Epomophorus wahlbergi – Wahlberg's Epauletted Fruit Bat


Dawn Touissant

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

*Watch-list Threat

This species is interdependent with the Sycamore Fig (*Ficus sycomorus*) in the Kruger National Park, with > 90% of its activity occurring within riparian woodlands containing these trees (Bonaccorso et al. 2014).

Taxonomy

Epomophorus wahlbergi (Sundevall 1846)

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - PTEROPODIDAE - *Epomophorus* - *wahlbergi*

Synonyms: *unicolor* (Gray 1870), *neumanni* Matschie 1899, *stuhlmanni* Matschie 1899, Matschie 1899

Common names: Wahlberg's Epauletted Fruit Bat (English), Wahlberg se Vrugtevlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: No subspecies are recognised (Monadjem et al. 2010). Adult *Epomophorus wahlbergi* can be distinguished from the sympatric *E. crypturus* by the presence of just one post-dental palatal ridge (two in *E. crypturus;* Photo 1) and broader muzzle (Taylor & Monadjem 2008).

Assessment Rationale

Though threatened in some areas by loss of habitat, increasing fatalities due to wind turbines and increasing frequency and duration of droughts in parts of its range, the species is listed as Least Concern in view of its wide distribution (estimated extent of occurrence is 943,008 km^2), presumed large population, its occurrence in many protected areas and modified habitats, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category. While monitoring data show an increase in numbers in some urban and peri-urban areas in KwaZulu-Natal, local declines have also been reported due to drought conditions. We infer that the population is stable. However, with a recent increase in wind farms across the eastern part of the assessment region where this species occurs, monitoring fatalities from wind turbines and subsequent impacts on population numbers is required as this may become a severe threat.

Regional population effects: Its habitat is connected to the rest of its southern African range where it is widespread and common, thus we infer that rescue effects are possible.

Distribution

Wahlberg's Epauletted Fruit Bat is found in Central Africa, East Africa and broadly across southern Africa where it is widespread and abundant in the eastern regions (Monadjem et al. 2010). It has been recorded from Cameroon, Equatorial Guinea, Gabon, Congo and Angola in the west, through the southern Democratic Republic of the Congo and Rwanda. The species is also distributed in East Africa from Uganda, Kenya, southern Somalia, Tanzania (including Zanzibar), Zambia, Malawi and Mozambique into Zimbabwe (ACR 2015). Within the assessment region, the species is distributed in the southern and eastern areas of South Africa, where it has been recorded from the Western Cape through Swaziland (Skinner & Chimimba 2005; Monadjem et al. 2010). The type specimen is from near Durban, KwaZulu-Natal (Monadjem et al. 2010). Its estimated extent of occurrence is 943,008 km^2.

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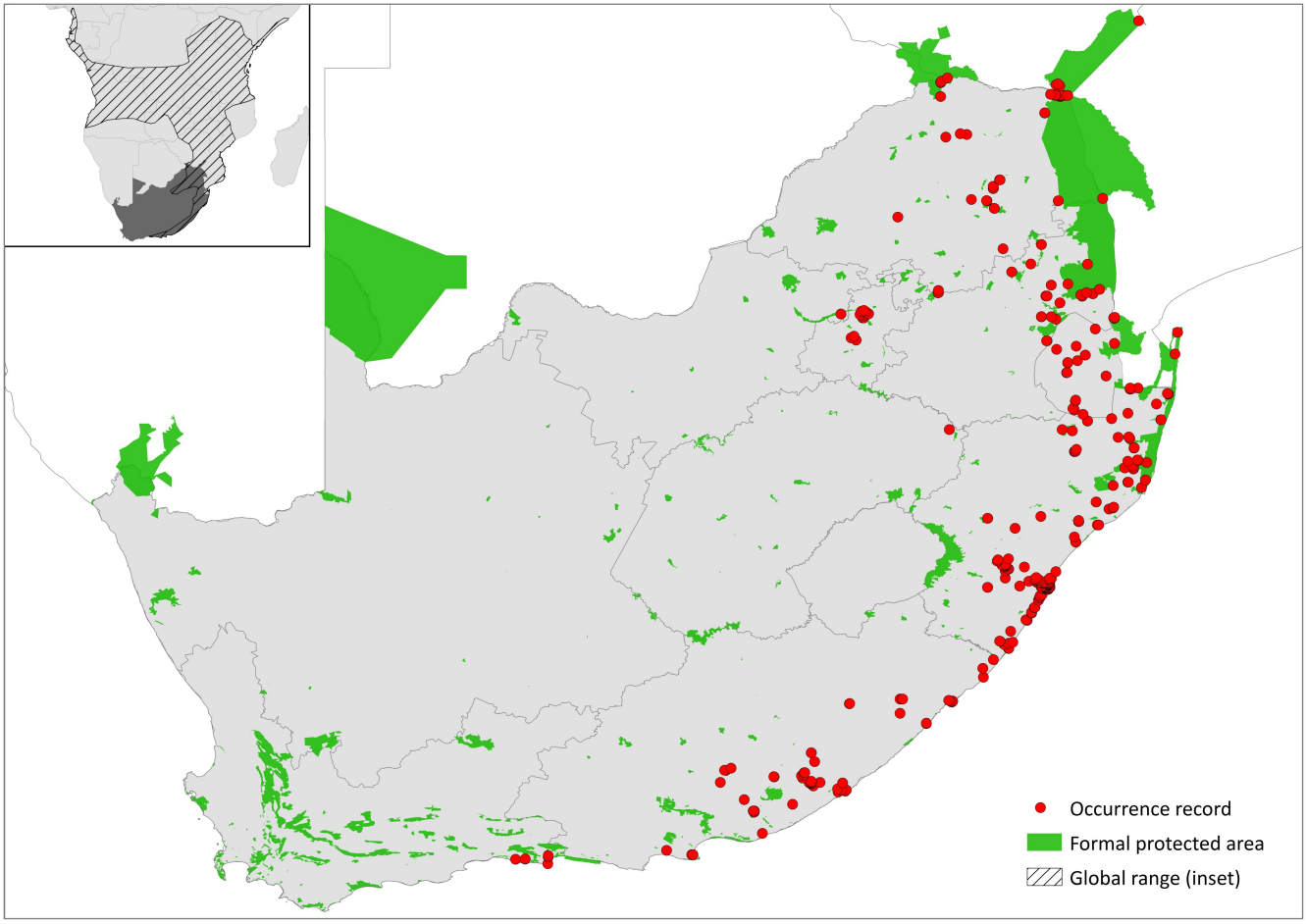

Figure 1. Distribution records for Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Population

Wahlberg's Epauletted Fruit Bat is a common species and numbers appear stable over much of its range and it is well represented in museums, with over 280 specimens examined in Monadjem et al. (2010). For example, monitoring data since 2007 has shown evidence of increasing subpopulations in urban and peri-urban areas in KwaZulu-Natal (C. Schoeman unpubl. data). However, it may be experiencing local declines elsewhere in its range due to a number of threats. For example, declines caused by wind turbines (MacEwan 2016), or extended periods of drought, such as that in KwaZulu-Natal (Bat Interest Group KwaZulu-Natal, unpubl. data). Subpopulations should be systematically monitored so trends can be established.

Current population trend: Stable

Continuing decline in mature individuals: Yes

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown, species roosts singly or in small roosts so number of mature individuals in largest subpopulation is difficult to estimate.

Number of subpopulations: > 50

Severely fragmented: No

Habitats and Ecology

This species is associated with forest and forest-edge habitats, including riparian and mangrove forests with fruiting trees and also occurs in peri-urban areas with extensive wooded gardens (Monadjem et al. 2010). It also occurs in woodland savannahs (including miombo, mopane, *Acacia-Commiphora* deciduous woodlands and thickets). *Epomophorus crypturus* seems to prefer drier habitats and its capture rate increases in northern regions whereas that of *E. wahlbergi* increases in the south (Monadjem et al. 2010). Roosting sites are often under the canopy of trees, in thick foliage (Monadjem et al. 2010), with animals roosting singly or in small groups, sometimes present in considerable numbers. The species is somewhat adaptable to habitat modification, with subpopulations recorded from well wooded urban and suburban areas, where it is associated with fruit-bearing trees (especially fruit trees). It occasionally roosts in man-made structures (ACR 2015) (Photo 2). This species continually changes its roost site, which appears to be an anti-predation strategy. It has been recorded to travel several kilometres each night to reach fruiting trees

(Fenton et al. 1985). In the assessment region, the species is recorded from Eastern Kalahari Bushveld, Upper Karoo, Dry Highveld Grassland, Central Bushveld, Mopane Bioregion, Lowveld, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Sub-Escarpment Grassland, Albany Thicket and Drakensberg Grassland. It feeds on fruit (including both indigenous and cultivated species), nectar, pollen and flowers (Monadjem et al. 2010). Fig trees appear to be favoured food resources; for example, in Kruger National Park, it specialises on the fruits of *Ficus sycomorus* (Fenton et al. 1985; Bonaccorso et al. 2014), where mean foraging range and core use area changes significantly with season, year, and fig abundance (Bonaccorso et al. 2014). Where this species is sympatric with *E. crypturus*, differences in mating vocalisations may be used by both species to avoid cross-mating (Adams & Snode 2015).

Ecosystem and cultural services: As this species is frugivorous, it plays a crucial role in seed dispersal and pollination of many species (Monadjem et al. 2010; Kunz et al. 2011). This species of bat has been recorded to pollinate Baobabs (*Adansonia digitata*), an economically important tree in the African savannah (Monadjem et al. 2010). It is a key seed disperser for the Sycamore Fig (*Ficus sycomorus*) within the assessment region (Bonaccorso et al. 2014).

Photo 1. Roof of the mouth showing the two palatal ridges behind the last molar of *E. crypturus* (Ara Monadjem)

Photo 2. Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) sometimes roosts in man-made structures (Paul Buchel)

Use and Trade

There is no evidence that this species is traded or utilised within the assessment region.

Threats

While there appear to be no major threats to the species overall, there are several threats that could be causing local declines. The species is threatened by loss of habitat due to dune mining in KwaZulu-Natal. Over the past five years a decline in the population in KwaZulu-Natal has been observed, with the cause suspected to be loss of coastal forest due to dune mining as well as extensive drought (Bat Interest Group KwaZulu-Natal unpubl. data). It is also suspected that the Lagos Bat Virus may be affecting the population as a number of bats caught from Durban and the South Coast have tested seropositive for the virus. Moreover, recent wind farm developments across the eastern portion of the assessment region pose a very serious threat for the species. Bats that fly near to turbine blades, either collide directly with a blade or experience barotrauma, which is the internal bleeding caused by rapid changes in air pressure near the blades

Table 2. Threats to the Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) 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*: habitat loss from dune mining.	Jewitt et al. 2016	Indirect	Regional	Increasing
2	*3.3 Renewable Energy*: mortality by barotrauma or direct collision with turbine blades at wind turbines.	Baerwald et al. 2008	Empirical	International	Increasing
		Rydell et al. 2010	Empirical	International	
		MacEwan 2016	Empirical	National	
3	*11.2 Droughts*: extended frequency and duration of droughts from climate change. Current stress *2.1 Species Mortality*.	-	Anecdotal	-	Increasing
4	*5.3.3 Logging & Wood Harvesting:* loss of large trees used for roosting.	Munyati & Kabanda 2009	Indirect	Regional	Increasing
5	*8.5.1 Viral/Prion-induced Diseases*: mortality from Lagos Bat Virus.	-	Anecdotal	-	Unknown

Photo 3. Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) carcass found at a wind farm (Kate MacEwan)

(Photo 3) (Baerwald et al. 2008; Cryan & Barclay 2009; Rydell et al. 2010). Fatalities from wind turbines for this species were recorded in 2015 and are likely to escalate (MacEwan 2016). The impact that these threats will have on the overall population in the assessment region is currently unknown and the species needs to be monitored especially in relation to mortalities from wind turbines. Roost disturbance and removal of large trees used as roost sites are also plausible threats in some parts of its range.

Current habitat trend: Stable (Driver et al. 2012), but declining locally and regionally in area and quality, particularly from agricultural and mining expansion (Jewitt et al. 2015). Additionally, recent land-cover analysis reveals that 20% of forest and woodland cover was lost from 1990 to 2006 in the Soutpansberg Mountain region due to logging, residential expansion and pine/eucalyptus plantations (Munyati & Kabanda 2009).

Conservation

The species is present in many protected areas, including Kruger National Park. No direct conservation measures are currently needed for this species as a whole. However, identification of key roost sites and subsequent protected area expansion in areas suffering from habitat loss would benefit this species. Additionally, the impact of wind farming should also be monitored to determine resultant population decline. To mitigate mortalities from turbine collisions on wind farms, interventions such as using ultrasound to deter bats and curtailing turbines at low wind speeds could be employed (Baerwald et al. 2009; Berthinussen et al. 2010; Arnett et al. 2011).

Recommendations for land managers and practitioners:

- Data sharing by wind farm managers into a national database, to be able to calculate cumulative impacts and thereafter implement collaborative mitigation and management efforts, is needed.

Research priorities:

- Identification of key roost sites and systematic monitoring to determine subpopulation trends.
- Monitoring mortalities linked with wind farm operations and assessing impact on populations.
- Investigations into effective mitigation methods to reduce bat mortality around wind farms.

Encouraged citizen actions:

- Limit disturbance to roost sites.
- 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 easily confused with *E. crypturus* but can be distinguished by the presence of only one post-dental palatal ridge (Photo 1) (two in *E. crypturus*) (Taylor & Monadjem 2008).

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) assessment

Data sources	Field study (unpublished), indirect information (literature, expert knowledge), museum records
Data quality (max)	Estimated
Data quality (min)	Inferred
Uncertainty resolution	Best estimate
Risk tolerance	Evidentiary

Table 3. Conservation interventions for the Wahlberg's Epauletted Fruit Bat (*Epomophorus wahlbergi*) 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*: identify key roost sites for protection.	-	Anecdotal	-	-	-
2	*2.1 Site/Area Management*: manage wind turbines to reduce bat mortality.	Berthinussen et al. 2010	Empirical	Review	Bat mortalities lowered using ultrasonic deterrents and turbine curtailment during low wind speed.	-
		Arnett et al. 2011	Empirical	International		
3	*4.3 Awareness & Communications*: public education campaigns to mitigate disturbance to key roost sites.	-	Anecdotal	-	-	Bat Interest Groups

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