# *Cloeotis percivali* – Short-eared Trident Bat


Ara Monadjem

| Regional Red List status (2016) | Endangered C2a(i)* |
|---|---|
| National Red List status (2004) | Critically Endangered A2a |
| Reasons for change | Non-genuine change: New information |
| Global Red List status (2008) | Least Concern |
| TOPS listing (NEMBA) | None |
| CITES listing | None |
| Endemic | No |

*Watch-list Data

*Cloeotis percivali* is not abundant and the entire southern African population may well be restricted to fewer than 20 caves, with numbers ranging from 20–200 individuals per roost (Monadjem et al. 2010).

## Taxonomy

*Cloeotis percivali* Thomas 1901

ANIMALIA - CHORDATA - MAMMALIA - CHIROPTERA - HIPPOSIDERIDAE - *Cloeotis* - *percivali*

**Common names:** Short-eared Trident Bat, African Trident Bat, East African Trident Bat, Percival's Short-eared Trident Bat, Percival's Trident Bat (English), Drietand-bladneusvlermuis (Afrikaans), Lilulwane (siSwati)

**Taxonomic status:** Species

**Taxonomic notes:** Meester et al. (1986) listed two subspecies, of which only *Cloeotis p. australis* occurs in the assessment region, while the other, *C. p. percivali* occurs in East Africa.

## Assessment Rationale

Known from only nine subpopulations in South Africa, with the five surveyed estimated to have fewer than 100 mature individuals. There is also one subpopulation known from Swaziland, believed to number around 100 mature individuals. The overall population for the region is suspected to be less than 2,000 mature individuals, with no subpopulation having more than 250. There have been recorded declines in numbers at two locations, presumed to be due to roost disturbance. However, further long-term monitoring is required to estimate overall population decline.

**Regional population effects**: Although it occurs outside of the assessment region, *Cloeotis percivali* has short, rounded wings with low wing loading (Monadjem et al. 2010). It is thus not suspected that individuals from subpopulations outside of the assessment region are able to disperse into and influence population dynamics of the subpopulations within the assessment region.

## Distribution

The Short-eared Trident Bat is largely confined to southern Africa, with records from South Africa, Swaziland, south-east Botswana, southern Zambia and Zimbabwe (the core of the distribution), while records also exist from southern Democratic Republic of Congo, Malawi, northwestern Mozambique, and coastal Kenya (Taylor 2000; Mickleburgh et al. 2008). Its elevational range is from sea level to 1,500 m asl. In the assessment region, the species occurs in Limpopo, Mpumalanga, Gauteng, North West and KwaZulu-Natal provinces of South Africa, as well as in Swaziland (localities reviewed in Balona 2015). While ecological niche models predict suitable climatic conditions exist through much of KwaZulu-Natal and the northern parts of the Eastern Cape, this species has not been recorded further south than northern KwaZulu-Natal (Monadjem et al. 2010). Recently, however, six new distribution records were generated between 2008 and 2013 for both Limpopo and Gauteng provinces, where the Gauteng records are the first published for the province in six decades (Balona 2015).

The two most recent records are from 2010: a dead individual found at Pafuri Camp in the Kruger National Park, apparently killed by collision with a ceiling fan (Jubber 2012), and an individual caught in a harp trap near the Gatkop Caves in Limpopo Province (Chege et al. 2015). It has not been encountered in Pafuri before, despite repeated surveys since the late 1970s (Rautenbach 1997).

## Population

*Cloeotis percivali* is not abundant within the assessment region with numbers ranging from 20–200 individuals per roost (Monadjem et al. 2010). Large fluctuations in population numbers are known and the species is prone to local extinctions (Mickleburgh et al. 2008). A serious

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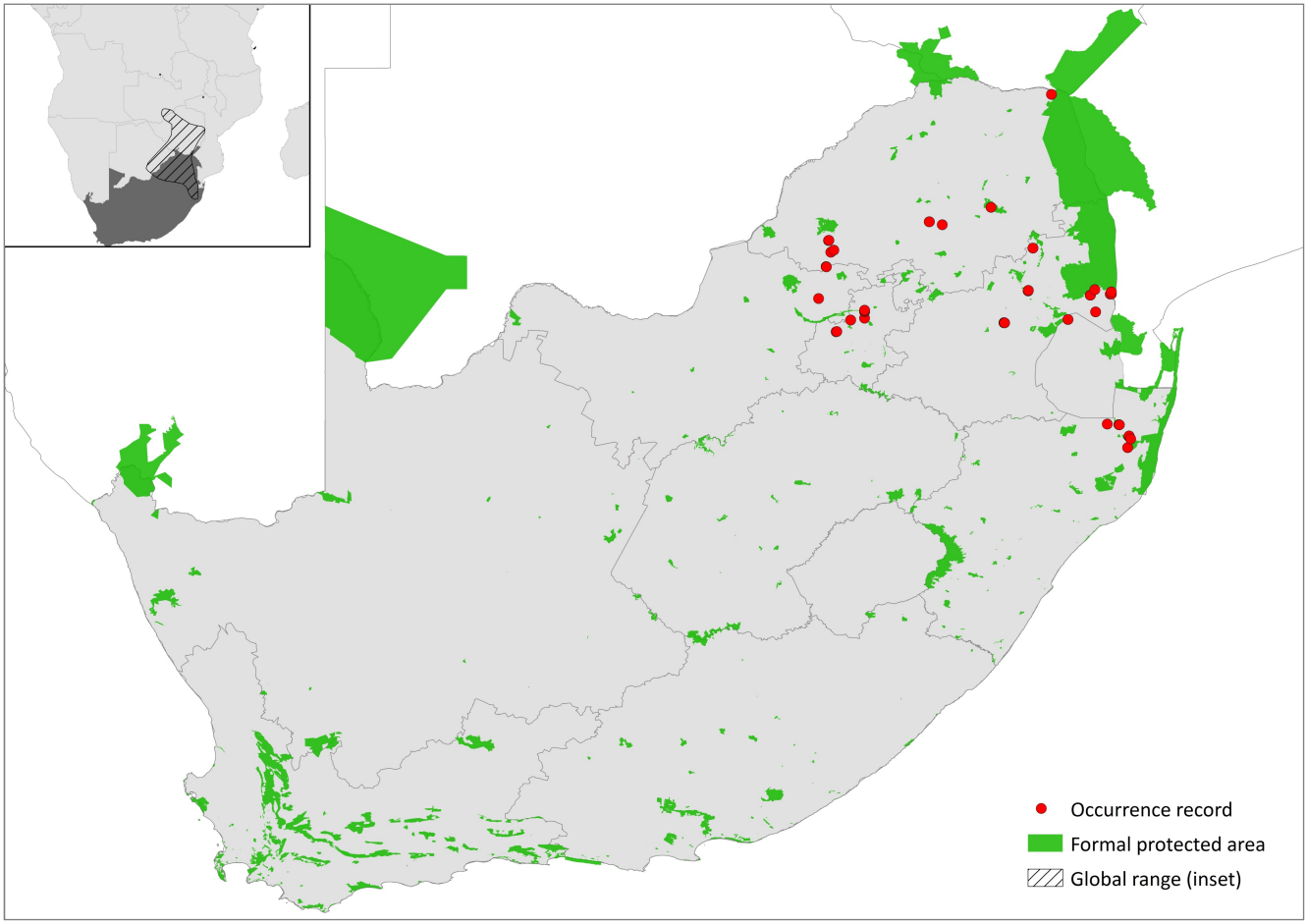


**Figure 1. Distribution records for Short-eared Trident Bat (*Cloeotis percivali*) within the assessment region**

**Table 1. Countries of occurrence within southern Africa**

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

decline has been reported from the Jozini Dam subpopulation, where about 200 observed individuals in April 2001 decreased to only three in 2012. In other parts of South Africa five of the ten recorded locations have population estimates available, all of which have fewer than 100 mature individuals. If we were to assume that all known sites sheltered a full complement of 200 bats, the total population of *C. percivali* in South Africa is possibly as small as 2,000 individuals (Balona 2015). It is thus suspected that the total population in South Africa and Swaziland is fewer than 2,000 mature individuals in total. There are no population estimates from elsewhere in its range, although the largest population might be in Zimbabwe (ACR 2013).

Although it is known that some *C. percivali* colonies have declined, or have even become locally extinct, the lack of comprehensive long-term monitoring of all known roosts prevents a confident assessment of the South African population trend (Balona 2015).

**Current population trend:** Suspected to be decreasing.

**Continuing decline in mature individuals:** Yes

**Number of mature individuals in population:** Unknown

**Number of mature individuals in largest subpopulation:** 200

**Number of subpopulations:** 10–15

**Severely fragmented:** No

# Habitats and Ecology

Occurs in savannah and woodland areas where there is sufficient cover in the form of caves and mine tunnels for day roosting (Taylor 2000). It feeds exclusively on moths (Taylor 2000; Skinner & Chimimba 2005), and appears to be very sensitive to disturbance. Its elevation range is from sea level to 1,500 m. In the assessment region, the species is recorded from Central Bushveld, Lowveld and Mesic Highveld Grassland. This is mainly a woodland species; it roosts where suitable cavities are present (J Balona pers. comm. 2016). It may be more common than indicated by museum specimens as it is not easy to capture with mist-nets and may roost in narrow crevices (Seamark 2005), thus leading to an underestimation of roosts, which is corroborated by the recent discovery of new roost sites (Balona 2015). However, it remains relatively rare and low-density, considering the infrequent captures even in suitable habitat (savannah or woodland) near suitable roosts.

**Ecosystem and cultural services:** None specifically documented.

**Table 2. Threats to the Short-eared Trident Bat (*Cloeotis percivali*) 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 | *6.1. Recreational Activities*: recreational activities and traditional ceremonies disturb roost sites. | - | Anecdotal | - | Increasing with settlement expansion. |
| 2 | *3.2. Mining & Quarrying*: mining destroys roost sites. | - | Anecdotal | - | Increasing, based on prospecting applications. |

# Use and Trade

Not known to be utilised or traded in any form.

# Threats

Mining (both legal and illegal) is the primary threat to this species, with three of the ten known subpopulations (Wylesdale, Pilgrim's Rest and Sudwala) threatened by mining directly, and one threatened indirectly (Gatkop Cave 1 & 2). For example, in 2005, a colony of 50–100 individuals was re-discovered in an abandoned gold mine, in Swaziland, near the South African border (Monadjem et al. 2005). At the time recommissioning of the mine was being considered, threatening the continued existence of the colony. It is not known if the mine was in fact brought back into operation (Balona 2015).

Short-eared Trident Bats are highly sensitive to roost disturbance and regular roost disturbance may lead to abandonment or dissuade breeding. This could explain why populations declined so severely at Jozini Dam in 2002 or disappeared completely in the case of Wonderboom Cave near Pretoria (Balona 2015). In South Africa, religious ceremonies by local people are carried out in caves. These rituals and other forms of disturbance may be impacting some subpopulations. The use of pesticides that affect moths, the main diet of this species, is also postulated to be causing a decline in the population.

**Current habitat trend:** Stable, its savannah habitat is well protected. However, human disturbance to cave sites and shelter may increase along with the expansion of both urban and rural settlements that has occurred between 2000 and 2013 (GeoTerraImage 2015).

# Conservation

In South Africa, this species is formally protected in Kruger National Park, Mkhuze Game Reserve and Lekgalametse; and is also found in Monate Private Game Reserve. Most colony sites are located outside protected areas (Wylesdale, Sudwala, Pafuri River Camp, Pilgrim's Rest, Machadodorp, Gatkop Caves). In order for this species to be better protected, as many of these locations as possible need to be included in protected areas. For example, both Mamelodi Cave (Gauteng Province) and Gatkop caves (Limpopo Province) host important subpopulations of this species, as well as other important bat species, and should be targeted by local conservation authorities to mitigate the effects of human disturbance (Balona 2015).


Leon De Kock

# Data Sources and Quality

**Table 4. Information and interpretation qualifiers for the Short-eared Trident Bat *Cloeotis percivali*) assessment**

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

**Table 3. Conservation interventions for the Short-eared Trident Bat (*Cloeotis percivali*) 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 required. | - | Anecdotal | - | - | Identifying sites for protection, Gauteng and Northern Regions Bat Interest Group |

**Recommendations for land managers and practitioners:** The setting of harp traps is the preferred capture method when surveying for this species since it cannot be caught in mist-nets and is typically difficult to locate in roosts (Balona 2015).

**Research priorities:** Long-term monitoring of all known sites must be initiated in order to establish whether populations are stable and/or need intervention at any time. Re-surveying of the sites that appear to have low populations is required (i.e. Jozini Dam wall, Kromdraai mine and Mamelodi Cave).

**Encouraged citizen actions:** Limit disturbance to roost sites.

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