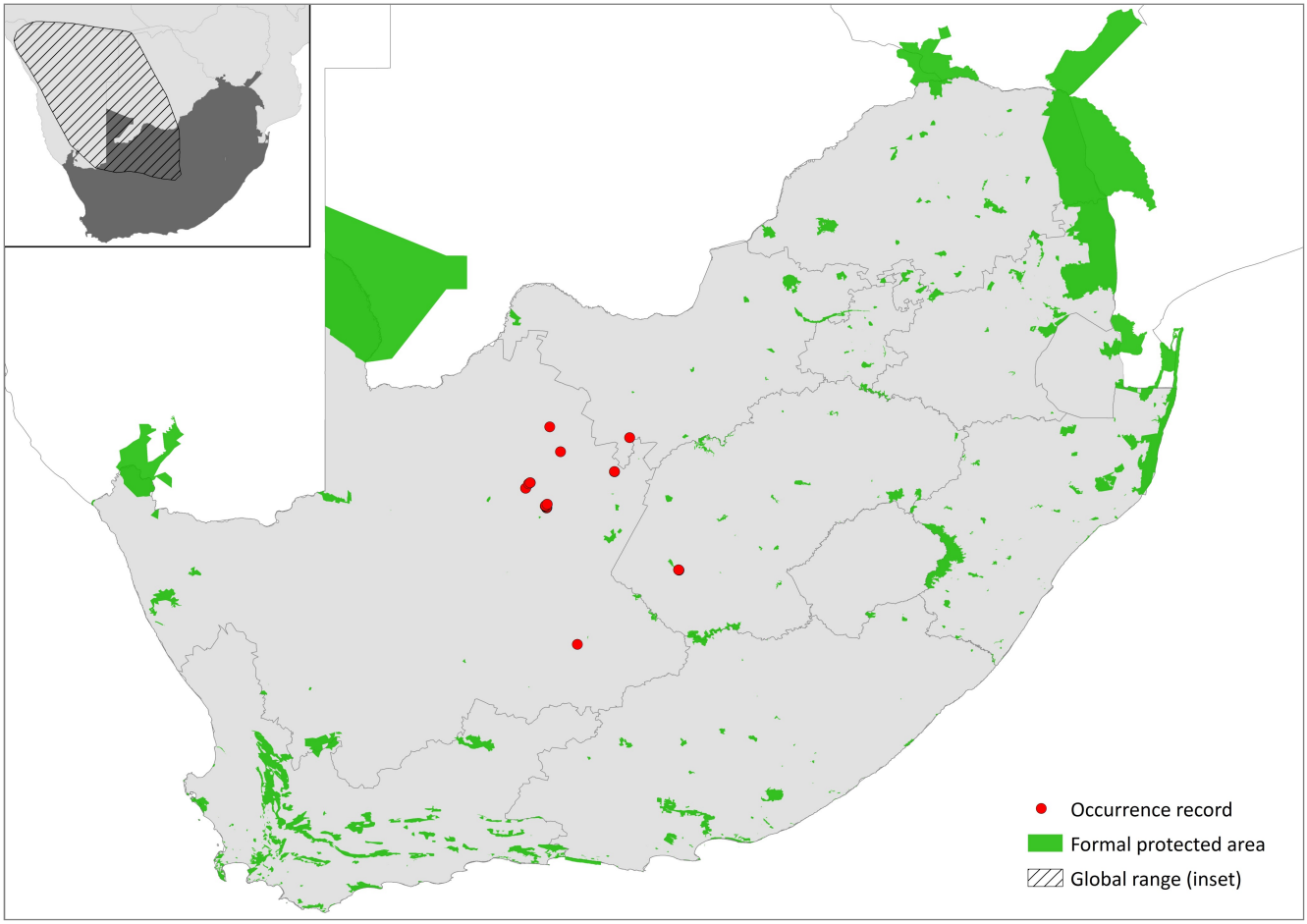

Figure 1. Distribution records for Dent's Horseshoe Bat (*Rhinolophus denti*) within the assessment region

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	Absent	-

(1985) considered this species rare and possibly extinct in the assessment region, specimens were collected after this publication from Koegelbeen Cave, a cave near Warrenton and a locality near Postmasberg (ACR 2015); with the most recent observation from citizen scientists in 2012.

Current population trend: Stable

Continuing decline in mature individuals: None

Number of mature individuals in population: < 2,000

Number of mature individuals in largest subpopulation: Unknown, but likely fewer than 200 individuals.

Number of subpopulations: < 10

Severely fragmented: No

Habitats and Ecology

This species is associated with arid savannah habitats where suitable roosting sites occur; typically restricting it to broken country with rocky outcrops or suitable caves (Monadjem et al. 2010). Even the most southeasterly record in Africa comes from the drier southwestern part of the Free State Province (Watson 1998). Colonies are largely dependent on caves, caverns, crevices in rocky outcrops, abandoned mines (including asbestos mines; M. C. Schoeman unpubl. data), and similar habitats for roosting (Herselman & Norton 1985; Churchill et al. 1997), although they have also been found roosting in hollow trees, as well as under the thatched roof of a house and in a road culvert (Shortridge 1934). As it is not able to fly large distances, due to its short, broad wings (Schoeman & Jacobs 2008), its home range is thus suspected to be under 10 km^2. In the assessment region, the species is recorded from Kalahari Duneveld, Eastern Kalahari Bushveld and Dry Highveld Grassland. It is a clutter forager, with its diet consisting mainly of Lepidoptera (M.C. Schoeman, unpubl. data).

Ecosystem and cultural services: As this species is insectivorous, it may contribute to controlling insect populations that damage crops (Boyles et al. 2011; Kunz et al. 2011). Ensuring a healthy population of insectivorous bats can thus decrease the need for pesticides.

Use and Trade

Not known to be traded or utilised in any form.

Table 2. Threats to the Dent's Horseshoe Bat (*Rhinolophus denti*) 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	*3.2 Mining & Quarrying*: roost loss and disturbance from re-opening old mines.	-	Anecdotal	-	Unknown
2	*6.1 Recreational Activities*: roost site disturbance from tourism activities and religious ceremonies. Current stress *2.2 Species Disturbance*.	-	Anecdotal	-	Stable
3	*9.3.3 Agricultural & Forestry Effluents*: indirect poisoning. Current stress *1.3 Indirect Ecosystem Effects*: loss of prey base.	-	Anecdotal	-	Stable

Table 3. Conservation interventions for the Dent's Horseshoe Bat (*Rhinolophus denti*) 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	*2.1 Site/Area Management*: protection of key roost sites required.	-	Anecdotal	-	-	-
2	*2.3 Habitat & Natural Process Restoration*: reduce pesticide use to restore natural prey base.	-	Anecdotal	-	-	-

Threats

There are currently no major threats to this species. However, roost disturbance and loss is a potential local threat and should be closely monitored. For example, roost loss can occur through the reopening of old mines and through disturbance during recreational or tourism activities. Indirect poisoning resulting from the use of insecticides, pesticides and similar chemicals may also decrease the natural prey base. Climate change may become a future threat (*sensu* Sherwin et al. 2013), but more research is necessary.

Current habitat trend: Stable. Savannah habitats are well protected in the assessment region (Driver et al. 2012).

Conservation

The species is not currently recorded from any formally protected areas in the assessment region. Thus, its occurrence in protected areas should be documented and collated through checklists. No direct conservation interventions are currently needed for the species until the identified threats have been quantified for their severity. However, it would benefit from holistic land management techniques that reduce the needs for pesticides, as well as identification and protection of key roost sites to limit disturbance. Monitoring of populations trends in response to the threat of mining is required is also recommended.

Recommendations for land managers and practitioners:

- Identify and protect important roost sites for this species.
- Reduce pesticide use in agricultural landscapes.

Research priorities:

- Systematic surveys to identify further colonies and assess population size and trend.
- Research investigating the severity of identified threats, including the effects of climate change, and potential conservation interventions.

Encouraged citizen actions:

- Minimise disturbance to caves when visiting.
- Citizens can report sightings on virtual museum platforms (for example, iSpot and MammalMAP).

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Dent's Horseshoe Bat (*Rhinolophus denti*) assessment

Data sources	Field study (unpublished), indirect information (literature, expert knowledge), museum records
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.*