Eidolon helvum – African Straw-coloured Fruit-bat


Mervin 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 (2008)	Near Threatened A2d
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

*Watch-list Data

At present, only a single breeding colony is known from southern Africa at Marromeu, central Mozambique (Monadjem et al. 2010).

Taxonomy

Eidolon helvum (Kerr 1792)

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - PTEROPODIDAE - *Eidolon* - *helvum*

Common names: African Straw-coloured Fruit-bat, Giant Fruit-bat, Straw-coloured Fruit Bat, Straw-coloured Flying Fox, Pale Xantharpy, Yellow Fruit-bat, (English), Geel Vrugtevlermuis (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Three subspecies have been previously described: *Eidolon helvum dupreanum* (from Madagascar), *E. h. helvum* (from the African continent) and *E. h. sabaeum* (from Arabia) (Skinner & Chimimba 2005).

Assessment Rationale

The large-bodied and gregarious African Straw-coloured Fruit-bat occurs widely across the lowland rainforest and savannah regions of Africa. In the assessment region, it has been widely but patchily recorded across the central plateaus of South Africa. There are no known breeding colonies within the assessment region; the closet one is located in Marromeu in central Mozambique. This species exists in modified landscapes and is often recorded in urban areas. Though it is in decline in other parts of Africa, due to harvesting pressure for bushmeat and traditional medicine, these uses have not been recorded within the assessment region and no regional declines are suspected. Thus, we list this species as Least Concern. Data on additional colonies (especially breeding colonies), population size and trend as well as establishing the threats to this species within the assessment region are needed as it may qualify for a threatened listing and/or a conservation dependent status, especially given the decline of this species in other parts of its range and the potential importance of the assessment region as a regional refuge.

Regional population effects: Within the assessment region, it is either an irregular visitor, or possibly a regular migrant at the edge of its range, but does not breed within the region. Large-scale feeding and migratory movements have been documented (Richter & Cumming 2008) and thus rescue effects are likely possible.

Distribution

This fruit-bat is broadly distributed across the lowland rainforest and savannah zones of Africa from Senegal in the west, through to South Africa in the south and Ethiopia in the east (possibly ranging into Djibouti and southern Eritrea). This species is sparse or absent in large areas of the Horn of Africa, central East Africa, and elsewhere (Bergmans 1990). It is a migratory species in parts of its range (such as southern Africa); in West Africa, populations migrate from the forest north into the savannah zone during the major wet season. There are numerous individual records from the central plateaus of South Africa and Namibia and it has been widely recorded in Zimbabwe, Zambia, Mozambique, Malawi and Democratic Republic of the Congo (Monadjem et al. 2010). The closest breeding colony to South Africa is at Marromeu, central Mozambique (Cotterill 2001). There is also a large colony that roosts in the Botanical Gardens in Maputo (Mozambique). In the assessment region, the species is recorded from the Central Bushveld and East Kalahari Bushveld bioregions in Gauteng, North West, Free State, Eastern Cape and Northern Cape provinces. In the North West and Gauteng, individuals are considered to be solitary wanderers (Skinner & Chimimba 2005). In KwaZulu-Natal, the species has a very restricted distribution, having only being recorded from two locations: Ndumo Game Reserve and Mtunzini (Skinner & Chimimba 2005). There have also been sporadic sightings in the Eastern and Western Cape.

Population

This is a common species across much of its range, forming large colonies of thousands to even millions of individuals (Sørensen & Halberg 2001). Within colonies

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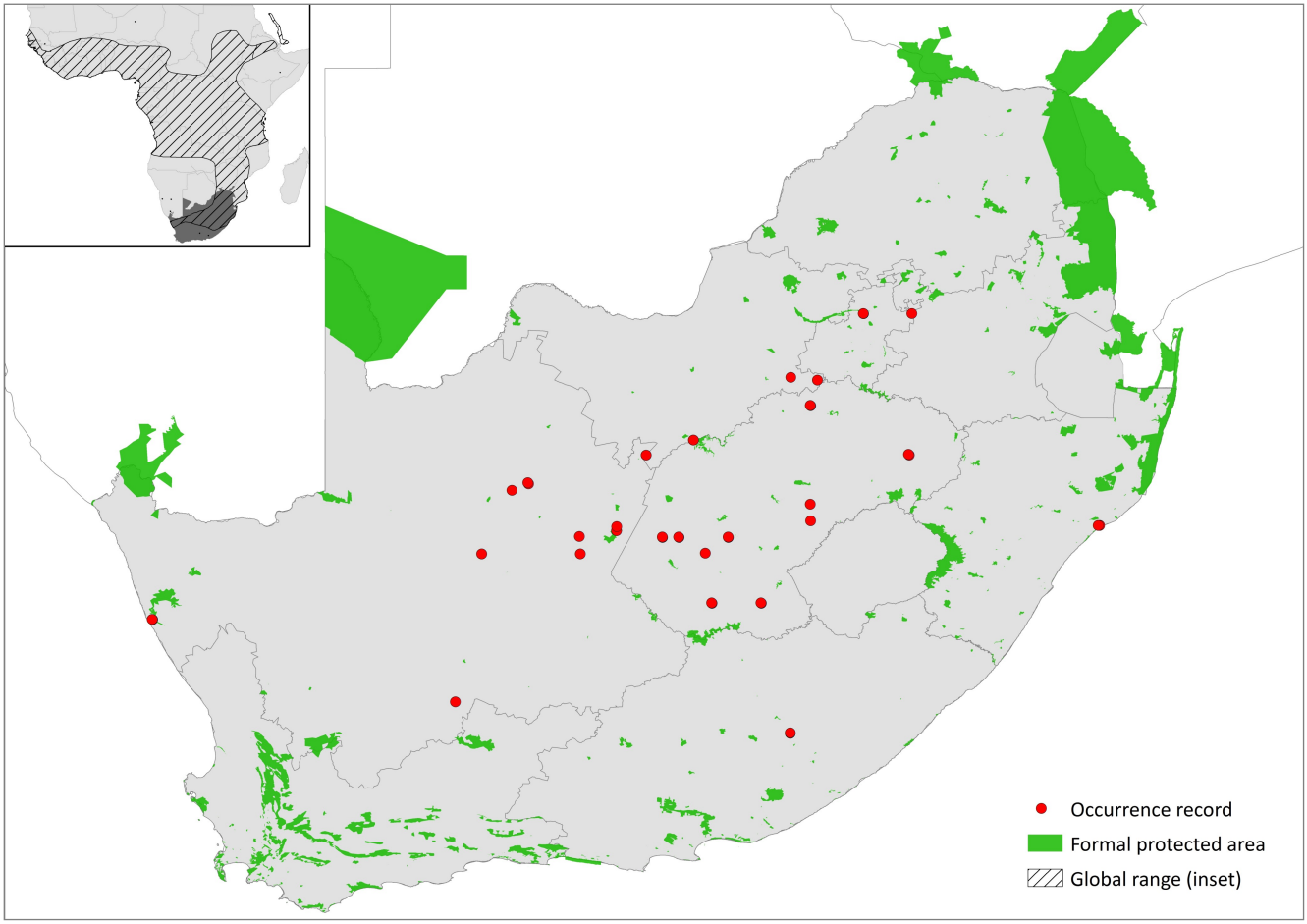

Figure 1. Distribution records for African Straw-coloured Fruit-bat (*Eidolon helvum*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

they may form clusters of up to 100 animals, although this clustering is not always evident in large colonies (Mickleburgh et al. 2008). For example, in western Kenya, total counts of bats at three identified roosts varied from 7,000 to 48,000 individuals (Webala et al. 2014). It is relatively well represented in museums, with over 100 specimens examined in Monadjem et al. (2010). Population size and trend is unknown for the assessment region and, at present, only one breeding colony is known from southern Africa at Marromeu, central Mozambique (Monadjem et al. 2010). However, the collection of pregnant females from Chiniziwa, central Mozambique and Mutare, eastern Zimbabwe affirm that this species does breed in southern Africa (Cotterill 2001).

In West and Central Africa this species is declining due to harvesting for bushmeat (Mickleburgh et al. 2008). Although no declines have been recorded for the population in the assessment region, this should be more thoroughly investigated through systematic long-term monitoring.

Current population trend: Stable in the assessment region, but suspected to be declining globally.

Continuing decline in mature individuals: No declines recorded in the assessment region.

Number of mature individuals in largest subpopulation: Unknown. It is difficult to define subpopulations due to the migratory nature of this species. Within southern Africa, 1.5 million non-breeding bats were recorded between November and January at Kasanka National Park, Zambia (Sørensen & Halberg 2001).

Number of subpopulations: Unknown. This is a highly migratory species so it is not possible to define subpopulations.

Severely fragmented: No severe fragmentation suspected due to its highly migratory nature.

Habitats and Ecology

African Straw-coloured Fruit-bats are gregarious and live in colonies of several hundred individuals (Skinner & Chimimba 2005; Monadjem et al. 2010). This adaptable species has been recorded from a wide range of habitats: it is commonly found in tropical rain forest, including evergreen forest habitats, coastal (including mangrove) forest and riverine forest, through moist and dry savannah woodland mosaics (Mickleburgh et al. 2008). Populations can persist in human-modified habitats and the species is often recorded in urban areas, such as wooded city parks

Photo 1. The emergence of millions of African Straw-coloured Fruit-bats (*Eidolon helvum*) from Kasanka National Park, Zambia (André Botha)

(ACR 2015). Colonies are rarely found in protected areas or in forests, but frequently near human habitations especially gardens, probably because there are fruit trees nearby (Webala et al. 2014). In Kenya, only a few colonies of African Straw-coloured Fruit-bats are known. This species has not currently been recorded breeding within the assessment region. This is wide-ranging species and individuals have been recorded foraging at distances of up to 59 km from their roosts (Monadjem et al. 2010), with one migrating bat recorded to have moved 370 km in one night and a cumulative 2,518 km in 149 days (Richter & Cumming 2008).

As their name suggests, the species primarily feeds on fruits (wild and cultivated) and flowers (Monadjem et al. 2010). While no information on their diet is available within the assessment region, it assumed that their diet is consistent with other African populations. In southern Africa, the seasonal appearances and disappearances of African Straw-coloured Fruit-bats likely reflect responses of these bats to changing food supplies (Richter and Cumming 2008).

Ecosystem and cultural services: The role of frugivorous bats is crucial in ecosystems as these species perform key functions as pollinators and seed dispersers (Fujita & Tuttle 1991; Hodgkison et al. 2003). For example, Hodgkison et al. (2003) found that 13.7 % of trees in a botanical survey of a 1 ha old-growth forest were partially dependent on bats for pollination and seed dispersal. This species has been shown to retain ingested seeds for long periods and to traverse large distances, making it an important seed disperser in tropical Africa (Abedi-Lartey et al. 2016). In West Africa, the African Straw-coloured Fruit-bat is a critically important seed dispersal agent for the economically important and threatened timber tree, the African Teak (*Milicia excelsa*) (Daïnou et al. 2012).

Use and Trade

This species is not known to be utilised or traded within the assessment region but it is used for bushmeat and medicine in Central and West Africa where it is one of the most frequently consumed mammals in the region (Mickleburgh et al. 2008). Kamins et al. (2011) estimate, based on interviews with 551 Ghanaians, that a minimum of 128,000 African Straw-coloured Fruit-bats are sold per annum.

Threats

There are no recorded threats in the assessment region. However, African Straw-coloured Fruit-bats are the most heavily harvested bat for bushmeat in West and Central Africa, where they are threatened by hunting for food and medicinal use. The species is also persecuted because it often damages fruit plantations (Monadjem et al. 2010; Webala et al. 2014). Large colonies can be very noisy, and roosting sites of large colonies can be messy, sometimes causing defoliation to the trees in which they roost (Kunz 1996). As tree density is an important factor in roost-site selection (Webala et al. 2014), removal of roost trees could impact this species especially outside protected areas.

Current habitat trend: Stable in the assessment region.

Table 2. Threats to the African Straw-coloured Fruit-bat (*Eidolon helvum*) 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	*5.1.1 Hunting & Collecting Terrestrial Animals*: bushmeat hunting.	Kamins et al. 2011	Empirical	International	Unknown
2	*5.1.3 Persecution & Control*: persecution as a pest to fruit trees.	Webala et al. 2014	Empirical	International	Ongoing
3	*5.3.3 Logging & Wood Harvesting*: roost site loss outside protected areas through tree removal.	Webala et al. 2014	Empirical	International	Ongoing

Table 3. Conservation interventions for the African Straw-coloured Fruit-bat (*Eidolon helvum*) 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*: identification and protection of key roost sites.	-	Anecdotal	-	-	-
2	*4.3 Awareness & Communications.* raising public awareness of this species and mitigating negative attitudes.		Anecdotal			

Conservation

This species is present in a few protected areas across its entire range, with a large roosting colony in Kasanka National Park, Zambia. African populations are also protected under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) since 2001 (Appendix II). Within the assessment region, it has been recorded from only one protected area: Ndumo Game Reserve in KwaZulu-Natal (Skinner & Chimimba 2005), which, together with other protected areas in the region, are considered important refuge habitats for the species (K. Richardson pers. comm. 2016). Throughout its range, the highest priority is to limit harvesting to sustainable levels (Mickleburgh et al. 2008). However, this threat needs to be investigated within the assessment region where no direct interventions are possible without first identifying and protecting key roost sites through systematic surveys and monitoring. For example, the Kasanka population depends on a functional network of roosting and foraging sites (intact fruiting woodlands) throughout Zambia and DRC (Monadjem et al. 2010). As this species may be threatened by roost tree clearance and direct persecution and/or harvesting, identifying such a functional network of sites for protected area expansion within the assessment region is a priority. Additionally, an education and community outreach programme in local schools and communities was proposed for the long-term conservation of viable populations in western Kenya (Webala et al. 2014), which could potentially be an intervention in the assessment region, depending on the severity of threats.

Recommendations for land managers and practitioners:

- Identify and protect important roost sites.

Research priorities:

- Systematic surveys to identify additional colonies, key roosting sites and potential breeding sites.
- Research into the migratory and dispersal patterns within the assessment region, as studies on dispersal have been done only in Zambia (for example, Richter & Cumming 2008).

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.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the African Straw-coloured Fruit-bat (*Eidolon helvum*) 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

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Assessors and Reviewers

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

[1]University of Swaziland, [2]Mpumalanga Tourism and Parks Agency, [3]University of Cape Town, [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

Lizanne Roxburgh[1], Domitilla Raimondo[2], Samantha Page-Nicholson[1], Harriet Davies-Mostert[1]

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

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