Gerbilliscus brantsii – Highveld Gerbil


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Regional Red List status (2016)	**Least Concern**
National Red List status (2004)	Least Concern
Reasons for change	No change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

The Highveld Gerbil, colloquially known as the 'Springhaasmuis' in Afrikaans (Power 2014), is commonly aggressive. Individuals stand upright on their hind legs and strike at each other with their forepaws (Skinner & Chimimba 2005).

Taxonomy

Gerbilliscus brantsii (Smith 1836)

ANIMALIA - CHORDATA - MAMMALIA - RODENTIA - MURIDAE - *Gerbilliscus - brantsii*

Synonyms: *Tatera brantsii* (Smith 1836), *breyeri*, *draco, griquae, humpatensis, joane, maccalinus, maputa, miliaria, montanus, namaquensis, natalensis, perpallida, ruddi, tongensis* (Dempster 2013)

Common names: Highveld Gerbil, Brants's Gerbil (English), Hoëveldse Nagmuis, Basoetolandse Nagmuis, Springhaasmuis (Afrikaans), Letsoètè (Sesotho)

Taxonomic status: Species

Taxonomic notes: This species was previously described as *Tatera brantsii*, and a number of subspecies have been described (Skinner & Chimimba 2005). Following the reclassification of this species as *Gerbilliscus brantsii*, additional research is necessary to delineate subspecies status. In comparison to other *Gerbilliscus* species in its range (*G. afra and G. leucogaster*), *G. brantsii* can be recognised by the white terminal end of its tail and its tail length, which is only slightly longer than its body.

Assessment Rationale

Listed as Least Concern in view of its wide distribution within the assessment region, abundant population, ability to live in a wide variety of habitats, including agricultural landscapes, and because there are no major threats that could cause population decline. This species is considered an agricultural pest during population surges and holistic management control methods, including the use of Barn Owls (*Tyto alba*), should be encouraged.

Regional population effects: This species has a contiguous habitat across Botswana and southeast Namibia, thus dispersal is highly probable between these regions.

Distribution

Highveld Gerbils are endemic to southern Africa (but absent from the mesic eastern savannahs and the arid western regions), where they mainly occur in open grasslands with sandy soils in the South-West Arid and Highveld biotic zones and marginally in the southern part of the Zambezian Woodland biotic zone (Dempster 2013; Monadjem et al. 2015). Their distribution includes the eastern half of Namibia, most of Botswana and marginal areas in southeastern Angola, a small western part of Zimbabwe and southwestern Zambia (Skinner & Chimimba 2005).

In the assessment region, they occur in South Africa throughout the North West, Gauteng and the Free State (Lynch 1983; Skinner & Chimimba 2005; Power 2014), in the western parts of Limpopo, the southern parts of Mpumalanga, the western and northeastern parts of KwaZulu-Natal, the northeastern parts of the Eastern Cape and the northern parts of the Northern Cape (Avery et al. 2002; Skinner & Chimimba 2005; Avery & Avery 2011). They are absent from the extremely arid western parts of South Africa (Dempster 2013). According to Lynch (1994) and Skinner and Chimimba (2005) they are rare throughout Lesotho, although later suggestions by Ambrose (2006) indicated they are more abundant in this country. They are absent from Swaziland (Monadjem 1997; Skinner & Chimimba 2005).

Population

It is a common species with expected cyclic variations in abundance (Avenant 2011). Korn (1987) estimated the density of *G. brantsii* in the Nylsvley Nature Reserve, Limpopo Province, as between 12 and 16 animals / ha during the dry period, while de Moor (1969) estimated their density to range from 14.8 to 27.1 animals / ha in the South African Highveld. Abundant food in the form of crops leads to higher population densities in this species, which in turn leads to crop damage, which leads to it being considered a pest species in agricultural settings (Skinner & Chimimba 2005; Power 2014). When the population density exceeds a critical limit, natural predators are not able to keep population numbers low enough to reduce crop damage to acceptable limits.

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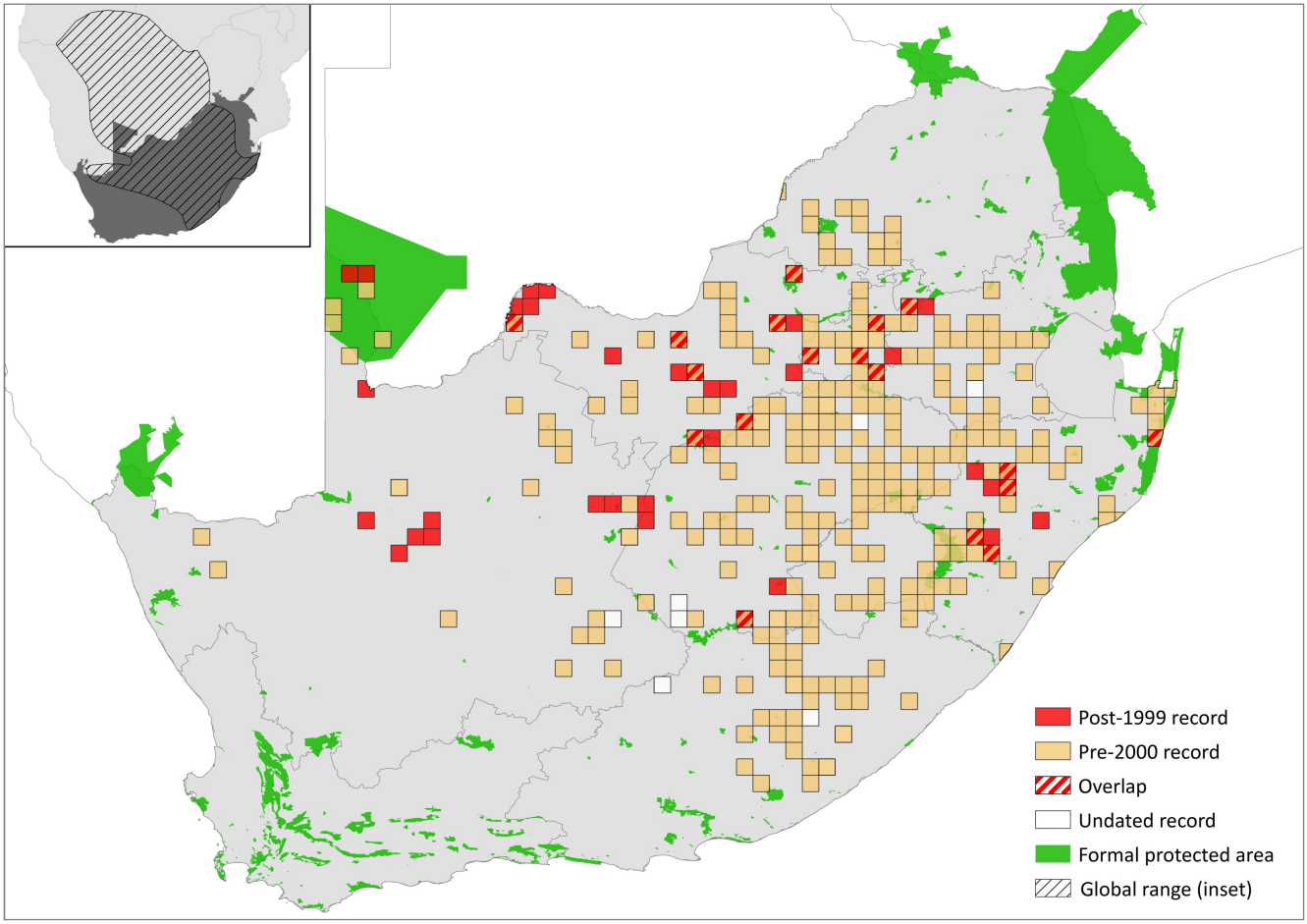

Figure 1. Distribution records for Highveld Gerbil (*Gerbilliscus brantsii*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

Current population trend: Stable

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

Habitats and Ecology

Highveld Gerbils are associated with open areas, or plains, in subtropical and wooded grasslands on sandy soils or sandy alluvium and may also be found in peaty soils around marshes or wetlands (Skinner & Chimimba 2005; Dempster 2013). They do not generally occur on heavy consolidated sands or very loose sandy soils and need cover of grass, scrub or open woodland (Skinner & Chimimba 2005; Dempster 2013). In Seekoeivlei Nature Reserve, Free State, the only specimen of *G. brantsii* was collected in a fallow maize field in sandy soil (Wandrag et al. 2002). In the Free State, they were found to be closely associated with cultivated lands (Lynch 1983), and may be a considerable pest in agricultural areas (Monadjem et al. 2015). For example, they are known to forage on germinating seeds and newly emergent seedlings in cropland (Verdoorn 2010; von Maltitz et al. 2014).

They tend to form small colonies with entrances to burrows five to ten paces apart. They sometimes use the tunnels of mole-rats (*Cryptomys* spp.) (Dempster 2013). Active burrows are recognised by fresh soil outside the burrow as these animals tend to clean the burrows every evening. Despite the small number of individuals in a colony, colony warrens may cover areas as large as 70 ha (de Moor 1969). They are adapted to an omnivorous diet which consists mainly of plant material and a small proportion of insects. They mainly take the green parts, seeds and the roots of plants (Skinner & Chimimba 2005; Dempster 2013).

Ecosystem and cultural services: Highveld Gerbils maintain high plant diversity in savannah habitats (Korn & Korn 1989). This species is recognised as a major reservoir and vector of the bubonic plague, and resultantly plays a significant role in plague epidemiology in southern Africa (NICD 2005).

Use and Trade

This species is not known to be traded or utilised in any form.

Table 2. Threats to the Highveld Gerbil (*Gerbilliscus brantsii*) 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	*5.2.3 Persecution/Control*: persecution by farmers, as it can become an agricultural pest. Current stress *2.1 Species Mortality.*	Makundi & Massawe 2011	Indirect	Review	Stable

Threats

There are no major threats to this species. During population explosions it may become an agricultural pest in some areas which could result in persecution (Verdoorn 2010; von Maltitz et al. 2014). Although this species is a major reservoir for the bubonic plague, it is likely not persecuted for this because it is known not to enter human establishments. Farmers often use poison to control the population, which has knock-on effects for the ecosystem (Makundi & Massawe 2011).

Current habitat trend: Stable

Conservation

This species is present in many protected areas throughout the assessment region, including Kgalagadi Transfrontier Park, Sehlabathebe National Park (Lesotho), Golden Gate Highlands National Park, Pilanesberg National Park and Suikerbosrand Nature Reserve. There are no specific interventions necessary and this species thrives in cultivated areas (predominantly on grain-growing lands). Selective chemical control (Verdoorn 2010; von Maltitz et al. 2014) or biocontrol of population explosions through the use of Barn Owls (Potter 2004) are viable control methods that are currently available and form part of holistic ecosystem management strategies. The use of Barn Owls for population control has been successfully implemented for the closely related *G. afra*, and is thus a potentially effective method for *G. brantsii* as well. In a study conducted on *G. afra* in the Western Cape this method was found to be twice as effective on the gerbil population, compared to the use of poison (Potter 2004). Barn Owls respond to prey explosions by increasing reproduction (Potter 2004; Makundi & Massawe 2011). This management intervention also saves farmers the cost of buying poison and the mortality of non-target species including domestic stock.

Recommendations for land managers and practitioners:

- Barn Owls are being used successfully to control the closely related species, *G. afra*. This should be encouraged as a holistic management intervention. In order to assist Barn Owls to manage the populations one should erect perches in the crop fields and then nesting boxes in appropriate sites close to the fields.

Research priorities:

- The practicalities and effectiveness of the use Barn Owls as a population control method for this species.
- Taxonomic resolution of the *Gerbilliscus* genus.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Install Barn Owl nest boxes and perches in crop fields to encourage biocontrol during population explosions.

Data Sources and Quality

Table 4. Information and interpretation qualifiers for the Highveld Gerbil (*Gerbilliscus brantsii*) assessment

Data sources	Field study (literature, unpublished), indirect information (literature), museum records
Data quality (max)	Inferred
Data quality (min)	Inferred
Uncertainty resolution	Best estimate
Risk tolerance	Evidentiary

References

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Table 3. Conservation interventions for the Highveld Gerbil (*Gerbilliscus brantsii*) 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	*3.1.1 Limiting Population Growth*: biocontrol methods during population explosions, such as encouraging Barn Owls (*Tyto alba*) through nest boxes and hunting perches.	Potter 2004	Indirect	Regional	The use of owls to control rodents in wheat fields was twice as effective as using poison.	-

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