Tadarida aegyptiaca – Egyptian Free-tailed Bat


Merlin Tuttle

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 has the highest number of confirmed mortalities at wind farms of any Chiropteran within the assessment region (K. MacEwan unpubl. data).

Taxonomy

Tadarida aegyptiaca (É. Geoffroy Saint Hilaire 1818)

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - MOLOSSIDAE - *Tadarida* - *aegyptiaca*

Synonyms: *brunneus* Seabra 1900, *geoffroyi* Temminck 1826, *talpinus* Heuglin 1877, *tongaensis* Wettstein 1916, *bocagei* Seabra 1900, *anchietae* Seabra 1900, *sindica* Wroughton 1919, *thomasi* Wroughton 1919, *gossei* Wroughton 1919, *tragatus* Dobson 1874

Common names: Egyptian Free-tailed Bat, Egyptian Guano Bat, Egyptian Nyctinome (English), Egiptiese Losstertvlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Two subspecies of *Tadarida aegyptiaca* have been recorded (Hayman & Hill 1971). These include *T. a. aegyptiaca*, which extends from North Africa (Algeria and Egypt) southwards through East Africa and into the Western Cape of South Africa, as well as the smaller and darker *T. a. bocagei* (Seabra 1900) from central and western Africa (Hayman & Hill 1971; Skinner & Chimimba 2005).

Assessment Rationale

The species is very widely distributed (with an estimated extent of occurrence of 1,340,000 km^2), locally common and recorded from many formally protected areas within the assessment region. While previously not considered to face significant threats, there is a current confirmed and severe threat posed by wind farms, and preliminary data indicate that this species has the highest number of confirmed mortalities at wind farms. Though currently not believed to be declining at a rate fast enough to qualify for a threatened status, the species needs close monitoring and further protective measures need to be implemented.

Regional population effects: This species is present within South Africa's neighbouring countries and is distributed along the country's borders. Its high wing-loading (Schoeman & Jacobs 2008) means dispersal and thus rescue effects are possible.

Distribution

The Egyptian Free-tailed Bat is found throughout Africa, and in the Arabian Peninsula through to India, Sri Lanka, Bangladesh and south Asia (Bates & Harrison 1997). It is widespread and abundant throughout most of southern Africa, occurring from the Western Cape of South Africa north through to Namibia and southern Angola, and through Zimbabwe to central and northern Mozambique (Monadjem et al. 2010). Similarly, it is widely distributed in the assessment region, occurring in all nine provinces of South Africa as well as in Lesotho and Swaziland (Figure 1; Skinner & Chimimba 2005; Monadjem et al. 2010, 2016). Its estimated extent of occurrence is 1,340,000 km^2.

Population

Although accurate population records are unknown at this stage, this species is widespread and common within the assessment region, as well as within the rest of its range. It roosts communally in small to medium-sized groups, which may number in the dozens to hundreds (Herselman & Norton 1985). Additionally, it is well represented in museums, with over 450 specimens examined in Monadjem et al. (2010).

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: Unknown

Severely fragmented: No

Habitats and Ecology

The Egyptian Free-tailed Bat occurs across a range of habitats, foraging over desert, semi-arid scrub, savannah,

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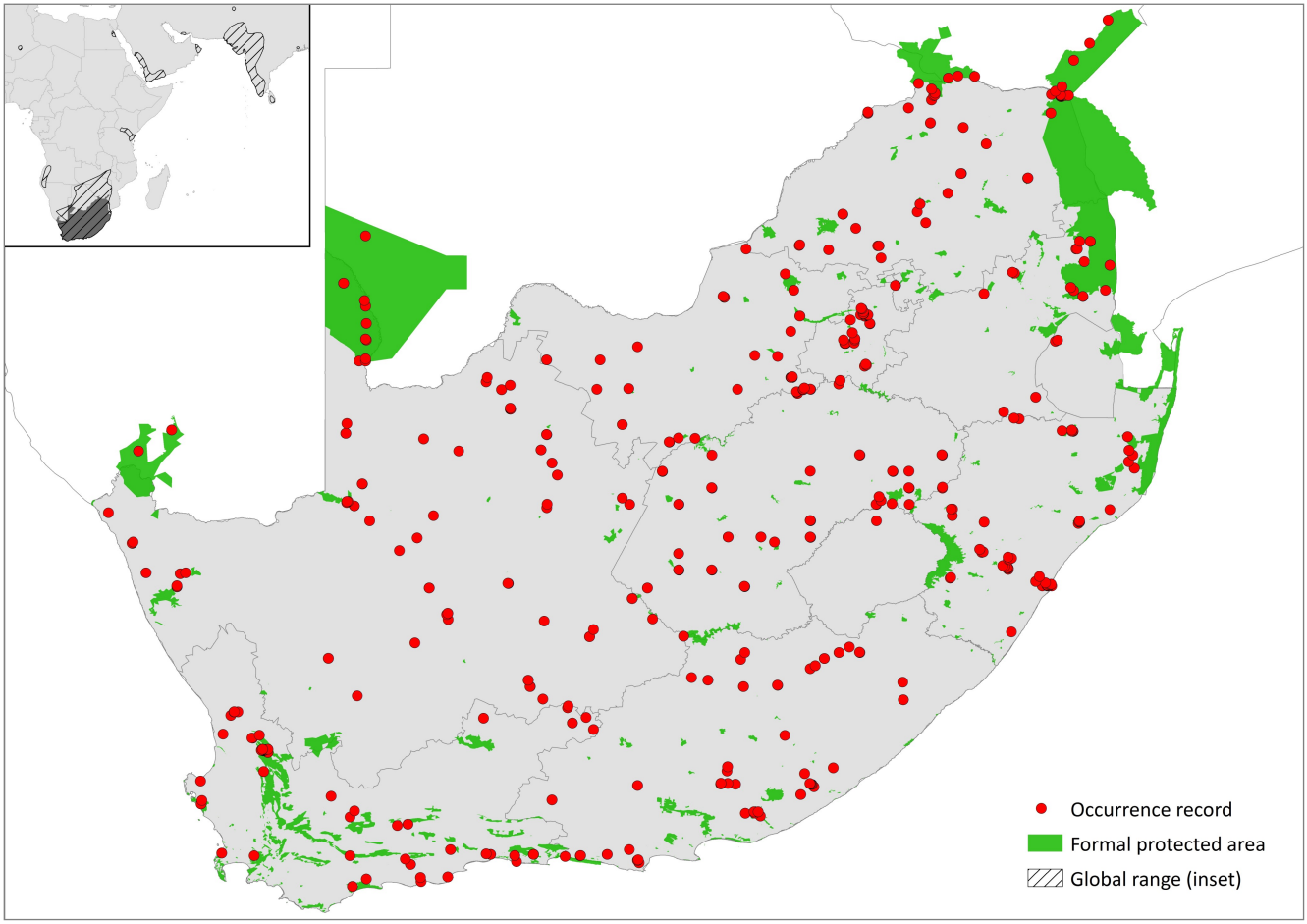

Figure 1. Distribution records for Egyptian Free-tailed Bat (*Tadarida aegyptiaca*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

grassland and agricultural land (Monadjem et al. 2010). Aside from the fringes, it is generally absent from forests (Skinner & Chimimba 2005). In arid areas, its presence is commonly associated with surface water (Sirami et al. 2013), which provides a source of moisture (Skinner & Chimimba 2005), and usually has concentrated densities of insect prey (Monadjem et al. 2010). It is known to be common in arid scrub and open grassland regions (Skinner & Chimimba 2005).

This species roosts communally during the day in small to medium-sized groups (Herselman & Norton 1985; Monadjem et al. 2010). Roost habitats include, but are not limited to, rock crevices, under exfoliating rock sheets, tree hollows, caves, behind the bark of dead trees, building crevices and roofs of houses (Herselman & Norton 1985; Taylor 1998; Skinner & Chimimba 2005; Monadjem et al. 2010). It is considered an open-air forager, foraging over most habitat types, and feeds mainly on Diptera, Hemiptera and Coleoptera and, to a lesser degree, Lepidoptera (Monadjem et al. 2010). There are definite seasonal patterns in activity levels of this species emerging from long-term monitoring studies in the assessment region, with typical peaks at most sites in late summer and autumn. However, this requires further investigation. Gestation is approximately four months and typically, a single young is born once a year in November or December (Monadjem et al. 2010).

Ecosystem and cultural services: As this species is insectivorous, it may contribute to controlling insect populations (Boyles et al. 2011; Kunz et al. 2011). Bats often prey on the insect species that destroy crops (Boyles et al. 2011; Kunz et al. 2011). Ensuring a healthy population of insectivorous bats can thus result in a decrease in the use of pesticides.

Use and Trade

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

Threats

Whilst there were no serious past threats to this species, it is vulnerable to mortality on wind energy facilities, which are increasing in South Africa. Resultantly, many carcasses of Egyptian Free-tailed Bat are found below the wind turbines (Photo 1). For example, during a recent preliminary assessment of bat mortality at a pilot wind turbine in the Coega Industrial Development Zone (Eastern Cape), the Egyptian Free-tailed Bat was one of two species reported to have been fatally injured by the

Table 2. Threats to the Egyptian Free-tailed Bat (*Tadarida aegyptiaca*) 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	*3.3 Renewable Energy*: mortality by barotrauma or direct collision with turbine blades at wind turbines.	Doty & Martin 2013	Empirical	Local	Increasing with the expansion of wind energy plants.
2	*6.1 Recreational Activities*: roost disturbance during traditional ceremonies, which frequently take place in caves.	-	Anecdotal	-	Unknown

Photo 1. *Tadarida aegyptiaca* specimen found at a wind farm. This species has the highest number of confirmed mortalities at wind farms (Kate MacEwan).

wind turbine (Doty & Martin 2013). Overall, this species has the highest number of confirmed mortalities at wind farms (K. MacEwan unpubl. data). It is a high open air forager and is very susceptible to wind turbine blade collisions (Doty & Martin 2013) or mortality as a result of barotrauma (Baerwald et al. 2008; Cryan & Barclay 2009). Barotrauma is tissue damage caused by rapid excessive changes in air pressure near turbine blades (Baerwald et al. 2008; Rydell et al. 2010). The situation needs to be monitored very carefully to avoid unsustainable losses, as the reproductive capacity of this species is limited to one pup per year (Monadjem et al. 2010).

As this species roosts in caves, it may be somewhat vulnerable to roost disturbance, as many traditional ceremonies or tourism activities take place in caves.

Current habitat trend: Stable

Conservation

This species is found in many protected areas in the assessment region, including large reserves such as Kruger National Park, iSimangaliso Wetland Park, Ithala Game Reserve, Maloti-Drakensberg Transfrontier Conservation and Development Area, Madikwe Game Reserve, Pilanesberg National Park, Augrabies Falls National Park, and the Kgalagadi Transfrontier Park.

Bat monitoring data collected from ongoing pre- and post-construction of wind energy facilities, in conjunction with population level assessments, must inform the need for future conservation efforts for this species. Moreover, seasonal behaviour and movement patterns of this species should be investigated.

Recommendations for land managers and practitioners:

- Monitoring mortality data of bats at wind turbine sites. 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:

- Monitoring mortalities linked with wind farm operations and assessing impact on populations.
- Research in identifying key migratory routes.
- Investigations into effective mitigation methods to reduce bat mortality around wind farms.

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.

References

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Table 3. Conservation interventions for the Egyptian Free-tailed Bat (*Tadarida aegyptiaca*) 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	*2.1 Site/Area Management*: protection of key roost sites, as well as monitoring at wind turbine sites.	-	-	Anecdotal	-	-

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Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Egyptian Free-tailed Bat (*Tadarida aegyptiaca*) assessment

Data sources	Field study (unpublished), indirect information (literature), museum records
Data quality (max)	Estimated
Data quality (min)	Inferred
Uncertainty resolution	Best estimate
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.*