Rhinolophus fumigatus – Rüppell's Horseshoe Bat

Jakob Fahr

Regional Red List status (2016)	Least Concern*
National Red List status (2004)	Near Threatened B2
Reasons for change	Non-genuine
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	Edge of range

*Watch-list Data

The subspecies, *Rhinolophus fumigatus aethiops*, which occurs in geographically isolated populations in southern Africa, corresponding to southern Angola and Namibia; and Zimbabwe, central Mozambique and southwards to South Africa; may be revealed to contain distinct species (Monadjem et al. 2010; Cotterill & Happold 2013).

Taxonomy

Rhinolophus fumigatus Rüppell 1842

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

Synonyms: *abae, acrotis* G. M. Allen 1914, *aethiops, antinorii, diversus, exsul, foxi, macrocephalus*

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

Taxonomic status: Species complex

Taxonomic notes: Six subspecies have been listed, but the status and geographic distribution of some of these remain uncertain and taxonomic revision is required (Cotterill & Happold 2013). It is likely that more than one species has been included under *Rhinolophus fumigatus* (Rosevear 1965; Csorba et al. 2003), and may be as many as four. Only *R. f. aethiops* Peters, 1869 is known from the assessment region (Meester et al. 1986), with the subspecies' range extending from southern Angola to central Mozambique and southwards into the extreme northern parts of South Africa (Cotterill & Happold 2013). However, the eastern and western populations are geographically isolated (separated by at least 750 km) and differ in size and pelage colour (Monadjem et al. 2010). Future research may confirm that these two populations of *R. f. aethiops* are distinct species (Cotterill & Happold 2013; ACR 2015). This species can be distinguished from other southern African species of Horseshoe Bats by its complicated noseleaf with vertical connecting process (Monadjem et al. 2010).

Assessment Rationale

Rüppell's Horseshoe Bat is known from fewer than ten colonies within the assessment region (with an estimated extent of occurrence of 19,150 km^2). However, there is no documented evidence of decline or any plausible threats that could cause continuing decline. It occurs predominantly in Great Limpopo Transfrontier Park (GLTP) and Greater Mapungubwe Transfrontier Conservation Area (GMTCA), and savannah habitats are well protected within the assessment region. It is plausible that the mature population is < 1,500 mature individuals, qualifying it as Near Threatened D1. However, its habitat is connected across regions and it is common and widespread outside of the assessment region, so rescue effects are possible and we downlist to Least Concern. If colonies are discovered outside protected areas within the assessment region, reassessment may be necessary as such colonies may be threatened. Taxonomic resolution is also required.

Regional population effects: Wing-loading is low (Cotterill & Happold 2013), but habitat is connected with populations in Zimbabwe through the GLTP and GMTCA. Thus, we assume rescue effects are possible.

Distribution

This species has a broad, yet patchy distribution across sub-Saharan Africa, ranging from Senegal and The Gambia in West Africa to Ethiopia and Eritrea in the east, and then through East and southern Africa southwards as far as Namibia and the northeastern reaches of South Africa (Monadjem et al. 2010; Cotterill & Happold 2013; ACR 2015). Its distribution is likely to be more expansive than current records suggest (Cotterill & Happold 2013). For example, it has not yet been recorded from northeastern Botswana but is likely to occur there (Cotterill & Happold 2013). Two geographically isolated populations occur in the east and west of southern Africa:

Recommended citation: Jacobs DS, Taylor PJ, Cohen L, MacEwan K, Richards LR, Schoeman C, Sethusa T, Monadjem A. 2016. A conservation assessment of *Rhinolophus fumigatus*. 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.

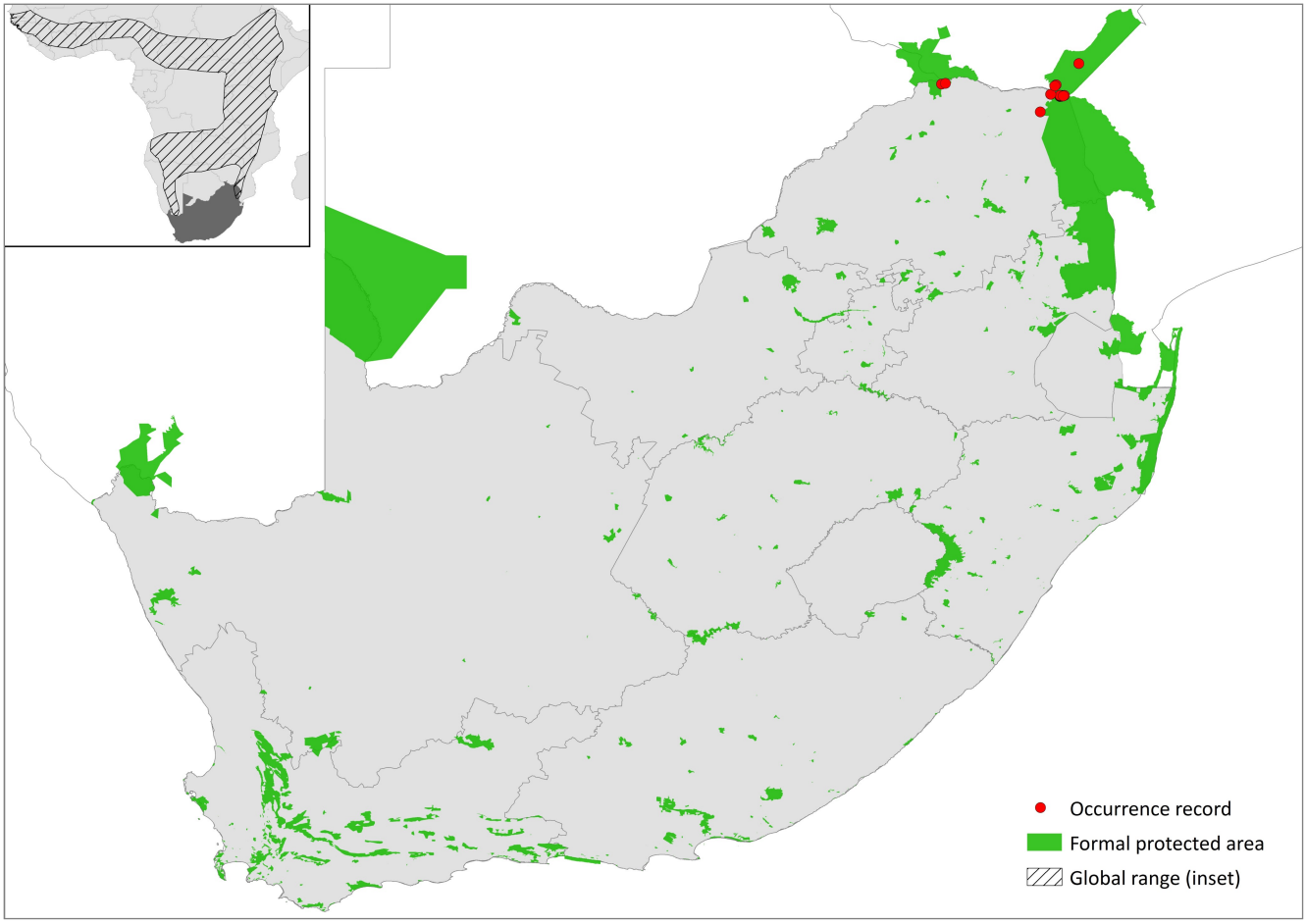

Figure 1. Distribution records for Rüppell's Horseshoe Bat (*Rhinolophus fumigatus*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

In the east, it occurs from northern South Africa through Zimbabwe, southern and eastern Zambia, southern Malawi, southern Democratic Republic of the Congo and central and northern Mozambique; while the western population occurs widely in central and northern Namibia and southwestern Angola (Monadjem et al. 2010). These two populations may be shown to be distinct species (Monadjem et al. 2010; Cotterill & Happold 2013).

Within the assessment region, it is restricted to the very northern region of the Limpopo Province. Based on known recorded colonies, extent of occurrence is estimated to be 19,150 km², and area of occupancy is 7,529 km² (based on occupied grid cells). There are unverified reports that this species might also occur in the Northern Cape Province from specimens collected at Klipfontein in Namaqualand (Herselman & Norton 1985), but these records need to be substantiated (Monadjem et al. 2010).

Population

In parts of its range, this species is locally common, and has been reported occurring in large colonies. For example, colonies consisting of 500 individuals were documented in caves in Namibia (Churchill et al. 1997). It is considered locally common in West Africa and Malawi but rarer in southern Africa (Cotterill & Happold 2013). It is relatively well represented in museums, with over 90 specimens examined in Monadjem et al. (2010). Generally, colonies encountered in the western population are larger whereas those from the eastern population, including South Africa and Zimbabwe, tend to be smaller (Monadjem et al. 2010; Cotterill & Happold 2013). For example, Rautenbach (1982) collected two specimens from the Limpopo Province that were solitary. It has been recorded in fewer than ten localities within the assessment region.

Current population trend: Stable

Continuing decline in mature individuals: No

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Recorded from seven subpopulations, three of which occur in the Kruger National Park and can be considered one subpopulation.

Severely fragmented: No

Habitats and Ecology

Rüppell's Horseshoe Bat favours savannah woodland habitats (for example, miombo and mopane woodlands) and dry forests where appropriate roosting sites are available (Cotterill & Happold 2013). Specifically, it is associated with arid savannah in the west and savannah woodland in the east (Monadjem et al. 2010). It does not range into desert, semi-desert or true moist forest regions (Skinner & Chimimba 2005; Cotterill & Happold 2013). Within Limpopo Province, it has been recorded from the Lowveld and Mopane Bioregion. It is gregarious, usually roosting close together in caves, mine adits, rock boulders and cavities, hollow Baobab (*Adansonia digitata*) trees and culverts under roads (Skinner & Chimimba 2005).

This species has broad and short wings with a low aspect ratio and intermediate wing loading (Aldridge & Rautenbach 1987; Norberg & Rayner 1987; Schoeman & Jacobs 2008). It is an insectivorous clutter forager, feeding mainly on Coleoptera, and, to a lesser extent, Lepidoptera (Aldridge & Rautenbach 1987). In southern Africa, females pregnant with a single foetus were collected in September and October, suggesting that young are born between October and December (Smithers 1983).

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

There is no evidence to suggest that this species is traded or utilised in any form.

Threats

Globally and nationally, no major threats have been identified for this species. Within the assessment region, the species is known from two major transfrontier protected areas where threat severity is presumably very low. However, if colonies are discovered outside protected areas, more research will be needed to identify and quantify the potential severity of threats.

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

Conservation

No specific conservation interventions are currently necessary as this is an edge of range species occurring within Kruger and Mapungubwe National Parks, and its range is continuous into Zimbabwe through transfontier conservation areas.

Recommendations for land managers and practitioners:

- Field surveys to discover new roost sites and confirm occupancy of existing roost sites.

Research priorities:

- Systematic monitoring to estimate population size and trends.
- Taxonomic research is necessary to clarify the status of this species complex and delineate relationships between subspecies throughout the rest of its range.
- Substantiating the prospect of the species occurring in the Northern Cape Province.

Encouraged citizen actions:

- Citizens can assist in the conservation of the species by reporting sightings on virtual museum platforms (for example, iSpot and MammalMAP), and therefore contribute to an understanding of the species distribution. This is especially important outside protected areas.

Data Sources and Quality

Table 2. Information and interpretation qualifiers for the Rüppell's Horseshoe Bat (*Rhinolophus fumigatus*) 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.*