Pipistrellus rusticus – Rusty Bat


Trevor Morgan

Regional Red List status (2016)	**Least Concern**
National Red List status (2004)	Near Threatened
Reasons for change	Non-genuine: New information
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

The Rusty Bat is one of the smallest of the 76 bat species known to occur in southern Africa, with females and males weighing on average 4.4 and 4.0 grams, respectively (Skinner & Chimimba 2005).

Taxonomy

Pipistrellus rusticus (Tomes 1861)

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

Synonyms: *Pipistrellus marrensis* Thomas & Hilton 1923

Common names: Rusty Bat, Rusty Pipistrelle Bat, Rusty Pipistrelle (English), Roeskleurvlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Although they have the same karyotype and are very similar in bacular and cranial morphology; *Pipistrellus rusticus* and *P. hesperidus* can be distinguished by cranial size (Kearney et al. 2002; Kearney 2005). However, additional molecular studies are necessary to establish the taxonomic relationship between these groups (Monadjem et al. 2010). Two subspecies are recognised (Simmons 2005): *P. r. marrensis* occurring in Senegal to Ethiopia and Kenya; and the slightly larger *P. r. rusticus* in southern Africa (Zambia, Namibia, Botswana, Zimbabwe and South Africa). The validity of these subspecies is uncertain.

Assessment Rationale

The species is listed as Least Concern in view of its wide distribution within the assessment region (estimated extent of occurrence is 245,363 km^2), its occurrence in multiple protected areas (including Great Limpopo Transfrontier Park and Greater Mapungubwe Transfrontier Conservation Area) and because there are no major identified threats that could cause widespread population decline. It occurs primarily in savannah woodland habitats that are well protected within the assessment region. The previous national assessment should also have been Least Concern but was listed as Near Threated based on it not being re-sampled in an area where they had once been recorded. However, this is insufficient evidence for a Near Threatened listing. Further monitoring of subpopulation size and trends is required.

Regional population effects: It is likely that the range of resident populations is continuous with those of Zimbabwe and Mozambique through its occurrence in transfrontier conservation areas. However, it has low wing loading (Norberg & Rayner 1987) and thus rescue effects are uncertain.

Distribution

This species has a broad, yet patchy distribution through sub-Saharan Africa. Westerly records extend to Senegal and the Gambia, while, in East Africa, specimens have been collected from Ethiopia near the border of Somalia. Records from central Africa are limited to southern Chad and the northern region of the Central African Republic (ACR 2015). The southern portion of their range extends as far as the northern reaches of South Africa and central Namibia, and they are known to occur in Zimbabwe and Mozambique, with an isolated population in Malawi (Monadjem et al. 2010). It is likely to occur in central Mozambique (Monadjem et al. 2010). Within the assessment region, it occurs in the northern provinces of South Africa; namely: Limpopo, Mpumalanga, Gauteng and the North West. Estimated extent of occurrence in the assessment region is 245,363 km^2.

Population

Although this species has a patchy distribution, it is considered locally common (ACR 2015). For example, in

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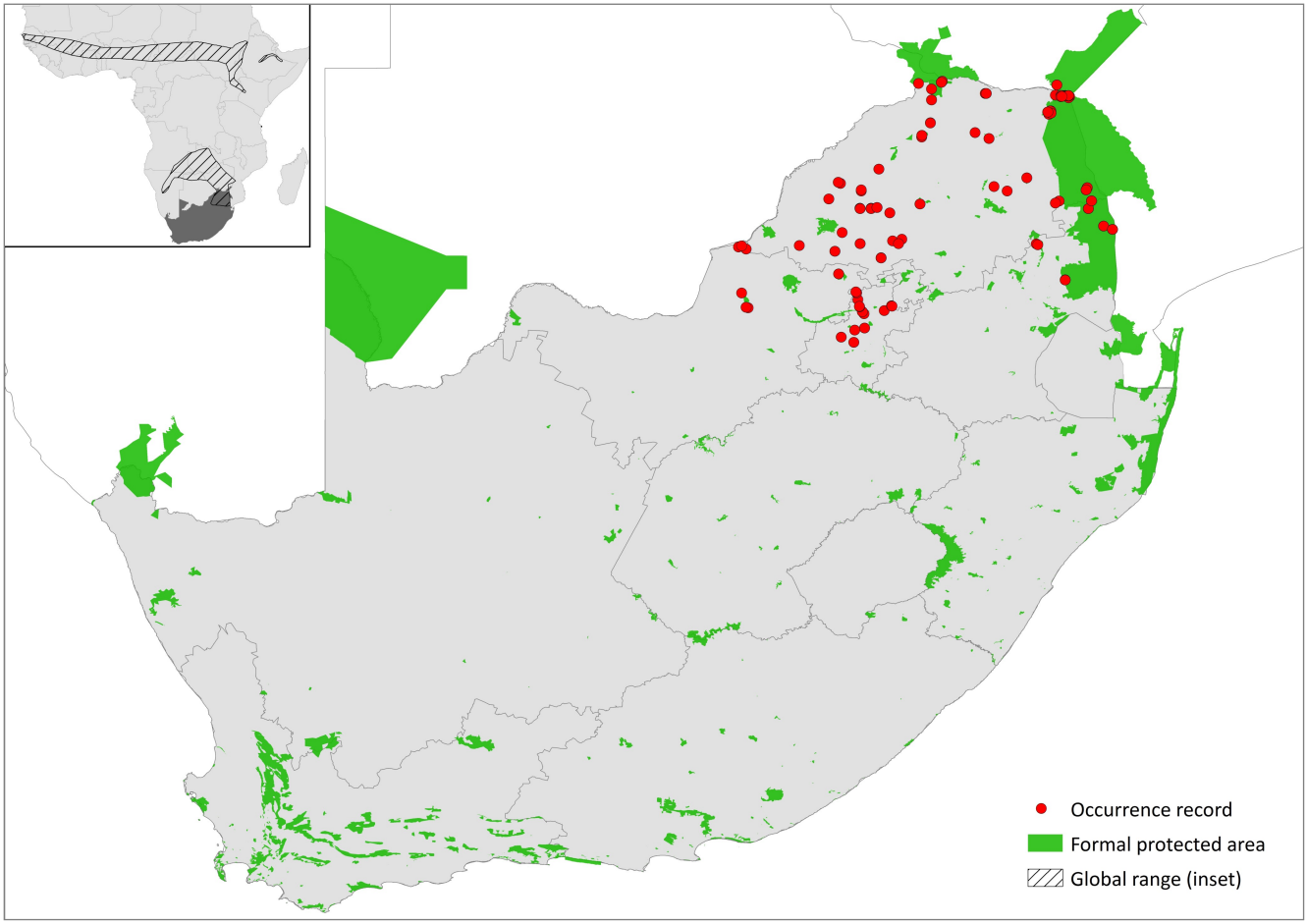

Figure 1. Distribution records for Rusty Bat (*Pipistrellus rusticus*) within the assessment region

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	Absent	-
Zimbabwe	Extant	Native

the Limpopo valley, it is locally common in mopane woodland where rocky habitat (Clarens sandstones) is also present (Monadjem et al. 2010). It is well represented in museums, with over 150 specimens examined in Monadjem et al. (2010). Further monitoring is required to estimate population size and trends. Currently, we assume the species is stable based on it being sampled in recent field surveys (for example, Taylor et al. 2013; Power 2014).

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

It occurs in savannah woodland and is associated with open water bodies, but is absent from moist miombo woodland and arid savannah (Monadjem et al. 2010). There are limited data available for the roosting habits of this species, but they are commonly netted over water and have been collected in tree crevices and hollows (Roberts 1951; Taylor 2000), under the bark of dead *Vachellia* (previously *Acacia*) trees, and in old buildings (Skinner & Chimimba 2005). It is a clutter-edge forager with a diet consisting of Coleoptera, Diptera and Lepidoptera (Monadjem et al. 2010). There is slight sexual dimorphism; with the females being slightly heavier than their male counterparts (van der Merwe & Rautenbach 1990; Monadjem et al. 2010). Studies into the reproductive ecology of the Rusty Bat in Limpopo revealed that copulation occurs in April, followed by a period of sperm storage in the female until August and September, when ovulation and fertilization take place (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.

Use and Trade

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

Table 2. Threats to the Rusty Bat (*Pipistrellus rusticus*) 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	*2.1.3 Annual & Perennial Non-Timber Crops*: habitat loss from agro-industry expansion. Current stress *1.3 Indirect Ecosystem Effects*: loss of prey base.	-	Anecdotal	-	Ongoing
2	*9.3.3 Agricultural & Forestry Effluents*: indirect poisoning. Current stress *1.3 Indirect Ecosystem Effects*: loss of prey base.	-	Anecdotal	-	Ongoing

Table 3. Conservation interventions for the Rusty Bat (*Pipistrellus rusticus*) 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	-	-	-

Threats

No major threats have been identified for this species. Ongoing habitat loss from agricultural transformation and the use of pesticides in agricultural landscapes may reduce the insect prey base for this species.

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

Conservation

Within the assessment region the species is protected in more than 10 conservation areas, including large reserves Great Limpopo Transfrontier Park, Greater Mapungubwe Transfrontier Conservation Area and Madikwe Nature Reserve. No direct conservation measures are currently needed. However, outside of 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:

- Reduce pesticide use in agricultural landscapes and maintain buffer strips of natural vegetation.

Research priorities:

- Investigations into the possible threats faced by this species.
- Clarification of the taxonomic relationship between *P. rusticus* and *P. hesperidus* and the status of putative subspecies.
- Studies into its roosting behaviour, habitat selection and population status are needed.

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. However, this species is extremely difficult to distinguish in the field from other *Pipistrellus*, *Hypsugo* or *Neoromicia* species (Kearney 2005), so professional verification will be necessary.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Rusty Bat (*Pipistrellus rusticus*) 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

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Assessors and Reviewers

Ara Monadjem[1], David S. Jacobs[2], Lientjie Cohen[3], Kate MacEwan[4], Leigh R. Richards[5], Corrie Schoeman[6], Theresa Sethusa[7], Peter J. Taylor[8]

[1]University of Swaziland, [2]University of Cape Town, [3]Mpumalanga Tourism and Parks Agency, [4]Inkululeko Wildlife Services, [5]Durban Natural Science Museum, [6]University of KwaZulu-Natal, [7]South African National Biodiversity Institute, [8]University of Venda

Contributors

Claire Relton[1], Domitilla Raimondo[2], Samantha Page-Nicholson[1]

[1]Endangered Wildlife Trust, [2]South African National Biodiversity Institute

Species champion

Julio Balona

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