Otomys sloggetti – Sloggett's Vlei Rat


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Regional Red List status (2016)	**Least Concern**
National Red List status (2004)	Data Deficient
Reasons for change	Non-genuine: New information
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	Yes

Between 1992 and 2006, the density of Sloggett's Vlei Rat has increased threefold from 110 to 352 animals / ha in the Lesotho Drakensberg possibly as a result of higher habitat productivity and lower thermal stress from a warming climate (Mokotjomela et al. 2010).

Taxonomy

Otomys sloggetti (Thomas 1902)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - MURIDAE - *Otomys* - *sloggetti*

Synonyms: *Myotomys sloggetti* (Thomas 1902)

Common names: Sloggett's Vlei Rat, Ice Rat, Sloggett's Karoo Rat (English), Sloggett se Rot, Sloggett se Karoo-rot (Afrikaans) Leboli-leqhoa (Sotho)

Taxonomic status: Species

Taxonomic notes: Although *Otomys sloggetti* is considered to be defined by primitive dental characters, its position on the phylogeny of Otomyinae remains unresolved (Taylor et al. 2004).

Assessment Rationale

This high-altitude endemic is listed as Least Concern because it has a relatively wide distribution within the assessment region, occurs in several protected areas, including the Maloti-Drakensberg Transfrontier Conservation Area, and because it generally occurs in inaccessible habitats unlikely to be transformed. There are no known threats that could cause rapid population decline. Climate change is not suspected to be an emerging threat. Conversely, density has been estimated to have increased threefold in the Lesotho Drakensberg between 1994 and 2006 possibly due to warmer temperatures. Thus, we list as Least Concern. However, continuing habitat degradation from overgrazing, as well as any other identified minor threats, must be monitored.

Distribution

It is found at high elevations (> 2,000 m) in the Drakensberg Mountains of the Eastern Cape and KwaZulu-Natal provinces of South Africa as well as Lesotho (Lynch 1994; Monadjem et al. 2015), with isolated subpopulations from mountains in the Karoo, such as in the Sneeuberg Mountain Complex (Kok et al. 2012), or in dry, semi-desert habitats around inselbergs and mountain ranges at > 1,500 m asl. In the Drakensberg Range, *O. angoniensis* occurs on the lower slopes in savannah habitats, *O. auratus* and *O. laminatus* at mid-elevation in grasslands and *O. sloggetti* at the highest elevations in alpine heath habitats (Monadjem et al. 2015).

Population

There have been estimates of the population at over 100 individuals / ha in suitable rocky habitats (Willan 1990). In Lesotho, they are common in the higher areas and may be increasing. A field survey study in 2006 at three localities separated by 70, 80 and 130 km in the northeastern Lesotho Drakensberg (Sani Valley, Oxbow Motete Valley and Katse Dam) revealed an increase in maximum densities from 110 to 342 animals / hectare between 1992 and 2006 in Oxbow and from 100 to 319 animals / hectare between 2004 and 2006 in Sani Valley (Mokotjomela et al. 2010). Katse Dam had low numbers of Sloggett's Vlei Rat, possibly due to competition with *O. irroratus* and/or habitat loss from human settlement expansion (Mokotjomela et al. 2010). Overall, the population increase is possibly due to warming temperatures in the region that reduce winter die-off and increase habitat productivity.

Current population trend: Increasing

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. Tends to occur in high-altitude areas that are connected with one another and unlikely to be significantly transformed.

Recommended citation: Pillay N, Taylor P, Baxter R, Child MF. 2016. A conservation assessment of *Otomys sloggetti*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

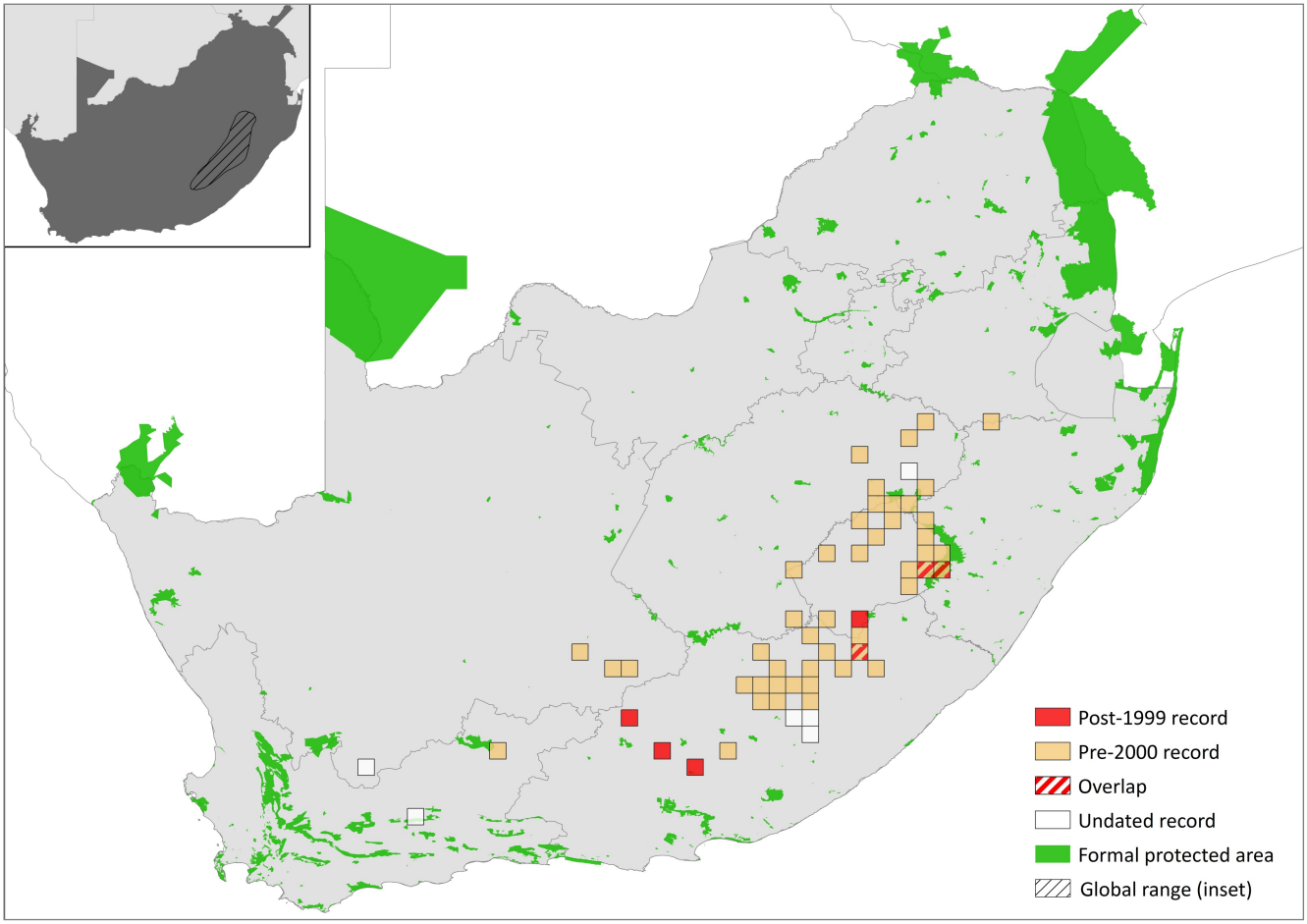

Figure 1. Distribution records for Sloggett's Vlei Rat (*Otomys sloggetti*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Habitats and Ecology

Occurs in montane grasslands on xeric or mesic soils, either dry or wet, typically amidst piles of loose stones or boulders, both natural and man-made (for example, stone walls). It does not occur in modified habitats, but will sometimes nest in crevices in rock foundations of roads (Willan 1990). It is diurnal and feeds on stems, leaves and floral parts of green plants. In the Sani Valley, *O. sloggetti* feeds on wetland grasses, sedges and herbaceous vegetation but avoids *Helichrysum* spp. (Schwaibold & Pillay 2010).

It lives in colonies consisting of at least 4–16 individuals and the breeding season occurs between October and March (Hinze 2005). For example, in the Sani Valley, *O. sloggettii* lives in mixed-sex colonies of up to 17 individuals (Hinze et al. 2013), which construct an intricate underground burrow system in organic and mineral soils (Hinze et al. 2006). Plants taken below ground are used for nesting and there is no evidence of food hoarding (Hinze et al. 2006). Suitable wetland sites in the Sani Valley are home to several colonies and competition for preferred food plants leads to solitary feeding and avoidance between individuals of the same and different colonies (Hinze et al. 2013). Rocky surfaces and boggy soil limits dispersal (Mokotjomela et al. 2010).

Ecosystem and cultural services: It may be an important prey species for predators occurring at high-altitudes. Their extensive burrow systems contribute to soil turnover and aeration. However, when burrows collapse, the resulting gullies alter water flow, contributing to erosion (Grab & Deschamps 2004).

Table 2. Threats to the Sloggett's Vlei Rat (*Otomys sloggetti*) 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	*1.1 Housing & Urban Areas*: current stresses *1.1 Habitat Conversion* and *1.2 Habitat Degradation*.	Mokotjomela et al. 2010	Inferred	Local	Ongoing
2	*5.1.1 Hunting & Collecting Terrestrial Animals*: bushmeat hunting.	-	Anecdotal	-	Possibly increasing with settlement expansion.
3	*2.1.2 Small-holder Farming*: wetland habitat loss from agricultural expansion. Current stress *1.2 Ecosystem Degradation.*	Mokotjomela et al. 2009	Inferred	Regional	Ongoing

Use and Trade

There is anecdotal information of herdsman in Lesotho hunting *O. sloggetti.* However, this threat remains to be quantified.

Threats

There are no major identified threats to the species. Unlike other *Otomys* species threatened by climate change (Taylor et al. 2016), population increases in Lesotho are the result of better overwintering of *O. sloggetti* as a consequence of warmer minimum temperatures over the past two decades (Mokotjomela et al. 2010). Overgrazing the vegetation by domestic livestock and *O. sloggetti* themselves around wetlands reduces habitat suitability.

Current habitat trend: Stable. This species inhabits high-altitude areas that are unlikely to be transformed significantly. However, overgrazing may reduce habitat quality and this should be monitored. Another important consideration is that the increasing population sizes contribute greatly to habitat change through vegetation loss and consequent soil erosion (Grab & Deschamps 2004). Experimental plots erected in the Sani Valley to investigate the single or combined effects of *O. sloggetti* and domestic livestock on soil erosion and loss showed that the damage caused by *O. sloggetti* exceeds that of livestock (Mokotjomela et al. 2009). Therefore, while low temperature and prolonged snowfall are density independent regulators of *O. sloggetti* populations in Lesotho, diminishing resources (food and suitable nest sites) are possible density-dependent regulators. Correspondingly, an increase in population densities may accelerate soil erosion rates through their feeding and burrowing habits (Mokotjomela et al. 2009).

Conservation

Occurs in many protected areas across its range such as the Maloti-Drakensberg Transfrontier Conservation Area (Monadjem et al. 2015) and Mountain Zebra National Park (Kok et al. 2012). Although no specific interventions are necessary at present, wetland conservation and restoration is likely to benefit this species.

Recommendations for land managers and practitioners:

- Land managers should maintain a vegetation buffer around wetlands to reduce impacts of land-use practices.
- Land managers should practice holistic management of ranchlands, including de-stocking and rotational grazing.
- Further long-term, systematic monitoring is needed to establish subpopulation trends and threat levels.

Research priorities:

- Fine scale studies on habitat loss and inferred impact on the species.
- Effects of overgrazing on the density and viability of this species.
- Population fluctuations in response to climate change.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Sloggett's Vlei Rat (*Otomys sloggetti*) assessment

Data sources	Field survey (literature), museum records
Data quality (max)	Estimated
Data quality (min)	Inferred
Uncertainty resolution	Best estimate
Risk tolerance	Evidentiary

Table 3. Conservation interventions for the Sloggett's Vlei Rat (*Otomys sloggetti*) 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	*2.3 Habitat & Natural Process Restoration*: wetland conservation and restoration.	-	Anecdotal	-	Unknown	-

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