Suncus infinitesimus – Least Dwarf Shrew


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Regional Red List status (2016)	Least Concern*
National Red List status (2004)	Data Deficient
Reasons for change	Non-genuine change: Change in risk tolerance
Global Red List status (2008)	Least Concern
TOPS listing (NEMBA)	None
CITES listing	None
Endemic	Near

*Watch-list Data

As the colloquial name indicates, this is the smallest of the dwarf shrews (*Suncus*) within the assessment region (Skinner & Chimimba 2005).

Taxonomy

Suncus infinitesimus (Heller 1912)

ANIMALIA - CHORDATA - MAMMALIA - EULIPOTYPHLA - SORICIDAE - *Suncus* - *infinitesimus*

Common names: Least Dwarf Shrew (English), Kleinste Dwergskeerbek (Afrikaans)

Taxonomic status: Species complex

Taxonomic notes: *Suncus infinitesimus* possibly represents a complex of at least two similar species. These species may prove to be endemic to the assessment region if the isolated records from east and central Africa pertain to different species. Further studies are needed to clarify the taxonomic status of populations currently allocated to this species.

Assessment Rationale

The Least Dwarf Shrew is widespread within the assessment region, occurring across many habitat types, including gardens, and is regularly sampled in suitable habitats. It is common and can be overlooked due to its small size. It is present in several protected areas and there is no evidence for net population decline. Thus we evaluate the species as Least Concern. However, we caution that, pending molecular research, the species may be split into several species and most likely represents one or more endemic taxa. This requires reassessment once the taxonomy has been resolved. Key interventions include protected area expansion of moist grassland and riverine woodland habitats, as well as providing incentives for landowners to sustain natural vegetation around wetlands and keep livestock or wildlife at ecological carrying capacity.

Regional population effects: There is a disjunct distribution between populations in the assessment region and the rest of its range. This species is also a poor disperser. Thus there is not suspected to be a significant rescue effect.

Distribution

The Least Dwarf Shrew has a seemingly wide African distribution: It is found in South Africa and Kenya (Rumruti and Rongai), with additional isolated records from Central African Republic and Cameroon. It possibly occurs in Uganda, however, this needs to be confirmed. Thus, it has a disjunct distribution between the South African population and populations in east and central Africa. Additionally, it is thought to be a species complex and molecular research may reveal the South African population to be an endemic species. Thus, we call this species Near Endemic currently.

Within the assessment region, it occurs extensively in Gauteng, Mpumalanga, KwaZulu-Natal and Eastern Cape provinces, and marginally in the North West, Free State, and Western Cape provinces (Skinner & Chimimba 2005; Figure 1). A single specimen has been collected from Malolotja Nature Reserve in the highveld region of Swaziland (Monadjem 1998).

Population

This species has an extremely small body size (2.5–3 g, Skinner & Chimimba 2005), and thus rarely triggers traps during field surveys. As such, it is often overlooked and may be commoner than thought. For example, it probably occurs throughout the woodland areas of eastern North West Province (Power 2014). Similarly, it was recently regularly sampled at Phinda Private Game Reserve, KwaZulu-Natal Province across multiple habitats (Rautenbach et al. 2014), and regularly and widely elsewhere in KwaZulu-Natal (J. Harvey unpubl. data). Considering it is rare in museum collections (P. Taylor pers. comm. 2015), this is an important finding.

Current population trend: Unknown

Continuing decline in mature individuals: Unknown

Number of mature individuals in population: Unknown

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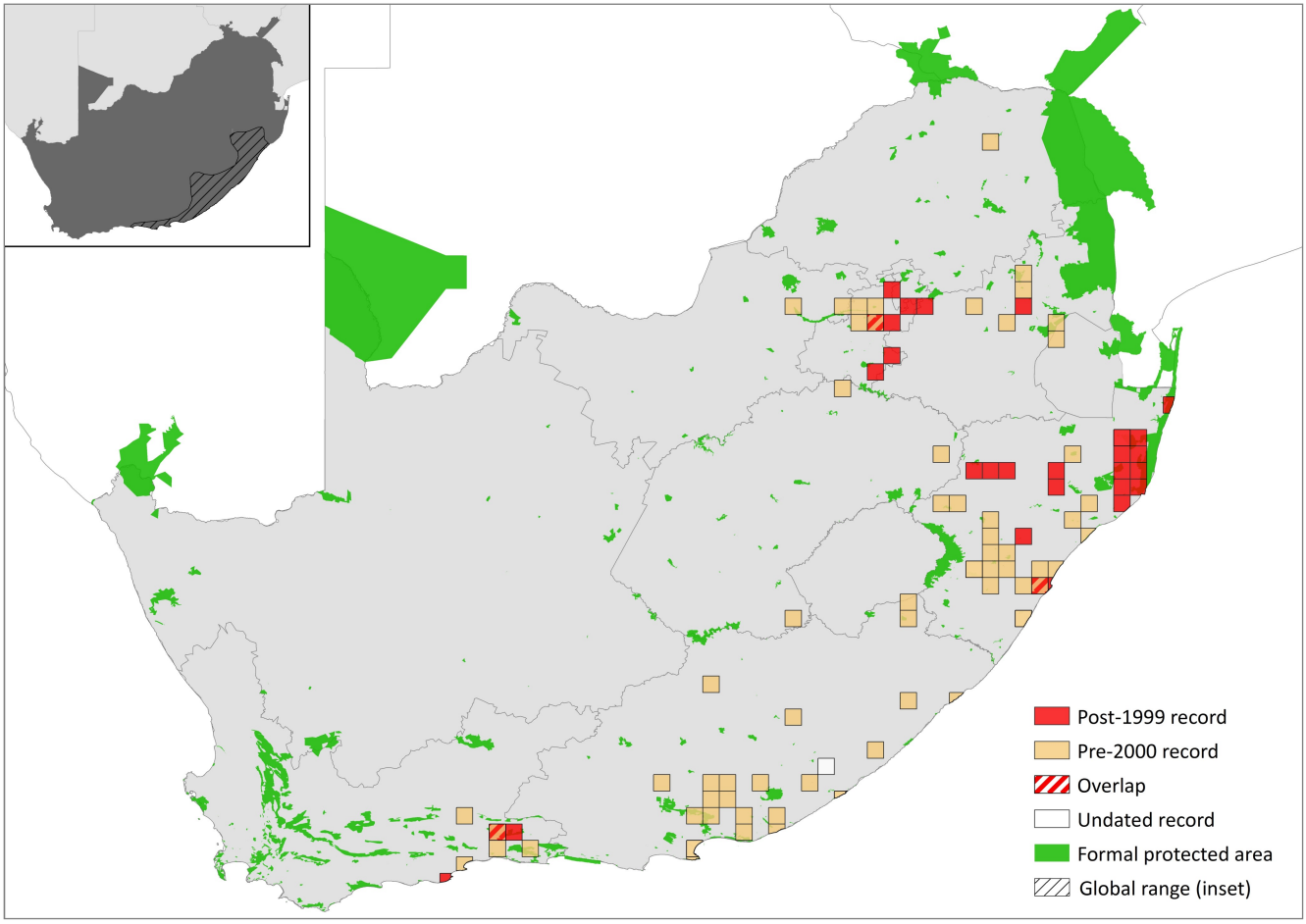

Figure 1. Distribution records for Least Dwarf Shrew (*Suncus infinitesimus*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No. Can utilise modified habitats, but poor dispersal ability may negate its broad habitat suitability.

Habitats and Ecology

It has a broad habitat tolerance, occurring in primary forest, montane grassland, subtropical grasslands savannah, bushveld and suburban or rural gardens (Taylor 1998; Skinner & Chimimba 2005). In Kenya (Rongai), it was found on agricultural land. At Phinda Private Game Reserve, KwaZulu-Natal Province, it was sampled in flood plain grasslands and woodlands (Rautenbach et al. 2014). Interestingly, it was sampled, along with *Dendromus mystacalis* (together the two most uncommon species sampled), in Kikuyu (*Pennisetum clandestinum*) pastures in Umvoti Vlei Conservancy, KwaZulu-Natal Province, despite this habitat having low small mammal abundance overall (Fuller & Perrin 2001). It is commonly associated with disused termite mounds from the species *Trinervitermes trinervoides* (Lynch 1983), presumably used for thermoregulation. They are insectivorous and have been recorded in Barn Owl pellets (Skinner & Chimimba 2005). In Swaziland, this species has been collected from a rocky outcrop in Highveld sour grassland (Monadjem 1998).

Ecosystem and cultural services: An important prey species.

Use and Trade

There is no known subsistence or commercial use of this species.

Threats

The main threat to shrews is the loss or degradation of moist, productive areas such as wetlands and rank grasslands within suitable habitat. The two main drivers behind this are abstraction of surface water and draining of wetlands through industrial and residential expansion, and overgrazing of moist grasslands, which leads to the loss of ground cover and decreases small mammal diversity and abundance (Bowland & Perrin 1989, 1993). Suppression of natural ecosystem processes, such as fire, can also lead to habitat degradation through bush

Table 2. Threats to the Least Dwarf Shrew (*Suncus infinitesimus*) 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	*7.2 Dams & Water Management/Use*: wetland loss through drainage/water abstraction during agricultural, industrial and urban expansion.	Driver et al. 2012	Indirect (land cover change from remote sensing)	National	65% of wetland ecosystem types threatened.
2	*2.3.2 Small-holder Grazing, Ranching or Farming*: wetland and grassland degradation through overgrazing (removal of ground cover).	Bowland & Perrin 1989	Empirical	Local	Possibly increasing with human settlement expansion and intensification of wildlife farming.
		Driver et al. 2012	Indirect	National	45% of remaining wetland area exists in a heavily modified condition.
3	*7.1.2 Suppression in Fire Frequency/Intensity*: human expansion around grasslands has decreased natural fire frequency. Current stress *1.2 Ecosystem Degradation*: altered fire regime leading to bush encroachment (including alien vegetation invasion) and thus loss of moist grasslands.	-	Anecdotal	-	-
4	*11.1 Habitat Shifting & Alteration*: moist microhabitats lost from Afromontane forest cover reduction and aridification.	-	Anecdotal	-	-
5	*1.1 Housing & Urban Areas*: habitat lost to residential and commercial expansion. Current stress *1.3 Indirect Ecosystem Effects*: fragmentation and isolation of suitable habitat patches with limited dispersal between.	GeoTerraImage 2015	Indirect (land cover change from remote sensing)	Regional	Continuing. Area of urban and rural expansion has increased by 5.6% and 1.1% for KwaZulu-Natal Province between 2000 and 2013 alone.

encroachment or loss of plant diversity through alien invasives, and is suspected to be increasing with human settlement expansion. There are also clear overlaps and synergistic effects between these threats. Across South Africa, 65% of wetland ecosystem types are threatened (48% of all wetland types Critically Endangered, 12% Endangered and 5% Vulnerable; Driver et al. 2012).

Climate change is considered to be the principal emerging threat to this species (Ogony 2014), both due to loss of habitat and habitat degradation from drying out of wetlands and because shrews cannot tolerate extremes of temperature for long and thus their foraging time will be reduced. Because of their high metabolism, low dispersal capacity and short life spans, climate change may reduce the amount of suitable habitat available.

Current habitat trend: In KwaZulu-Natal Province alone, there was a 19.7% loss of natural habitat from 1994 to 2008, with an average loss of 1.2% per annum (Jewitt et al. 2015). If this rate of loss continues into the future, there will be an estimated 12% loss of habitat over 10 years. Additionally, between 2000 and 2013, there has been a 5.6% and 1.1% rate of urban and rural expansion in KwaZulu-Natal Province respectively (GeoTerraImage 2015). However, as long as natural vegetation is maintained around wetlands, rivers and artificial waterbodies, habitat for this species is suspected to remain stable. Additionally, the expansion of wildlife ranching may have a positive effect on this species as more termitaria are likely to be conserved on old fields or fallow lands.

Conservation

The Least Dwarf Shrew is present in several protected areas across its range within the assessment region. The main intervention for this species is the protection and restoration of grasslands and wetlands. Biodiversity stewardship schemes should be promoted if landowners possess wetlands or grasslands close to core protected areas or remaining habitat patches, and the effects on small mammal subpopulations should be monitored. Protecting such habitats may create dispersal corridors between grassland patches that will enable adaptation to climate change. At the local scale, landowners and managers should be educated, encouraged and incentivised to conserve the habitats on which shrews and small mammals depend. Retaining ground cover is the most important management tool to increase small mammal diversity and abundance. This can be achieved through lowering grazing pressure (Bowland & Perrin 1989), or by maintaining buffer strips of natural vegetation around wetlands (Driver et al. 2012). Small mammal diversity and abundance is also higher in more complex or heterogeneous landscapes, where periodic burning is an important tool to achieve this (Bowland & Perrin 1993). Removing alien vegetation from watersheds, watercourses and wetlands is also an important intervention to improve flow and water quality, and thus habitat quality, for shrews. Education and awareness campaigns should be employed to teach landowners and local communities about the importance of conserving wetlands and moist grasslands.

Table 3. Conservation interventions for the Least Dwarf Shrew (*Suncus infinitesimus*) 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	*2.2 Invasive/Problematic Species Control*: maintain stocking rates of livestock and wildlife at ecological carrying capacity.	Bowland & Perrin 1989	Empirical	Local	Small mammal diversity and abundance significantly higher after decrease in grazing pressure.	-
3	*2.1 Site/Area Management*: maintain/restore natural vegetation around wetlands.	-	Anecdotal	-	-	-
4	*2.2 Invasive/Problematic Species Control*: clear alien vegetation from watersheds and wetlands to restore habitat quality.	-	Anecdotal	-	-	Working for Water, Department of Environmental Affairs
5	*4.3 Awareness & Communications*: educating landowners in the importance of wetlands and grasslands.	-	Anecdotal	-	-	-

Recommendations for land managers and practitioners:

- Landowners and communities should be incentivised to stock livestock or wildlife at ecological carrying capacity and to maintain a buffer of natural vegetation around wetlands.

Research priorities:

- Further molecular research is needed to ascertain the validity of the putative species complex.
- Additional field surveys are needed to clarify and confirm the distribution of this species.

Encouraged citizen actions:

- Citizens are requested to submit any shrews killed by cats or drowned in pools to a museum or a provincial conservation authority for identification, thereby enhancing our knowledge of shrew distribution (carcasses can be placed in a ziplock bag and frozen with the locality recorded).

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Least Dwarf Shrew (*Suncus infinitesimus*) assessment

Data sources	Field study (published), Indirect information (expert knowledge), museum records
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
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.*