Pipistrellus rueppellii – Rüppell's Pipistrelle

Merlin Tuttle

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

*Watch-list Data

This species feeds above open water where individuals have been observed gleaning floating insects off the water and some even landed in the water (Monadjem et al. 2010).

Taxonomy

Pipistrellus rueppellii (Fischer 1829)

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - VESPERTILIONIDAE - *Pipistrellus* - *rueppellii*

Synonyms: *Vespertilio temminckii* Cretzschmar 1826, *coxi, fuscipes, hypoleucus, leucomelas, pulcher, senegalensis, vernayi*

Common names: Rüppell's Pipistrelle, Rüppell's Pipistrelle Bat, Rüppell's Pipistrelle, Rüppell's Bat (English), Rüppell se Vlermuis, Rüppell-vlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: *Pipistrellus rueppellii* is included in the subgenus *Vansonia* Roberts 1946 (ACR 2015). Taxonomic revision is necessary as some evidence supports the reallocation of *rueppellii* into a distinct genus (Helbig et al. 2010; Koubínová et al. 2013). Meester et al. (1986) listed two subspecies, including *P. r. vernayi* Roberts 1932 from northeastern Botswana, and the nominate *P. r. rueppellii* from eastern Zimbabwe and the northern regions of Kruger National Park (South Africa). However, more recent literature suggested that *vernayi* may be applicable to all specimens from southern Africa, and should include *P. leucomelas* Monard 1933 as a synonym (Monadjem et al. 2010). The validity of these species is uncertain until further research is conducted.

Assessment Rationale

Within the assessment region, this species is known from two major protected areas: Augrabies Falls National Park and Great Limpopo Transfrontier Park. As such, there are no known plausible threats and thus the localities do not represent locations. We therefore list the species as Least Concern. While it was considered a vagrant in the previous assessment (known only from Augrabies Falls National Park), new records from the Great Limpopo Transfrontier Park justify a listing for the region. Further field surveys and research are needed to more accurately delimit its distribution within the assessment region and to resolve its taxonomy. If it occurs more extensively outside protected areas than currently known, it may be facing local threats. Once such data are available, a reassessment may be necessary.

Regional population effects: Although records of this species in southern Africa are scattered, its habitat is connected through transfrontier conservation areas between South Africa and Zimbabwe. However, it has low wing loading (Norberg & Rayner 1987) so rescue effects are uncertain.

Distribution

This species is widespread across Africa. It has a disjunct distribution through North Africa, with records from Morocco to Algeria, Tunisia and Libya (Benda et al. 2004). Its range extends along the Nile River through Egypt to the northern reaches of the Red Sea and the western regions of Sinai (ACR 2015). In West Africa, it has been recorded along the coast of Senegal and at the border between Senegal and Mauritania. Its range is continuous from northern Sudan southwards to northern Zimbabwe, and extends eastwards from western Zambia across to western Mozambique. In southern Africa, it occurs widely across the northern parts of the region from the Kruger National Park through to Zimbabwe, Zambia, Malawi, southern DRC, northern Botswana and west to Angola and the extreme north of Namibia (Monadjem et al. 2010). Riparian fringes along the Limpopo and Zambezi rivers may explain outlying records of this species in semi-arid savannahs of southern and northern Zimbabwe (Monadjem et al. 2010). Within the assessment region, there is an isolated record from the Augrabies Falls National Park, Northern Cape, which may represent a vagrant or an overlooked population (Monadjem et al. 2010). Habitat models suggest that the species may occur more widely in Namibia and adjoining parts of southern Angola, and along the Zambezi River in Mozambique (Monadjem et al. 2010).

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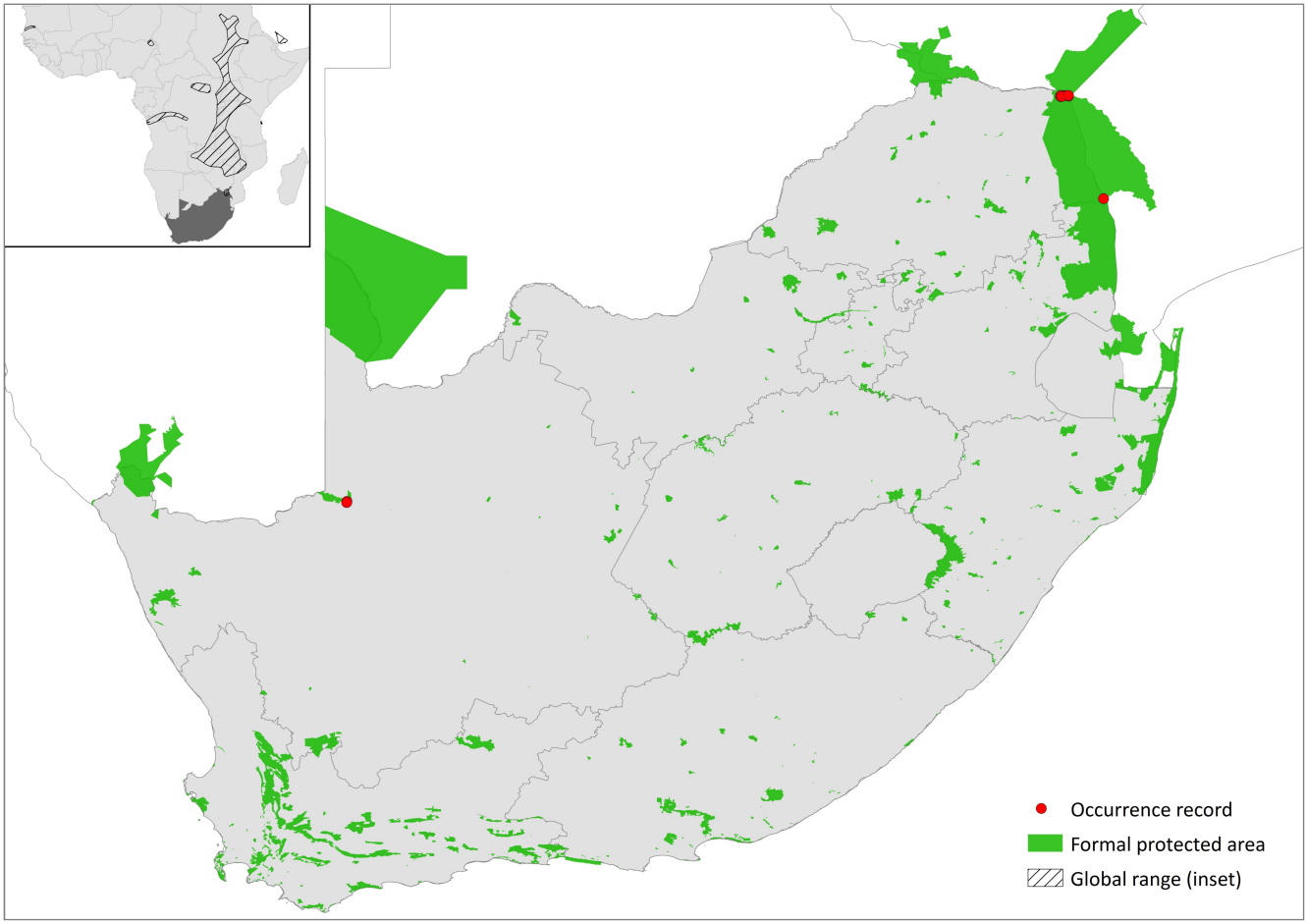

Figure 1. Distribution records for Rüppell's Pipistrelle (*Pipistrellus rueppellii*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Population

This species is predominantly known from captures in mist nets, thus no data are available for population size or trends (ACR 2015). However, it is considered uncommon as it is not well represented in museums, with only 60 specimens examined in Monadjem et al. (2010).

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: Three

Severely fragmented: Yes, the range of this species appears to be naturally fragmented due to its notable association with riverine conditions.

Habitats and Ecology

It appears to be associated with large rivers and wetlands in dry savannah or woodland habitats (Skinner & Chimimba 2005; Monadjem et al. 2010), often within arid regions. Within the assessment region, the species is recorded from Bushmanland, the Lowveld and the Mopane Bioregion. The single record from the Northern Cape was collected from Augrabies Falls National Park in a mist net set over a small rock pool located approximately 200 m from the main falls (Skinner & Chimimba 2005). Nearly all the southern African specimens were netted, so its roosting habits are not known, but a single specimen was collected from behind a notice board (Monadjem et al. 2010). It is presumed to roost under rocks and in buildings. It often hunts over open water. For example, in the Okavango Delta, individuals were observed gleaning floating insects off the water surface in Xugana Lagoon and some individuals also landed in the water (Monadjem et al. 2010). It is a clutter-edge forager and exhibits variability in its diet between regions (Monadjem et al. 2010). For example, in the Kruger National Park, its diet included predominantly Coleoptera, while at Sengwa in Zimbabwe, its diet comprised Coleoptera, Lepidoptera, Trichoptera and Diptera (Monadjem et al. 2010).

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.

Table 2. Threats to the Rüppell's Pipistrelle (*Pipistrellus rueppellii*) 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	*9.3.3 Agricultural & Forestry Effluents*: indirect poisoning. Current stress *1.3 Indirect Ecosystem Effects*: loss of prey base.	-	Anecdotal	-	Unknown
2	*11.1 Habitat Shifting & Alteration*: decline in food availability and variation in reproductive timing due to global climate change.	Sherwin et al. 2013	Review	International	Unknown

Table 3. Conservation interventions for the Rüppell's Pipistrelle (*Pipistrellus rueppellii*)) 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	*2.3 Habitat & Natural Process Restoration*: reduction of pesticide use in agricultural landscapes and conservation of buffer strips of natural vegetation.	-	Anecdotal	-	-	-

Use and Trade

There is no evidence to suggest that this species is harvested or traded within the assessment region.

Threats

No specific major threats have been identified for this species in the assessment region as it is known exclusively from protected areas at present. Globally it is known to be vulnerable to the use of pesticides, especially those against locusts. If this species is found to occur more extensively outside protected areas, agricultural transformation and the subsequent loss of an insect prey base may be a potential threat. Additionally, climate change has been identified as an increasing global threat to other bat species (Sherwin et al. 2013), and may similarly impact the food availability and energetic expenditure this species. Further research is required to delineate the distributional limits, taxonomic status, roosting behaviour and potential threats to this species.

Current habitat trend: Stable. It occurs in well-managed protected areas. The Savannah Biome is not threatened within the assessment region (Driver et al. 2012).

Conservation

All recorded subpopulations in the assessment region occur within the protected Kruger National Park and Augrabies Falls National Park. As such, no specific conservation interventions are necessary at present. Globally, a study on the impacts of pesticides is required, especially ways in which the impact could be minimised (ACR 2015). If the population in the assessment region is found to occur outside protected areas, it would benefit from holistic land management that reduces pesticide use and conserves buffer strips of natural vegetation to sustain insect biomass.

Recommendations for land managers and practitioners:

- Identify further populations within the assessment region.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Rüppell's Pipistrelle (*Pipistrellus rueppellii*) assessment

Data sources	Field study (unpublished), indirect information (expert knowledge), museum records
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
Risk tolerance	Evidentiary

Research priorities:

- Further field surveys to more accurately delimit its distribution within the assessment region.
- The impacts of agricultural pesticides to bats, especially ways in which these threats may be minimised.
- Roosting behaviour and the identification of key roosting sites.
- Taxonomic revision to determine whether *P. rueppellii* should belong to its own distinct genus and to resolve the status of the putative subspecies.

Encouraged citizen actions:

- Citizens can assist 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 species is small, and easily distinguished from other pipistrelle bats by its pure white underparts.

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