Raphicerus sharpei – Sharpe's Grysbok

Regional Red List status (2016)	**Least Concern***
National Red List status (2004)	Near Threatened D1
Reasons for change	Non-genuine: New information
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	Protected
CITES listing	None
Endemic	No

*Watch-list Data

"...these little antelope are beautiful and somewhat enigmatic so society would benefit if their ecology was better understood…'
(M. Cesare modified by MJS Peel)

Taxonomy

Raphicerus sharpei Thomas 1897

ANIMALIA - CHORDATA - MAMMALIA - CETARTIODACTYLA - BOVIDAE - *Raphicerus - sharpei*

Common names: Sharpe's Grysbok (English), Sharpe se Grysbok, Tropiese Grysbok (Afrikaans), Isanempa (Ndebele), Phuduhudu (Setswana), Mawumbane (Swati), Pitsipitsi, Xipitsipitsi, Zipitipit (Tsonga)

Taxonomic status: Species

Taxonomic notes: Has been considered conspecific with *R. melanotis*. Two subspecies proposed but validity doubtful (Hoffmann & Wilson 2013).

It was initially said that, like the Steenbok, Sharpe's Grysbok did not have "false hooves" (a pair of supplementary hooves above the fetlocks), and was previously called the Sharpe's Steenbok (Stevenson-Hamilton 1947; Astley Maberly 1952). It was later shown that the Sharpe's sometimes does have false hooves but more often not (Astley Maberly 1963). Due to closer morphological links with the larger Cape Grysbok (Stevenson-Hamilton 1947), although the latter always has 'false hooves', this species was later classified as Sharpe's Grysbok. They thus appear to form a link between the Cape Grysbok and the Steenbok.

Assessment Rationale

This species occupies well-protected savannah habitats within the assessment region, including Kruger National Park (KNP), with dispersal possible through the Great Limpopo Transfrontier Park. The extent of occurrence is estimated to be 53,894 km^2 while the area of occupancy is estimated as 25,530 km^2 (including only formal and private protected areas) or 10,028 km^2 (including only Mopane woodlands within the protected areas). This yields an estimated mature population size (assuming a 70% mature population structure) of 2,106–12,510 individuals, using a density estimate of 0.3–0.7 individuals / km^2. Its habitat is largely protected and not expected to decline significantly in amount or quality. The conversion from livestock to wildlife ranching may instead be increasing available habitat. However, the impact of mining in the lowveld should be assessed as such activities could break habitat corridors. Available time series indicate a low-density but stable subpopulation trend over the past three generations (1999 to 2013) in KNP and adjacent conservancies, as well as in Save Valley Conservancy, Zimbabwe, which indicates the rate of potential immigrants will not decline. While anecdotal reports suggest that this species no longer occurs in many areas of its historical range, it may also be overlooked and under-sampled as it is difficult to detect. Although bushmeat hunting (direct or incidental) will likely cause local declines, especially outside of protected areas, there is no evidence to suggest that the population overall is in decline. Thus, we list Sharpe's Grysbok as Least Concern. The status of Sharpe's Grysbok is unlikely to change in the long-term if it continues to be well represented in protected areas and on private land. However, this species should be re-assessed if further monitoring data suggest a broader population decline outside protected areas.

Regional population effects: There is suspected to be dispersal and immigration across the northern border of Limpopo from Botswana and Zimbabwe through the Greater Mapungubwe Transfrontier Park and through Mozambique and Zimbabwe through the Great Limpopo Transfrontier Park. Immigration is not expected to decrease since the population in neighbouring countries is stable or increasing. However, due to its habitat preferences, described variously as thick woodland, riverine forest and broken country with bush cover (Smithers 1966), which represent threatened habitats (except for 'broken country'), rates of immigration may be low. In the Lowveld, Sharpe's Grysbok are mainly encountered in the 'broken country' type habitat (for example, along the Olifants River), which may suggest that the species is able to make use of impacted landscapes to disperse. Monitoring is needed to establish the net rescue effect and rate of dispersal/immigration.

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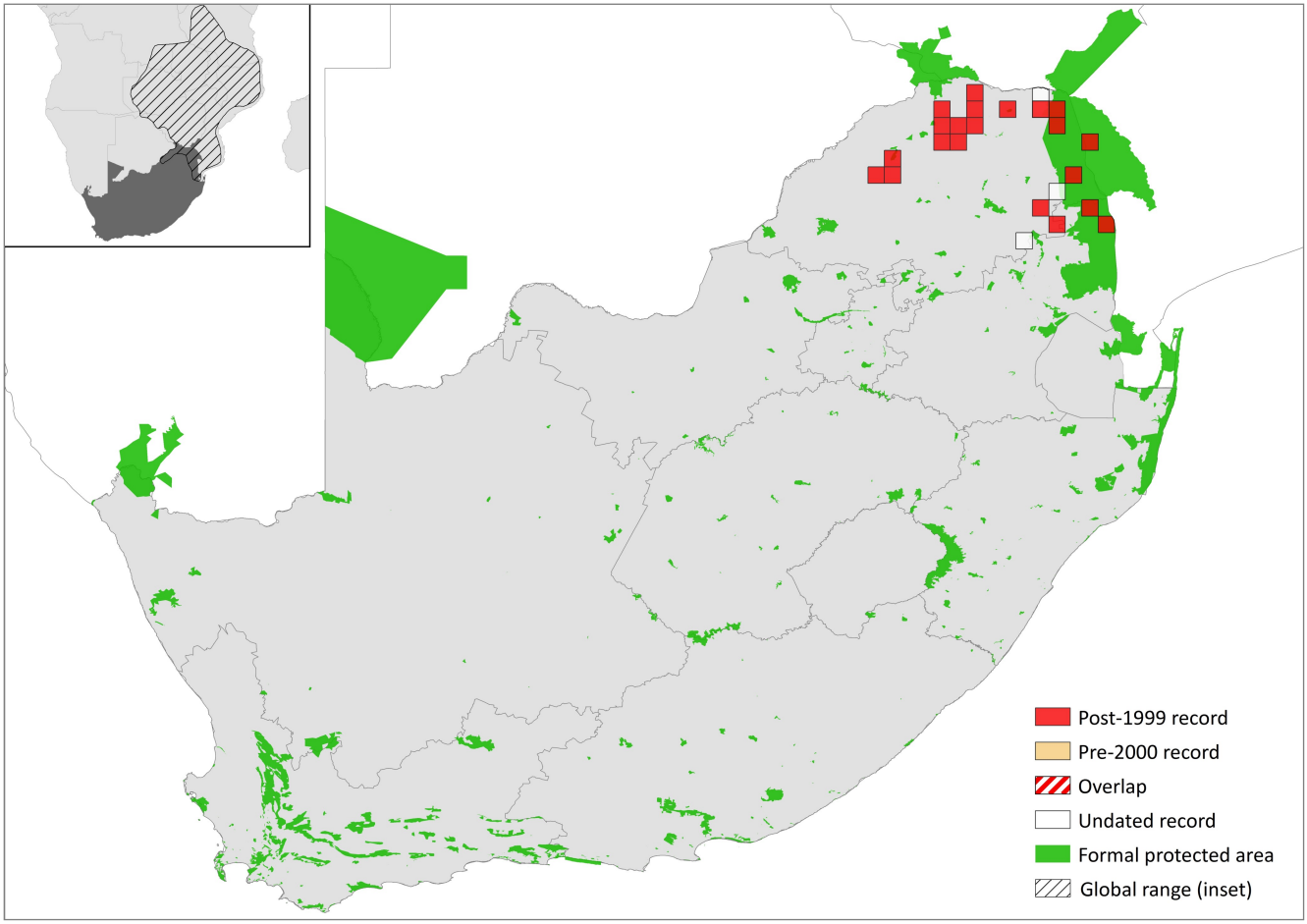

Figure 1. Distribution records for Sharpe's Grysbok (*Raphicerus sharpei*) within the assessment region

Table 1. Countries of occurrence within southern Africa

Country	Presence	Origin
Botswana	Extant	Native
Lesotho	Absent	-
Mozambique	Extant	Native
Namibia	Extant (Caprivi Strip only)	Native
South Africa	Extant	Native
Swaziland	Extant	Native
Zimbabwe	Extant	Native

Distribution

Occurs in savannah woodland from western and southern Tanzania (Skinner & Chimimba 2005), southwards through southeastern Democratic Republic of the Congo (Smith 1992; Skinner & Chimimba 2005), Zambia (east of the Zambezi River, absent in the north and northwest) (Smithers 1966; Smith 1992; Skinner & Chimimba 2005), Malawi (widespread) (Smithers 1966; Smith 1992; Skinner & Chimimba 2005), Mozambique (not including the coastal forested regions) (Smithers 1966; Smith 1992; Skinner & Chimimba 2005), to extreme northeastern Botswana and the eastern Caprivi Strip along the Zambezi River. The species is found in much of Zimbabwe (Smithers 1966; Smith 1992), and the Lowveld in northeast South Africa (Limpopo Province, eastern Mpumalanga) and eastern Swaziland (Stevenson-Hamilton 1947; Smithers 1966; Rautenbach 1982; Skinner & Chimimba 2005; Hoffmann & Wilson 2013). While expanding human settlements and agriculture, as well as hunting, have reduced their numbers and range, their secretive habits have enabled them to survive in pockets of their former range (Skinner & Chimimba 2005).

Within the assessment region, their stronghold is the KNP where they are most plentiful between the Olifants and Limpopo Rivers in the Mopane woodlands (Astley Maberly 1963) and the surrounding private conservancies. They also occur in the south of the park, all along the Lebombo mountain range southwards (Pienaar et al. 1987). Some specific observations follow: D. Rushworth (pers. comm. 2014) observed that some 30 years ago the strip of land on the lower slopes of the northeastern escarpment from the Swadini gate into the Blyde Nature Reserve (northwest round to the base of Manoutsa near the Strijdom Tunnel) had a viable population of Sharpe's Grysbok. Present numbers of grysbok appear to have diminished or even disappeared on some properties (D. Rushworth pers. comm. 2014). This is supported from the area to the south of the latter observation where it appears that this species has disappeared from the farm Madrid (J. Anderson pers. comm.). Rautenbach (1982) reports a single record from the Thabazimbi district but states that it has in all likelihood disappeared from this area and the species has also disappeared from the former southeastern Transvaal (Gauteng/Mpumalanga) during recent times. Although there are no collected records, they do occur on Lapalala Wilderness in the Waterberg (J. Anderson & A. Walker pers. comm. 2014). However, Power (2014) reports that although they occur in the Waterberg, they are becoming increasingly scarce there. Stevenson-Hamilton (1947) reported that there were 'good numbers' of Sharpe's Grysbok on both sides of the Lebombo Mountains

between Swaziland and Mozambique and in KNP as far south as the Crocodile River at Komatipoort. This is corroborated by Skinner and Chimimba (2005), Smithers (1966), Rautenbach (1982) and Hoffmann and Wilson (2013). There are historical accounts of "grysbok" from the Drakensberg in the 1930s, 1940s and 1950s, both from Natal Parks Board rangers and forestry staff (I. Rushworth pers. comm. 2014), however, there are almost certainly no grysbok in the Drakensberg today.

The extent of occurrence (EOO) is estimated to be 53,894 km^2. However, this is likely an underestimate as not all sightings data are available. Further collation of current sightings data will help to refine this estimate. Area of occupancy was calculated as 1) including only formal and private protected areas within the EOO (again likely to be an underestimate), which yields 25,530 km^2; and 2) including all Mopane woodland, Soutpansberg and Roodeberg bushveld habitat types, which yields 10,028 km^2. Further refinements of AOO are needed to more accurately estimate population size.

Population

East (1999) summarized recorded population density estimates for this species as 0.3–0.7 animals / km^2, and estimated a total population size of about 95,000 animals. The previous national assessment estimated a population size of < 2,500 mature individuals (Friedmann & Daly 2004). Using the AOO and density estimates above, we estimate a population of 3,008–17,871 individuals, which yields a mature population size of 2,106–12,510 individuals (assuming a 70% mature population structure). It is thus likely that there are fewer than 10,000 mature individuals but probably not fewer than 2,500. Additionally, as Sharpe's Grysbok are predominantly nocturnal, exceptionally shy and secretive, they can be overlooked in areas where in reality they are reasonably common so they may be more abundant than supposed (Hoffmann & Wilson 2013). For example, they are apparently common in the Soutpansberg (Power 2002).

The generation length has been calculated as 4.8 years (Pacifici et al. 2013), which yields a 14.4 year three-generation period. Within the assessment region, in protected areas and ranches where the species occurs, subpopulations are estimated to be stable. For example, data from Lapalala Wilderness indicates the regular sightings of some 5–7 animals (A. Walker unpubl. data). The Agricultural Research Institute (ARC-API) aerial survey data (1997 to 2013) indicates a low density yet stable population in the protected areas adjacent to the KNP along the Olifants River. Similarly, aerial count surveys from Selati Game Reserve reveal consistent presence of Sharpe's Grysbok between 1 and 15 from 1998–2014. Similarly, Letaba Ranch (J. Marshall and I. Sharp unpubl. data) counted six individuals in 1995, 8 in 2003 and 14 in 2004. Richard Sowry (pers.comm. 2014) states that while they do not occur in any significant numbers, the subpopulation in the Kingfisherspruit section of the KNP north to the Olifants River appears to be stable. In the Save Valley Conservancy, Zimbabwe, sightings frequency has increased between 2002 and 2010 (D. Joubert unpubl. data). Throughout its global range, the population trend is generally stable in protected areas and on private farms, but gradually decreasing elsewhere as hunting pressures increase with the growth of human populations (IUCN SSC Antelope Specialist Group 2016).

Current population trend: Stable

Continuing decline in mature individuals: No

Number of mature individuals in population: 2,106–12,510

Number of mature individuals in largest subpopulation: Unknown, but most likely in KNP.

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

They occur in areas of scrub, thickets and grass, avoiding stands of tall grass, sometimes occupying the base of koppies and stony ridges as well as riverine vegetation (Skinner & Chimimba 2005). Specifically, they appear to be associated with Miombo (*Brachystegia*) woodland where there is good undercover in the form of low-growing scrub or medium-length grass (Rautenbach 1982; Skinner & Chimimba 2005; Hoffmann & Wilson 2013). Although they appear to be associated with areas of good ground cover, they are also found in pure stands of Mopane (*Colophospermum mopane*), and in Chobe National Park they were seen on a sandy plateau in open woodland with light grass and scrub cover (IUCN SSC Antelope Specialist Group 2016). They are predominantly browsers, but will also graze (Astley Maberly 1963; Hoffmann & Wilson 2013). They occur in areas where the majority of plant production occurs below 2 m (Jarman 1974). With territorial habits, one would expect Sharpe's Grysbok to self-regulate their numbers. Overall, little is known about them as they are predominantly nocturnal and live in concealed habitats, often crouching low to the ground while running when flushed. Usually they occur as solitary adults, pairs or a female with a single offspring (Skinner & Chimimba 2005). Even when a pair is sharing the same bush for shade and/or shelter, they appear to lie in different parts of it (Stevenson-Hamilton 1947).

Locally, in the protected areas adjacent to the KNP (eastern Lowveld), Sharpe's Grysbok are found predominantly in the Lowveld Rugged Mopaneveld (Astley Maberly 1963; Mucina & Rutherford 2006). This area has dissected steep slopes with dense shrub cover interspersed with large trees and a moderate herbaceous layer (Skinner & Chimimba 2005; Mucina & Rutherford 2006). There is a subpopulation in the Letaba Ranch reserve (J. Marshall pers. comm. 2014), which is in agreement with Astley-Maberley (1963), and, further east, they are seen in the Makuleke between the Luvuvhu and Limpopo Rivers. In the Kingfisherspruit section of the KNP, the species is seen mostly north of the Timbavati River in the Mopane/Combretum veld (R. Sowry pers. comm. 2014). This concurs with J. Llewllyn (pers. comm. 2014) who reports most of the sightings in the Umbabat from the farms Sibon and Buffelsbed, which are to the north of Richard Sowry's section. West of the latter reserves, M. Cesare (pers. comm. 2014) reports that they are relatively common in the hilly *Commiphora* woodland adjacent to the Olifants in the Balule Nature Reserve. Still further west it appears that there are small but stable subpopulations on the Selati (D. Joubert pers. comm. 2014) and Makalali Game Reserves (R. Kettles pers. comm. 2014). In the eastern Lowveld along the Olifants River and west towards the Drakensberg Mountains, this species occupies a niche in the shallow-soiled, broken, stony terrain just below the rocky outcrop zone (Stevenson-Hamilton 1947; Astley Maberly 1963; Potgieter et al. 1971; Werger 1978; Rautenbach 1982; Skinner & Chimimba 2005; M. Cesare

Table 2. Use and trade summary for the Sharpe's Grysbok (*Raphicerus sharpei*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Bushmeat hunting	Unknown	Unknown, but possibly increasing with human settlement expansion
Commercial use	Yes	Trophy hunting and live animal sales	Unknown	Increasing with wildlife ranching expansion
Harvest from wild population	Yes	All subpopulations are wild and free-roaming	All	-
Harvest from ranched population	No	No known ranching of this species	-	-
Harvest from captive population	No	No known captive breeding of this species	-	-

pers. comm. 2014; I. Rushworth pers. comm. 2014). The terrain is undulating, broken and stony with mainly shallow, sandy soils and appears to be prime habitat for grysbok. A detailed description of these habitats in the protected areas adjacent to the KNP is presented in Peel et al. (2007) and in the KNP in Gertenbach (1983). Sharpe's Grysbok are also found in a diversity of other habitats from dry sandy veld in Botswana, Miombo woodland in Zambia and Zimbabwe and in riverine areas of Hwange (Smithers 1966, 1971).

Ecosystem and cultural services: None recorded

Use and Trade

This species is poached as bushmeat, which may cause local subpopulation declines, especially outside protected areas. They are also hunted as trophies (Fiorenza 1983), and thus grysbok are commercially valuable to the hunting and live sale industry, where they are a sought after trophy and have become a highly valued species (D. Rushworth pers. comm. 2014).

In addition to protection in provincial reserves and national parks, private protected areas such as those adjacent to the west of the KNP have generally had a positive effect on this species. This is due to relatively lighter stocking densities in the areas in which this species occurs. Overgrazing would probably lead to declines in the numbers of this species.

Threats

There are no major threats, although they have been eliminated from some parts of their former range by the spread of settlement and agriculture, and associated habitat destruction, and hunting for meat (IUCN SSC Antelope Specialist Group 2016). Within the assessment region, human settlements and mining along the KNP have similarly reduced habitat and habitat quality and may have broken habitat corridors. This may facilitate bushmeat hunting, which may cause local declines, especially as human density increases along protected area edges (Wittemyer et al. 2008). Its secretive habits, however, may enable it to withstand considerable hunting pressure. Despite this, subpopulations may be gradually decreasing outside of protected areas as bushmeat poaching increases with the growth of human populations and this should be monitored.

The Sharpe's Grysbok is water independent and excessive artificial water will reduce groundcover around waterholes and increase Impala (*Aepyceros melampus*) numbers, which may sustain a denser Leopard (*Panthera pardus*) population. This could affect long-term density of prey such as Grysbok (M. Cesare pers. comm. 2014; J. Llewellyn pers. comm. 2014). Similarly, the increase in mesocarnivores, such as Black-backed Jackal (*Canis mesomelas*) and Caracal (*Caracal caracal*), may have a detrimental impact on the population in the long-term (D. Rushworth, R. Kettles pers. comm. 2014). In the vicinity of the Olifants River, increasing Baboon (*Papio ursinus*) troops that inhabit the same zone poses the greatest threat the Sharpe's young and in turn this could lead to declines in the future (M. Cesare pers. comm. 2014).

Increased stocking rates of livestock and/or larger game species reduce grass and ground cover required for Sharpe's Grysbok survival. A knock-on effect of this is the reduction of seasonal wild fires that resulted in a mature woody layer with less low coppice for lateral cover and browse (D. Rushworth pers. comm. 2014). Similarly, there is an observed general increase in the density of the shorter woody layer in the lowveld areas which, with a decline in the frequency of fires, should increase the amount of suitable habitat for this species.

Current habitat trend: Stable. Savannah habits are well

Table 3. Possible net effects of wildlife ranching on the Sharpe's Grysbok (*Raphicerus sharpei*) and subsequent management recommendations

Net effect	Positive
Data quality	Inferred
Rationale	In the conservancies and ranchlands where the species occur, generally lower stocking densities favour its presence.
Management recommendation	Keep game stocking rates at ecological levels

Table 4. Threats to the Sharpe's Grysbok (*Raphicerus sharpei*) 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:* loss of habitat from settlement expansion. Current stress *2.1 Species Mortality*: increased rates of bushmeat hunting and *1.3: habitat fragmentation.*	-	Anecdotal	-	Ongoing
2	*5.1.1 Hunting and Collecting Terrestrial Animals:* bushmeat hunting.	-	Anecdotal	-	Increasing with human settlement expansion.
3	*3.2 Mining & Quarrying*: habitat loss from mining. Current stress *1.3 Habitat Fragmentation.*	-	Anecdotal	-	Increasing
4	*2.3.2 Livestock Farming & Ranching:* habitat loss from agricultural expansion. Current stress *1.2 Ecosystem Degradation:* loss of groundcover from overgrazing.	-	Anecdotal	-	Ongoing
5	*7.2.9 Dams & Water Management/Use*: artificial water provision leading to increased herbivore densities. Current stress *1.2 Ecosystem Degradation*: loss of groundcover.	-	Anecdotal	-	Ongoing
6	*7.1.1 Increase in Fire Frequency/Intensity*: increased fire interval reduced ground cover.	-	Anecdotal	-	Unknown
7	*8.2.2 Problematic Native Species*: increased mesocarnivore abundance	-	Anecdotal	-	Unknown

protected in the assessment region (Driver et al. 2012). For example, habitat is generally well conserved in protected areas adjacent to KNP as there is little human settlement. Further, the increase in the size of the wildlife ranching estate should ensure the security of the population in the longer term. However, in some areas, such as along the Olifants River, mining will certainly have had a negative impact on the habitat that Sharpe's occupy. The extent of this degraded area is still fortunately small. It is thought that overgrazing by livestock and/or cattle would have a detrimental effect on the survival of this species. Increases in large ungulate numbers have resulted in a reduction of grass and ground cover, which is a critical habitat for this species (Skinner & Chimimba 2005). On the other hand there is an observed increase in the density of the woody layer in the lowveld areas which, with a decline in the frequency of fires, should increase the amount of suitable habitat for this species.

Conservation

About one third of the total population occurs in protected areas (IUCN SSC Antelope Specialist Group 2016), the largest one within the assessment region being KNP and Associated Private Nature Reserves (APNR). However, they also occur on a number of smaller formally and privately protected areas within the region, including wildlife ranches. There are currently no interventions necessary for this species. However, private landowners are encouraged to create conservancies to conserve suitable habitat for this species. Additionally, the regulation of translocation is required to prevent mixing of ecotypes and hybridization with Cape Grysbok. There is a substantial distance between the southernmost occurrence of Sharpe's Grysbok and the northeastern most occurrence of the Cape Grysbok (Hoffmann & Wilson 2013). Further field surveys and long-term monitoring is needed to establish more accurate range maps and population trends.

Recommendations for land managers and practitioners:

- Maintenance of the integrity of the habitat of the Sharpe's Grysbok. This includes ensuring that fragmentation of habitat does not occur and that protected areas remain intact (for example: Letaba Ranch along the Letaba River eastward; the area to the west of the R40 moving eastwards into the APNR and KNP into the Lebombo mountains along the Olifants River; and the area between the Luvuvhu and Limpopo Rivers).
- Regulate translocation to avoid hybridisation with Cape Grysbok.
- Long term monitoring of the species is needed to assess population trend.

Table 5. Conservation interventions for the Sharpe's Grysbok (*Raphicerus sharpei*) 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*: conservancy formation.	-	Anecdotal	-	-	-
2	*5.2 Policies & Regulations*: translocation regulation to prevent hybridisation with Cape Grysbok.	-	Anecdotal	-	-	-

Research priorities: Very little is known about the Sharpe's Grysbok other than that they are largely nocturnal, generally solitary, and occurring at low densities. Studies on their ecology would be useful and, due to the relatively wide variety of habitats in which they occur (see above), studies would need to be quite broad within the sub-region. Specific research priorities include:

- Density estimates and population size calculation across its range.
- Information on occurrence outside protected areas.
- Effects of wildlife ranching on the species.
- Assessing the need for metapopulation management in the medium term to ensure genetic diversity (J. Anderson pers. comm. 2014).
- Similarly, studies documenting reintroduction efficacy of 'surplus' animals into previously occupied or suitable areas

Encouraged citizen actions:

- Landowners should drop internal fences to form conservancies.
- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.

Data Sources and Quality

Table 6. Information and interpretation qualifiers for the Sharpe's Grysbok (*Raphicerus sharpei*) assessment

Data sources	Field study (unpublished)
Data quality (max)	Estimated
Data quality (min)	Inferred
Uncertainty resolution	Maximum/minimum values
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.*

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