Glauconycteris variegata – Variegated Butterfly Bat


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

*Watch-list Data

The Variegated Butterfly Bat is amongst the most beautiful and easily recognised bat species, but little is known about the population trends of the species (Rambaldini 2010).

Taxonomy

Glauconycteris variegata (Tomes 1861)

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - VESPERTILIONIDAE - *Glauconycteris* - *variegata*

Synonyms: *papilio* Thomas 1905, *phalaena* Thomas 1915

Common names: Variegated Butterfly Bat, Leaf-winged Bat (English), Vlindervlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Two subspecies are currently recognized, but their validity remains uncertain (Happold 2013): *Glauconycteris variegata phalaena* from Sudan and Somalia, and *G. v. variegata,* which is distributed through the rest of the species range; including the assessment region (Skinner & Chimimba 2005). *Glauconycteris machadoi* is sometimes considered a melanistic subspecies of *G. variegata* (Monadjem et al. 2010), but is considered a distinct species by Happold (2013).

Assessment Rationale

The Variegated Butterfly Bat is a widely distributed species across the continent, occurring in the northeastern areas of the assessment region with an estimated extent of occurrence of 135,809 km^2. It occurs in many protected areas, including the Great Limpopo Transfrontier Park and the Lubombo Transfrontier Conservation and Resource Area, and thus habitats are connected across regions. While agricultural transformation and logging for fuelwood remain as threats, it is uncertain whether this is causing a net population decline as the species can also occupy human modified landscapes. It is a rare species, roosting in low numbers. Thus, we suspect there are fewer than 10,000 mature individuals, and may well be fewer than 1,000 mature individuals, within the assessment range. Systematic monitoring and research is urgently needed to determine population size and trend of this species, as it may qualify for a more threatened listing. Once more data are available, reassessment will be required. Primary interventions include protected area expansion and connection of riverine forest and woodland habitats through both continued transfrontier initiatives and stewardship or conservancy proclamations.

Regional population effects: As this species is present in the north eastern section of the assessment region as well as in southern Mozambique and in Zimbabwe, the population is suspected to be continuous across country borders. However, it has low wing loading (Happold 2013), and thus significant rescue effects are unlikely.

Distribution

This species is widely, but patchily, recorded throughout much of sub-Saharan Africa. It ranges from Senegal and Gambia in West Africa, through Central Africa to Ethiopia and Somalia in the east; from there it ranges south through East Africa and southern Africa, being recorded as far south as northeastern South Africa (ACR 2015). Within the assessment region, it occurs from the KwaZulu-Natal coast, north through southern Mozambique, extreme northeastern South Africa to Zimbabwe, northern Botswana and Namibia, Zambia, southern Malawi, southern DRC, and from isolated sites in Angola (Skinner & Chimimba 2005; Monadjem et al. 2010).

Population

This species is considered rare throughout its range but it may also be under-sampled as it is difficult to record due to its reticulated wings resembling dead leaves, rendering roosting bats well camouflaged (Happold 2013). It is therefore difficult to estimate the population size within the assessment region, but may be locally common in some areas. It is not well represented in museums, with over 40 specimens examined in Monadjem et al. (2010). As it roosts in foliage (often hidden among leaves or palm fronds), it does not form large colonies, usually singly or in pairs (Monadjem et al. 2010), and always fewer than 10 individuals (Rambaldini 2010). As such, there are

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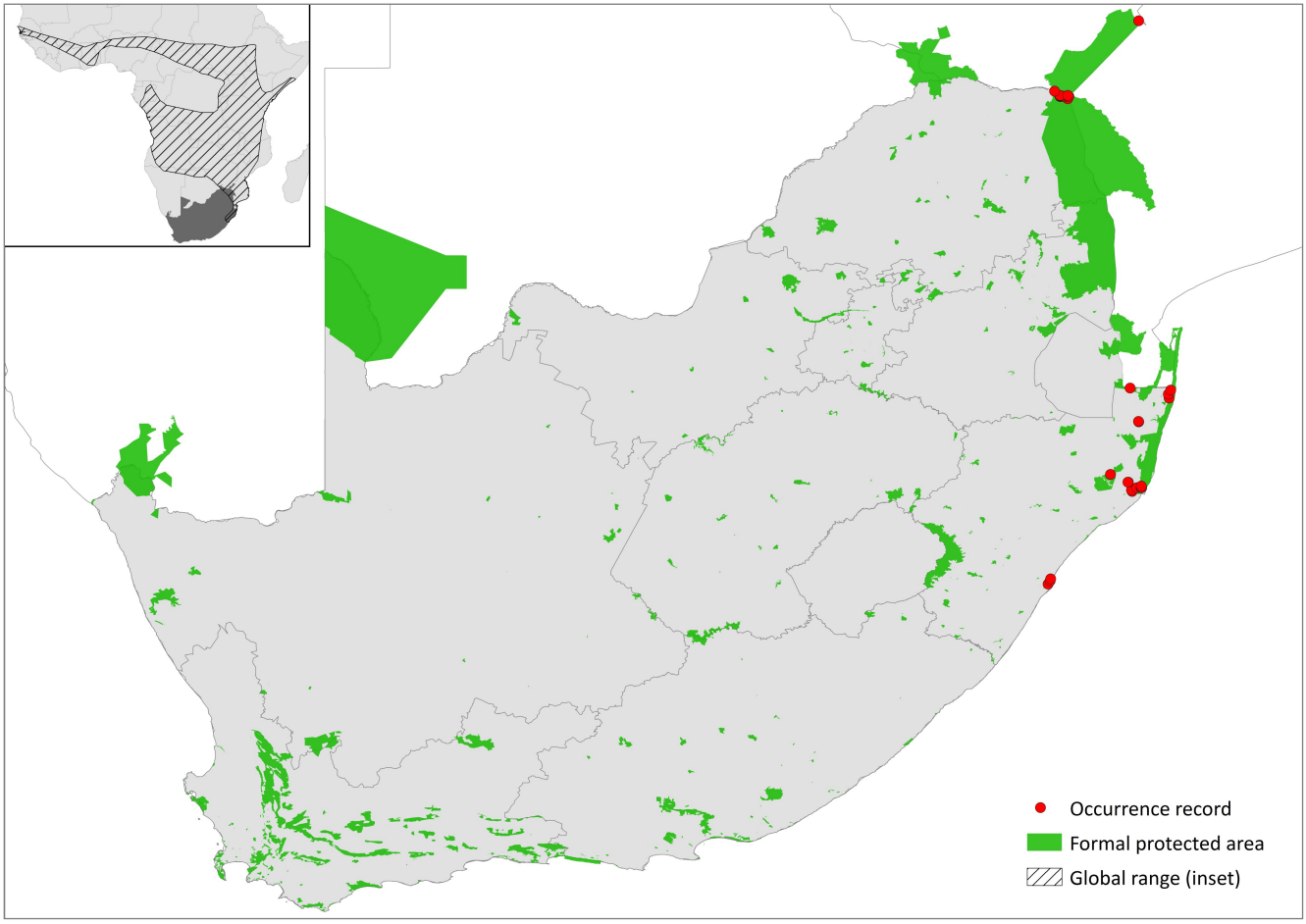

Figure 1. Distribution records for Variegated Butterfly Bat (*Glauconycteris variegata*) within the assessment region

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	Probably extant	Native
Zimbabwe	Extant	Native

suspected to be less than 10,000 individuals in total across its range, and possibly fewer than 1,000 mature individuals within the assessment region. Further data on density, colony size and occupancy is needed to evaluate this assumption.

Current population trend: Stable

Continuing decline in mature individuals: None

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: 10–20 within the assessment region, but very likely to be more.

Severely fragmented: No

Habitats and Ecology

This species is associated with open savannah woodland, open bushland and riverine woodland or coastal forest within the assessment region (Skinner & Chimimba 2005; Monadjem et al. 2010; Happold 2013). It is generally absent from areas of closed forest. However, Rautenbach (1982) captured this species in dense riparian forest in Pafuri, Kruger National Park. It has also been recorded over streams and pools (Happold 2013), and one individual was mist-netted in a picnic ground within dense forest in KwaZulu-Natal (Taylor 1998). It can occur in semi-disturbed or modified habitats. Roosting colonies, containing single individuals or a few pairs, have been found in thatched roofs of abandoned huts and among dense vegetation (Allen 1917; Rautenbach et al. 1979; Ansell & Dowsett 1988; Taylor 1998). In Zimbabwe, Obrist et al. (1989) recorded a group of eight individuals roosting within the foliage of a Natal Mahogany (*Trichilia emetica*). They have also been found in Lychee (*Litchi chinensis*) trees (Pienaar et al. 1987) and on a low branch of a Mango (*Mangifera indica*) tree (McLellan 1986). It is a clutter-edge forager and its diet mainly comprises Lepidotera species (Monadjem et al. 2010; Happold 2013).

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 Variegated Butterfly Bat (*Glauconycteris variegata*) 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.	Jewitt et al. 2015	Indirect (remote sensing)	Regional	Ongoing
2	*2.1.2 Annual & Perennial Non-timber Crops*: habitat loss from small-scale farming.	Jewitt et al. 2015	Indirect (remote sensing)	Regional	Ongoing
3	*5.3.3 Logging & Wood Harvesting*: habitat degradation from fuelwood harvesting.	-	Anecdotal	-	Ongoing
4	*3.2 Mining & Quarrying*: re-mining old adits reduced roost sites.	Jewitt et al. 2015	Indirect (remote sensing)	Regional	Ongoing

Use and Trade

Not known to be traded or utilised in any form.

Threats

There are no significant overall threats to this taxon. The species is able to utilise semi-disturbed vegetation and human structures for roosting. However, there is ongoing habitat loss from agricultural transformation, especially in KwaZulu-Natal (Jewitt et al. 2015), which may cause population declines. Selective logging of trees for fuelwood and charcoal production may also cause local declines. Removal of the commercial pine forests from the iSimangaliso Wetland Parks is also suspected to have adversely affected the local subpopulation in the area. More research must be done to quantify the severity of local threats to the species.

Current habitat trend: Stable overall with local declines. While savannah woodland in the assessment region is generally well protected (Driver et al. 2012), KwaZulu-Natal forests and moist woodlands are under pressure in some areas. An average of 1.2% natural habitat is transformed per annum since 1994 in KwaZulu-Natal, primarily due to agriculture, timber plantations, human settlements and industry and mines (Jewitt et al. 2015).

Conservation

The Variegated Butterfly Bat occurs in protected areas such as in the Kruger National Park, Ndumo Game Reserve, Hluhluwe-iMfolozi Game Reserve and the iSimangaliso Wetland Park. No direct interventions can be put in place until more data on subpopulation size and trends, as well as local threat severity, is produced. However, the species would benefit from further protected area expansion, such as the planned link from Maputaland to the Lubombo Transfrontier Conservation Area (Smith et al. 2008). Identification and protection of key roost sites is also necessary.

Recommendations for land managers and practitioners:

- Report discoveries of new roost sites.

Research priorities:

- Further field surveys to discover new roost sites to inform protected area expansion.
- Monitoring of known subpopulations to establish population size and trend.
- Quantification of severity of local threats.

Encouraged citizen actions:

- Citizens can assist the conservation of the species by reporting sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Variegated Butterfly Bat (*Glauconycteris variegata*) 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

Table 3. Conservation interventions for the Variegated Butterfly Bat (*Glauconycteris variegata*) 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	*1.1 Site/Area Protection*: protected area expansion to incorporate additional roosts sites and subpopulations.	-	Anecdotal	-	-	-
2	*2.1 Site/Area Management*: protection of key roost sites in place.	-	Anecdotal	-	-	-

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