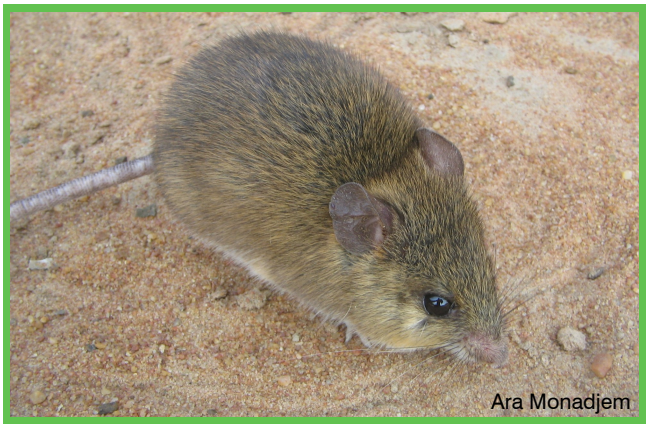
Aethomys ineptus – Tete Veld Rat



Ara Monadjem

Regional Red List status (2016)	**Least Concern**
National Red List status (2004)	Least Concern
Reasons for change	No change
Global Red List status (2008)	Least Concern
TOPS listing (NEMBA)	None
CITES listing	None
Endemic	Near (possibly endemic)

The common name is a misnomer, as they probably are *not* found in the Tete district of Mozambique (Monadjem et al. 2015).

Taxonomy

Aethomys ineptus (Thomas & Wroughton, 1908)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - MURIDAE - *Aethomys* - *ineptus*

Synonyms: This name is probably a synonym of *A. chrysophilus* and a new name will most likely need to be sought for this species (Monadjem et al. 2015).

Common names: Tete Veld Rat (English), Tete Bosrot (Afrikaans)

Taxonomic status: Species

Taxonomic notes: *Aethomys ineptus* was split from *A. chrysophilus* based on chromosome number (*A. intepus* is 2n = 44 while *A. chrysophilus* is 2n = 50), sperm morphology and molecular data (Breed et al. 1988; Chimimba et al. 1998, 1999; Linzey et al. 2003; Russo et al. 2006). They cannot be separated by external or cranial features. However, the average separation between *A. chrysophilus* and *A. ineptus* based on mitochondrial DNA sequences is 2.70% (range = 1.69–3.78%), which is less genetic variation than within *A. chrysophilus* (Russo et al. 2006).

While the type locality for *A. ineptus* is Tete, along the Zambezi River in northern Mozambique, the species described as *A. ineptus* has yet to be positively reported north of the Limpopo River (see Linzey et al. 2003; Russo et al. 2006), and therefore is unlikely to occur further north in the Tete region of Mozambique. Hence, the name *ineptus* is probably a synonym of *A. chrysophilus* and the species will need a new name. Furthermore, although craniometrics analysis previously indicated *A. ineptus* extended north of the Limpopo River (see Chimimba et al. 1999; Chimimba 2001), more recent chromosomal and molecular work suggests that the species is restricted to south of the Limpopo River (Linzey et al. 2003; Russo et al. 2006), which means the species, based on available data, is near endemic or endemic to the assessment region (Monadjem et al. 2015).

Assessment Rationale

This is a widespread and common species within the assessment region, occurring in many protected areas (including Kruger National Park). It can occur in agricultural landscapes and there are no major threats that could cause widespread decline. However, as this species relies on ground cover, overgrazing and imprudent fire management could cause local declines and should be avoided. Recent molecular research has shown that this species is at least near endemic to the assessment region, but is probably endemic. Further research is needed to more accurately delineate the relative distributions of this species and *A. chrysophilus*.

Regional population effects: This species is either near endemic or endemic to the assessment region and thus no significant rescue effects are possible.

Distribution

This species is probably restricted to the savannahs of South Africa and Swaziland (Figure 1). Although the species may occur in adjoining areas of southern Mozambique (south of the Limpopo River) and possibly Botswana, there are as yet no positively identified specimens from Mozambique and the only positively identified individual from Botswana is *A. chrysophilus* (Linzey & Chimimba 2008; Chimimba & Linzey 2008). In South Africa, it occupies areas of higher elevation in the interior, but lower elevations as it reaches the southern limit of its range slightly south of Durban, KwaZulu-Natal Province (Linzey et al. 2003; Chimimba & Linzey 2008). Records from the Gariep River (for example, Lynch 1983) have not been karyotyped but are assumed to belong to this species rather than *A. chrysophilus* which occurs further north (Monadjem et al. 2015).

It occurs in Kruger National Park south of the Olifants River, and the area between the Olifants River and Satara Camp may delineate the boundary between *A. chrysophilus* and *A. ineptus* respectively, a distance of 40 km (Linzey et al. 2003). Similarly, these species have been collected within 35 km of each other at Tzaneen (*A. ineptus*) and Letsitele (*A. chrysophilus*) in Limpopo Province. Thus, these species are mostly parapatric. However, their ranges are known to overlap west of

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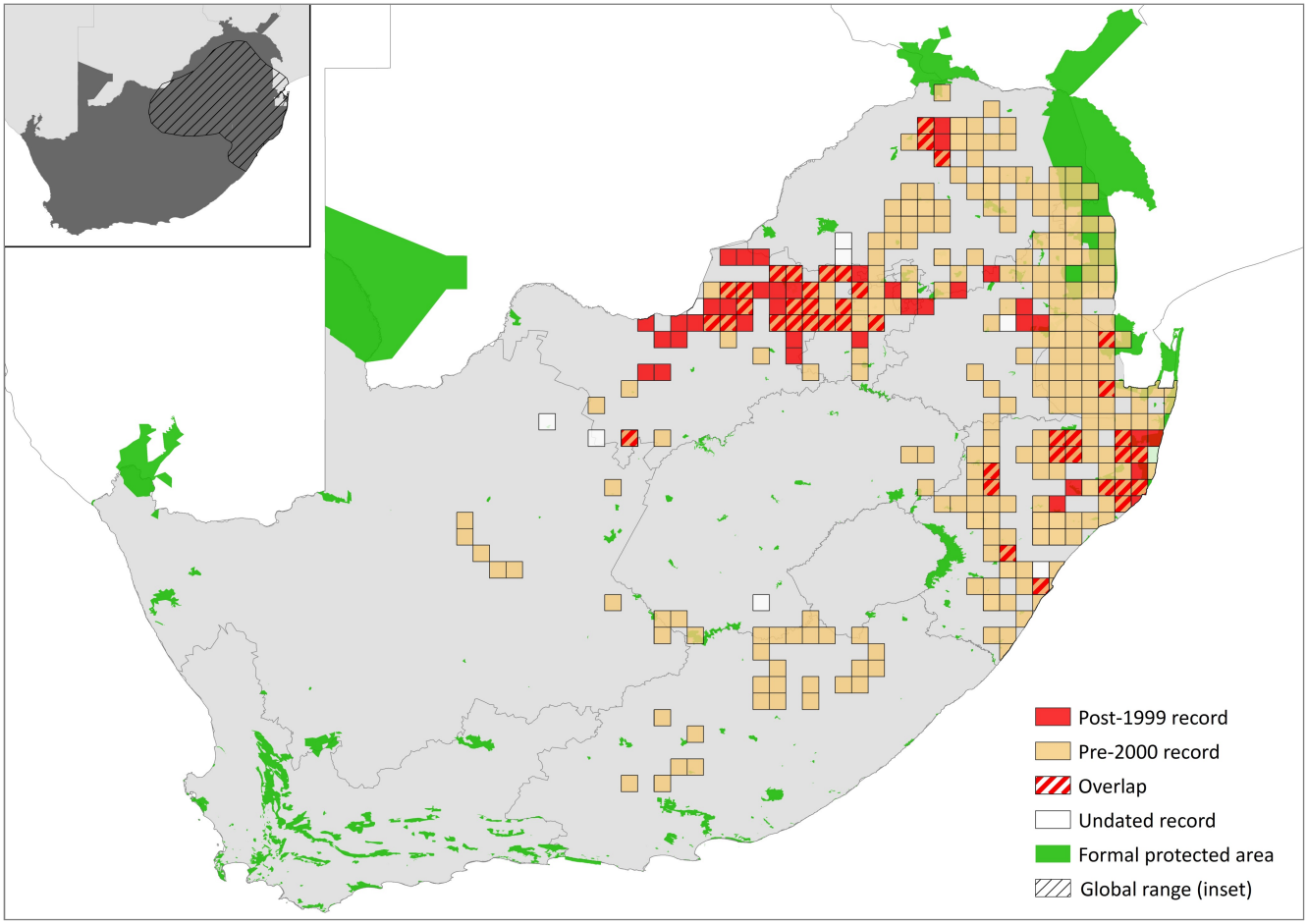

Figure 1. Distribution records for Tete Veld Rat (*Aethomys ineptus*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Pretoria (Magaliesberg region of the North West Province) and west of the Soutpansberg in the Limpopo Province (southeast of Alldays) and are known with certainty to be syntopic at only one locality: Langjan Nature Reserve, Limpopo Province, which is approximately 40 km northwest of localities with similar elevations that only harbour *A. ineptus* (Linzey et al. 2003).

Its occurrence in the Eastern Cape Province is questionable as no recent sampling has detected the species (I.M. Russo unpubl. data). As such, museum records need to be vetted to define distribution more accurately.

Population

It is widespread and generally occurs in low to moderate densities. Densities are typically fewer than 18 individuals / ha, although as many as 37 / ha have been reported (literature summarised in Chimimba & Linzey 2008). Similarly, in the Soutpansberg, Limpopo Province, densities reached 22 individuals / ha and mostly occurred below 1,400 m asl (Taylor et al. 2015). It was the most common of the *Aethomys* species in the North West Province (Power 2014). It also exhibits variation in population density: for example, in Kruger National Park, it ranged from 1 (summer) to 3 (winter) individuals / ha (Kern 1981), while in Vaalkop Dam Nature Reserve, North West Province, it comprised 7% and 47% of the small mammal community in different years (Ellison 1990). It can be commensal with humans (Taylor et al. 2012).

Current population trend: Stable.

Continuing decline in mature individuals: No

Number of mature individuals in population: > 10,000

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No, savannah habitats largely intact and it can occur in agricultural landscapes.

Habitats and Ecology

Little is known about the ecology of this species. Like *A. chrysophilus*, this species is found in savannah-woodland habitats where there is abundant ground cover in the form of grass, rocks, or debris (for example, Monadjem 1999; Rautenbach et al. 2014). Its distribution coincides with the availability of bushveld, woodland or forest habitats, indicating a preference for some tree cover

Table 2. Threats to the Tete Veld Rat (*Aethomys ineptus*) 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	*2.3.2 Small-holder Grazing, Ranching or Farming*. Current stress *1.2 Ecosystem Degradation*: ground cover loss through overgrazing.	Bowland & Perrin 1989	Empirical	Local	Possibly increasing with human settlement expansion and intensification of wildlife farming.
2	*7.1.1 Increase in Fire Frequency/Intensity*. Current stress *2.1 Species Mortality*: fire management as a tool to promote grazing may lead to loss of ground cover.	Bowland & Perrin 1988	Empirical	Local	Unknown

in addition to ground cover. However, unlike *A. chrysophilus*, it appears to occur in a wider range of elevations and climatic conditions. In north-central South Africa, the major portion of the species' distributional range is above 1,000 m in elevation, but it occurs as low as 800 m on the western side of the Soutpansberg Range (Linzey et al. 2003). In Swaziland, Tete Veld Rats have been collected at elevations ranging from 160 to 1,450 m asl and the species inhabits coastal dune forests north of Durban (KwaZulu-Natal Province, South Africa) (literature summarised in Chimimba & Linzey 2008). The species can also persist in disturbed or modified habitats and has been recorded in rural villages and associated croplands in northern Limpopo (P. Taylor & L. Swanepoel, unpubl. data). It inhabits sugarcane fields in Swaziland (Hurst et al. 2014), and has been recorded from Ngongoni three-awn grass (*Aristida junciformis*) in Umvoti Vlei Conservancy, KwaZulu-Natal Province (Fuller & Perrin 2001), which is an indicator of past disturbance. In coastal habitats the species is typically collected in ecotones between coastal forest and grassland.

The Tete Veld Rat is considered to be omnivorous (Miller 1994; Monadjem 1997), with its diet composed of approximately 38–59% vegetation, 34–58% seeds, and 0–9% insects (literature summarised in Chimimba & Linzey 2008). In Kruger National Park, Kern (1981) recorded a home range between 1,500 and 3,000 m^2. It is nocturnal, with greater activity early in the night (Perrin 1981). It also is semi-arboreal, which may be due to its relatively large brain size (Monadjem 1998). Burrows are excavated under the cover of bushes.

The genus name is derived from Greek, with *Aethomys* being a combination of *aithos* ("sunburned") and *mys* ("mouse"), whereas the species name is derived from the Latin word *ineptus* meaning "unsuitable, out of place, tasteless, or silly". This suggests that Thomas and Wroughton (1908) may have considered its paler colour not to conform and therefore ''unsuitable'' for a typical ''golden''-coloured *A. chrysophilus* (Chimimba 1998).

Ecosystem and cultural services: They act as seed dispersers and are a good forage species for carnivores.

Use and Trade

This species may opportunistically be used as bushmeat but this is not expected to impact the population.

Threats

There are no major threats to this species and it is likely that the species can persist in disturbed or modified habitats if adequate ground cover remains. However, because the species requires substantial cover, overgrazing and incorrect fire regimes can negatively affect local population densities (Bowland & Perrin 1988, 1989). The potential hybridization between *A. ineptus* and *A. chrysophilus* may become a threat if fostered by anthropogenic land-use change, but more research is needed.

Current habitat trend: Stable. Habitat will not decline as savannahs are well-protected and largely intact within the assessment region (Driver et al. 2012). However, coastal forests and grasslands should be further protected. The species can also utilise agricultural habitats.

Conservation

It is present in many protected areas, including Kruger National Park (south of the Olifants), Pilanesberg National Park, Phinda Private Game Reserve, uMkhuze Game Reserve, Cradle Game Reserve, and the Hluhluwe-iMfolozi Game Park. No specific interventions are necessary at present. However, protection of patches of natural habitat through biodiversity stewardship programmes and reduction in stocking rates to retain ground cover will benefit this species.

Table 3. Conservation interventions for the Tete Veld Rat (*Aethomys ineptus*) 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	*1.2 Resource & Habitat Protection*: stewardship agreements with private landowners to conserve wetlands and grasslands.	-	Anecdotal	-	-	Multiple organisations
2	*2.3 Habitat & Natural Process Restoration*: lower stocking rates to retain ground cover.	-	Anecdotal	-	-	-

Recommendations for land managers and practitioners:

- Landowners and communities should be incentivised to stock livestock or wildlife at ecological carrying capacity and to implement a natural fire regime.

Research priorities:

- The precise distributional limits of *A. ineptus* are unknown and further sampling and molecular analysis is required to distinguish between the ranges of the two *Aethomys* species.
- Ecological and behavioural interactions between *A. ineptus* and *A. chrysophilus*.
- Further evidence of its ability to exist in modified landscapes.
- Potential hybridization between *A. ineptus* and *A. chrysophilus* as induced by land-use change and other anthropogenic disturbance.

Encouraged citizen actions:

- Practise indigenous gardening to sustain small mammal diversity, especially in rural areas.
- Encourage corridors of indigenous, rank vegetation to connect areas of suitable habitat.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Tete Veld Rat (*Aethomys ineptus*) assessment

Data sources	Field studies (literature), indirect information (literature)
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.*