Redunca arundinum – Southern Reedbuck


Andre Botha

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)	Protected
CITES listing	None
Endemic	No

*Watch-list Data

While healthy subpopulations of Southern Reedbuck occur in agricultural lands within the assessment region, they are increasingly threatened by bushmeat poaching and illegal sport hunting with dogs (O'Connor & Krüger 2003).

Taxonomy

Redunca arundinum (Boddaert 1785)

ANIMALIA - CHORDATA - MAMMALIA - CETARTIODACTYLA - BOVIDAE - *Redunca* - *arundinum*

Common names: Southern Reedbuck, Common Reedbuck (English), Rietbok (Afrikaans), Umziki, Umzigi (Ndebele), Lekwena, Letlabo (Sepedi), Lekwena, Motlapasi (Sesotho), Sebogata, Motsweema, Motsosa (Setswana), Inhlangu (Swati), Nhlangu (Tsonga), Davhu (Venda), Intlangu (Xhosa), Inxala, Inhlangu, Umziki, Umsagogo, Isagogo (Zulu)

Taxonomic status: Species

Taxonomic notes: A polytypic species; several subspecies have been named, but only two are widely recognised (Kingdon & Hoffmann 2013): a northern (*R. a. occidentalis*) and a southern (*R. a. arundinum*) (Skinner & Chimimba 2005), the latter of which is found in the assessment region. Only the species is assessed here.

Assessment Rationale

Although this species has declined across much of its former range within the assessment region, subpopulations have been reintroduced throughout much of its range, with sizeable numbers on private land. The mature population size is at least 3,884 on both formally protected areas and private lands (2010–2015 counts), which is an underestimate as not all private sector data are available. The largest subpopulation (420–840 mature individuals) occurs in iSimangaliso Wetland Park in KwaZulu-Natal (KZN). Based on a sample of 21 protected areas across the range of Southern Reedbuck, the overall population has increased by *c*. 68–80% over three generations (1997/2002–2015), which is driven primarily by the Free State protected areas, which have experienced an average annual growth rate of 18% between 2006 and 2014. In the absence of the growth in the Free State, there has been a net 10–22% decline in the remaining 11 protected areas. This species experiences local declines as it is vulnerable to poaching, illegal sport hunting and persecution, and demand for live animals for trade (possibly illegally taken from the wild). Empirical data indicate declines in some protected areas in KZN and North West provinces due to poaching, and anecdotal reports suggest more severe declines outside protected areas due to poaching, sport hunting and habitat loss or degradation. The effects of such threats on local subpopulation trends and occupancy should be monitored, especially outside protected areas, as this species may qualify for a more threatened category in the future. Further long-term data on subpopulation sizes and trends should be collected and this species should be reassessed once such data are available. Currently, we retain the Least Concern listing due to a mature population size of 1,000 individuals and no evidence as yet for net population decline. Key interventions include the formation of conservancies to better safeguard key habitats and reduce poaching threats, as well as the prudent use of fire as a management tool to retain the tall grasses or reed beds needed by this species.

Regional population effects: There is potential dispersal 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. However, as most subpopulations are restricted by fences, no significant rescue effects are anticipated.

Distribution

The Southern Reedbuck occurs from Gabon and Tanzania to South Africa. It remains widespread in protected areas and other areas with low to moderate levels of settlement, including significant populations on private land in Zimbabwe, South Africa and Namibia (IUCN SSC Antelope Specialist Group 2016). The Namibian population is largely extralimital, as it has been introduced to private land outside its natural range in the northern farming districts, where it is now relatively numerous (East

Recommended citation: du Plessis J, Peel M, Child MF. 2016. A conservation assessment of *Redunca arundinum*. 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.

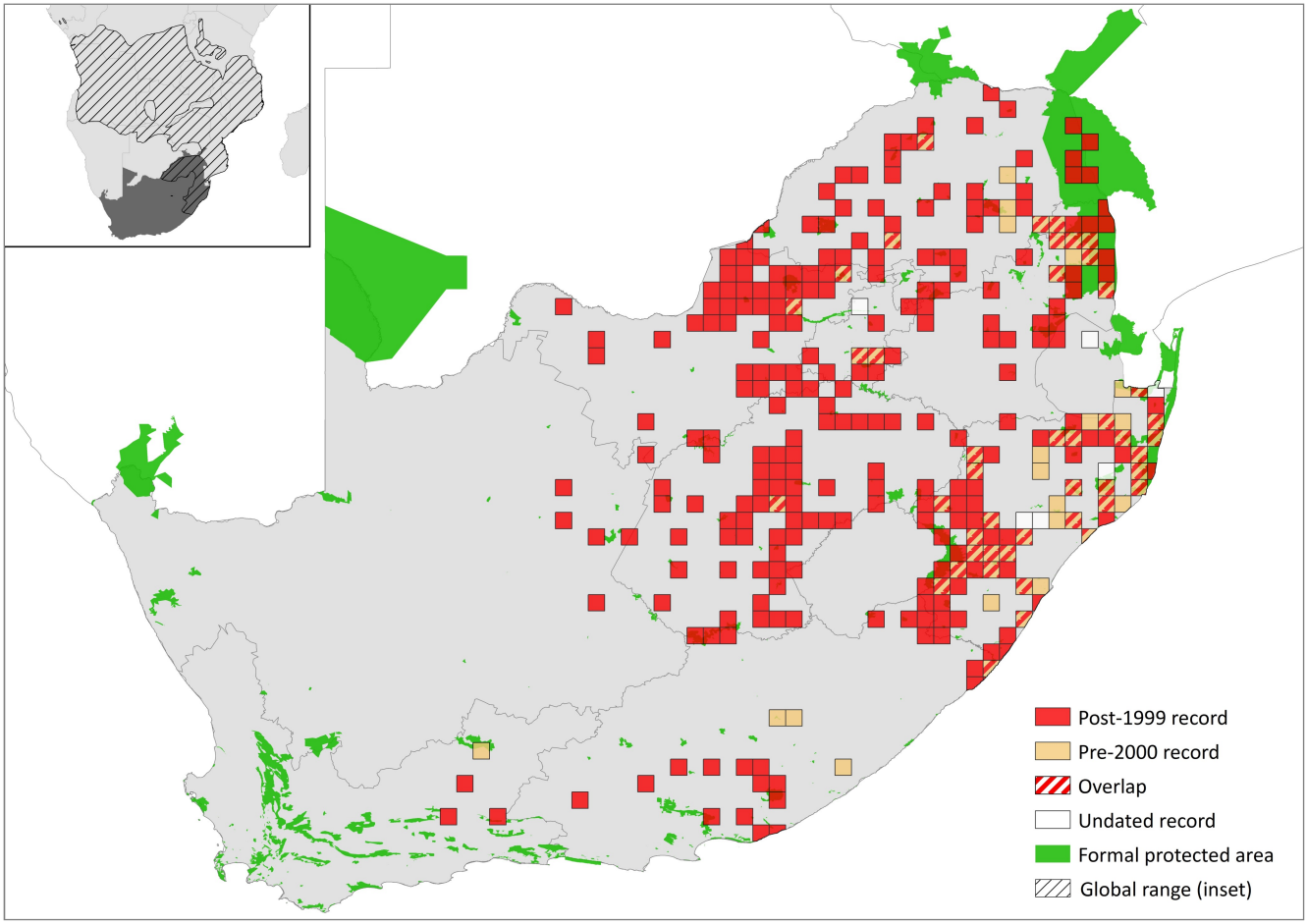

Figure 1. Distribution records for Southern Reedbuck (*Redunca arundinum*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

1999; Skinner & Chimimba 2005). It also occurs throughout Swaziland (Monadjem 1998; Skinner & Chimimba 2005).

The Southern Reedbuck has successfully been reintroduced into several nature reserves in Swaziland (Kingdon & Hoffmann 2013). While currently absent from Lesotho, historical records suggest that they occurred widely in the western lowlands of Lesotho, while it is uncertain to what extent they occurred in the Lesotho highlands (Liebenberg 1964; Boshoff & Kerley 2013). Lynch and Watson (1990) sighted one individual in Sehlabathebe National Park in Lesotho, but this may have been a vagrant from the Drakensberg of KZN (Lynch 1994). Severe hunting persecution may mean that the species is regionally extinct in the lowlands of Lesotho, but further field surveys are needed to confirm this. They occur on the Caledon River and may occasionally cross into the lowlands of Lesotho, but are unlikely to be a viable subpopulation if they do occur there (N. Avenant pers. comm. 2016). Similarly, historical records confirm their presence to areas just south of Lesotho in the Eastern Cape (Skead 2007), where they have become locally extinct in some areas (Lynch 1989).

They were formerly widely distributed across South Africa aside from the drier north-western areas (Skinner & Chimimba 2005). Thunberg (1795) recorded them as far west as Swellendam in the Western Cape (Skinner & Chimimba 2005), but there are no recent records further west than the Komgha District in the Eastern Cape. While their historical versus recent distribution is largely unchanged in KZN, Limpopo and Mpumalanga (Skinner & Chimimba 2005), reintroductions onto ranchlands and agricultural areas have resulted in a range expansion in western North West, southern Eastern Cape, eastern Western Cape, Northern Cape and throughout the Free State provinces (Figure 1). For example, a widespread questionnaire and collection survey published in the 1980s on the mammals of the Free State did not produce any records of the Southern Reedbuck (Lynch 1983) but they currently occur in most of the formally protected areas as well as on many private reserves and ranches in the province. It is uncertain to what extent these confined subpopulations were introduced (Boshoff & Kerley 2013; Kingdon & Hoffmann 2013), as it is likely that they remained in small numbers in scattered localities where their preferred habitats were sheltered from cultivation and domestic stock grazing (*sensu* Skinner & Chimimba 2005), especially in the northern and northeastern parts of the province. Introductions, however, may have played a major role in the re-establishment of the Southern Reedbuck in its former range and elsewhere in the Free

State. Historical records confirm their presence in the wetter areas of the northern, northeastern and eastern Free State (Boshoff & Kerley 2013). No historical records exist on their presence in other areas of the Free State, although they existed in adjacent regions to the west and northwest (Skead 2011), and to the east just south of Lesotho (Skead 2007). It is, however, unlikely that they occurred in the west and west-central regions due to lack of suitable habitats (Boshoff & Kerley 2013).

The species had a wide historical distribution in the North West Province, supposedly occurring in the arid western half of the province (du Plessis 1969), where recent reintroductions and introductions have expanded its range in the province (Power 2014). The only free roaming subpopulation occurs in the thornveld habitats in the northern parts of the province, north of Pilanesberg (Buijs 2010). Finally, while its distribution has shrunk considerably from historical times in the Cape provinces (Skinner & Chimimba 2005), recent reintroductions and introductions are helping to repatriate subpopulations in these regions (Figure 1).

Population

Throughout Africa, total numbers have been estimated at *c*. 73,000 based on average densities of 0.3 animals / km^2 where the species was common, and 0.03 animals / km^2 elsewhere (East 1999). However, because Southern Reedbuck occur in "islands" of suitable habitat, extrapolations from generalised density estimates are often misleading (Kingdon & Hoffmann 2013). Aerial counts of Southern Reedbuck, which may underestimate numbers, tend to result in density estimates of 0.1–0.2 animals / km^2 (Rowe-Rowe 1994). It can occur at much higher densities within areas of exceptionally favourable habitat; for example, 1.9 animals / km^2 in Nyika National Park in Malawi (IUCN SSC Antelope Specialist Group 2016); and 35 animals / km^2 on the Eastern Shores of iSimangaliso Wetland Park (Rowe-Rowe 1994). Within the assessment region, there are estimated to be 1,103–1,826 animals on 12 formally protected areas in KZN in 2012–2014 (Ezemvelo-KZN Wildlife unpubl. data), the largest of which is the Western Shores with 600–1,200 animals. In North West Province, they occur on formally protected areas in the east of the province but are not faring well (Power 2014): there were only 22 on formally protected areas in 2010, and 33 in four protected areas in 2015 (Power 2014; Nel 2015). Similarly, in Mpumalanga Province, they occur at low numbers in three formally protected areas (numbering 24 animals in total in 2013; J. Eksteen unpubl. data). In Limpopo Province, they currently occur only on Nylsvley Nature Reserve, where they have increased from 25 in 1995 to 102 in 2013 (J. Kruger unpubl. data). Ferreira et al. (2013) suspected there may be 300 in Kruger National Park in 2009. In Gauteng Province, they occur on Suikerbosrand Nature Reserve. They appear to be stable in the Eastern Cape (D. Peinke unpubl. data). They are increasing strongly in Free State provincial protected areas (E. Schulze unpubl. data). Additionally, according to a 2010 survey, there were 1,216 individuals on private land in the Free State, which may be an underestimate since it only included subpopulations from farmers with official adequate fencing certificates (Janecke 2011). Southern Reedbuck also occur extensively on private lands, including agricultural landscapes. For example, O'Connor and Krüger (2003) reported high densities on dairy farms in the southern Drakensberg region in KZN, which they attributed to the presence of high-quality winter pastures. Similarly, in North West Province, there were an estimated 1,912 animals on private lands in 2010 (Power 2014). Other areas may contain stable but relatively small and unviable populations (O'Connor & Krüger 2003). Based on available data, there are currently estimated to be at least 5,549 animals (3,884 mature individuals using a 70% mature population structure) (2010–2015; Table 2). This is certainly an underestimate as not all private sector data are available. There are likely to be over 10,000 mature individuals nationwide, but this should be verified with further collation of data and field surveys.

Generation length is estimated as 6.3 years (Pacifici et al. 2013), yielding a three-generation period of 18.8 years (1997–2015). However, the IUCN SSC Antelope Specialist Group (2016) estimated generation length as 4.4 years, which yields a 13.2 year three-generation period (1997–2015). Based on a sample of 21 protected areas across the range of Southern Reedbuck, the population has increased by *c*. 68–80% over three generations. The positive growth is primarily attributable to the Free State protected areas, which have experienced an average annual growth rate of 18% between 2006 and 2014, where the population has increased from 304 in 2004 to 768 in 2014 (E. Schulze unpubl. data). Omitting the Free State protected areas, however, reveals a net population decline

Table 2. Population size estimates for Southern Reedbuck (*Redunca arundinum*) in South Africa based on available data

Province	Type	Number protected areas/ properties	Count year	Population size
Eastern Cape	Provincial	4	2013	51
Free State	Private	84	2010	1,216
Free State	Provincial	10	2014	768
Gauteng	Provincial	1	2013	40
KwaZulu-Natal	Provincial	12	2014	1,103
Limpopo	National	1	2009	300
Limpopo	Provincial	1	2013	102
Mpumalanga	Provincial	3	2013	24
North West	Private	110	2010	1,912
North West	Provincial	4	2015	33
Total		**230**		**5,549**

of 10–22% in the remaining 11 protected areas over three generations. Further long-term data collation is thus necessary, especially outside protected areas (where severe declines are expected due to the increase of illegal hunting with dogs), to estimate national population trends more accurately. Generally, subpopulation trends are thought to be mostly stable in protected areas, increasing on private land (however, many private subpopulations require supplementary feeding to prevent declines; M. Peel unpubl. data), and possibly decreasing elsewhere due to escalating poaching (IUCN SSC Antelope Specialist Group 2016).

Current population trend: Increasing, but with local/ regional declines.

Continuing decline in mature individuals: Yes, from poaching, especially outside protected areas.

Number of mature individuals in population: 3,884

Number of mature individuals in largest subpopulation: 420–840 in iSimangaliso Wetland Park.

Number of subpopulations: At least 36 in formally protected areas.

Severely fragmented: Yes. They are largely confined to fenced protected areas and wildlife ranches and occur in natural fragmented habitat.

Habitats and Ecology

Southern Reedbuck occupy floodplain and drainage-line grasslands in savannah woodlands (IUCN SSC Antelope Specialist Group 2016). The most significant habitats in South Africa include valleys in which the grass cover is tall (or there is suitable herbaceous cover) and permanent water is available, such as river beds, depressions and waterlogged areas (wetlands) covered in reed beds or tall grass (Jungius 1971; Howard 1986). They may prefer grassland on hillslopes, because it provides sufficient cover by way of boulder outcrops, gullies and ledges. They have certain essential habitat requirements: tall grass or reed beds (preferably with some woody elements) and a supply of water (Skinner & Chimimba 2005). They avoid areas where bush encroachment is severe. In some areas, they switch to agricultural land during winter because of high quality pastures. For example, in KZN, they thrive on dairy farms planted with rye grass (I. Rushworth pers. comm. 2016). They avoid flat grassland areas (Howard 1986). Southern Reedbucks range to 1,800–2,000 m asl in the Drakensberg Mountains of South Africa (Rowe-Rowe 1994). They are predominantly fresh grass grazers, but will occasionally take small quantities of herbs, and in some areas may even browse extensively (Jungius 1971). Clean burning will lead to their disappearance from an area (Skinner & Chimimba 2005), so it is vital that the fire is patchy to preserve areas of tall grass and herbaceous cover adjacent to wetlands and vleis. Home range size in the highlands of KZN varied from 0.73 km^2 for adult males to 1.23 km^2 for adult females (Howard 1986), while that of iSimangaliso Wetland Park the mean home range size was 0.05 and 0.06 km^2 for males and females, respectively (Venter 1979).

Ecosystem and cultural services: None known.

Use and Trade

The Southern Reedbuck is hunted recreationally and for food and trophies. The percentage of wild offtake versus offtake from ranching activities is unclear. The effect of recreational hunting for trophies is thought to be minimal. In KZN, for instance, the average number of Southern Reedbucks shot per year on quota permits (including those controlled as problem animals) between 1974 and 1991 has been 421 animals / year (Ezemvelo KZN Wildlife unpubl. data). However, some uncontrolled hunting, does occur, and its impact is unknown, although thought to be severe outside protected areas. The impact from illegal poaching for food is also unknown; according to Kingdon and Hoffmann (2014) this impact could be more severe. Furthermore, the demand for live animals is also high; presumably most of the live animals are sourced from ranching activities, although this is uncertain. No Southern Reedbuck have been offered for sale at provincial protected area game auctions, so the inference is that the majority of the stock is provided by wildlife ranchers.

Wildlife ranching and the private sector have generally had a positive effect on this species, as the conversion from livestock to wildlife ranches is speculated to have improved habitat conditions and decreased persecution rates. However, this remains to be empirically justified. While this species has been extensively reintroduced in parts of its former range, it is expected that most of the populations on privately owned ranches are small and unviable (O'Connor & Krüger 2003).

Threats

Although Southern Reedbuck remain widespread, they have been eliminated from large areas within their distribution range by the spread of settlements and associated habitat destruction and hunting for meat and trophies. They have been severely impacted in the past by habitat transformation associated with agricultural activities (Howard 1983; Boshoff & Kerley 2013; Kingdon

Table 3. Use and trade summary for the Southern Reedbuck (*Redunca arundinum*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Bushmeat hunting	Unknown	Increasing with settlement expansion.
Commercial use	Yes	Trophy and biltong hunting	Majority	Unknown
Harvest from wild population	Yes	-	*c*. 25%	Unknown
Harvest from ranched population	Yes	-	*c*. 70%	Unknown
Harvest from captive population	Yes	-	*c*. 5%	Unknown

Table 4. Possible net effects of wildlife ranching on the Southern Reedbuck (*Redunca arundinum*) and subsequent management recommendations

Net effect	Positive
Data quality	Inferred
Rationale	Private landowners have reintroduced this species across much of its former range.
Management recommendation	Protect lands from bushmeat poaching and illegal sport hunting with dogs.

& Hoffmann 2013). They now mainly remain as isolated, and in many instances, unviable populations on private land and in protected areas (O'Connor & Krüger 2003). On agricultural land, they are subjected to possible persecution because of their damage to pastures and crops (Howard 1983). For example, they favour rye grass and lucerne pastures in the foothills of the Drakensberg where they are directly persecuted as a means of control. The demand for live animals is high, and it is possible that these are illegally taken from natural populations in some areas. Bushmeat poaching and illegal sport hunting with dogs are also severe threats, especially outside protected areas. They are also vulnerable to hunting and poaching due to their slow pace, their "hiding" behaviour and because they are of a small enough size to be hunted by dogs and carried by a single or very few hunters (Jungius 1971; Howard 1986; Kingdon & Hoffmann 2013). Southern Reedbuck also tend to use fixed trails leading to water (Skinner & Chimimba 2005), and are thus vulnerable to snaring in these areas. Poaching has been documented at Borakalalo National Park, North West Province (Nel 2015) and Mpumalanga (Dalton & Kotze 2011); and illegal sport hunting with dogs impacts many antelope species in KZN (Grey-Ross et al. 2010), which is likely to have caused significant declines of this species outside protected areas (I. Rushworth pers. Comm. 2016). The combination of sport hunting, poaching and habitat loss in surrounding areas probably caused the decline in numbers in Coleford Nature Reserve (O'Connor & Krüger 2003).

Current habitat trend: Declining. Drainage of wetlands and low-lying areas for agriculture and settlements has likely reduced natural habitat for this species (*sensu* GeoTerraImage 2015; Jewitt et al. 2015). Encroachment of pastoral agriculture may also have decreased habitat quality, although high-quality winter pastures could

Table 5. Threats to the Southern Reedbuck (*Redunca arundinum*) 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	*5.1.1 Hunting & Collecting Terrestrial Animals*: bushmeat hunting and capture for trade.	Nel 2015	Empirical	Local	Increasing with human settlement expansion.
		O'Connor & Krüger 2003	Empirical	Local	
		Dalton & Kotze 2011	Empirical	Local	
2	*5.1.2 Hunting & Collecting Terrestrial Animals*: illegal sport hunting with dogs and incidental snaring.	O'Connor & Krüger 2003	Empirical	Local	Increasing with human settlement expansion.
		Grey-Ross et al. 2010	Attitudinal	Regional	
3	*2.1.3 Agro-industry Farming*: habitat loss from agricultural expansion. Current stresses *1.1 Ecosystem Conversion* and *1.2 Ecosystem Degradation*: loss and degradation of wetlands.	Jewitt et al. 2015	Indirect	Regional	Ongoing
4	*1.1 Housing & Urban Areas*: habitat loss from settlement expansion. Current stresses *1.2 Ecosystem Degradation* and *2.1 Species Mortality*: wetland degradation and increasing poaching rates.	Jewitt et al. 2015	Indirect	Regional	Ongoing
		GeoTerraImage 2015	Indirect	National	
5	*2.3.3 Agro-industry Grazing, Ranching or Farming*: habitat loss from agricultural expansion. Current stress *1.2 Ecosystem Degradation*: degradation of wetlands.	Jewitt et al. 2015	Indirect	Regional	Ongoing
6	*7.1.1 Increase in Fire Frequency/Intensity*: loss of tall grass and reed beds.	-	Anecdotal	-	Unknown
7	*7.1.2 Suppression in Fire Frequency/Intensity*: bush encroachment causing habitat degradation.	-	Anecdotal	-	Unknown
8	*5.1.3 Persecution/Control*: persecution for damage to agricultural lands.	Howard 1983	Empirical	Regional	Unknown

Table 6. Conservation interventions for the Southern Reedbuck (*Redunca arundinum*) 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 to create viable subpopulations and increase security measures.	-	Anecdotal	-	-	-
2	*5.3 Private Sector Standards & Codes*: biodiversity stewardship schemes to promote Southern Reedbuck conservation in agricultural landscapes.	-	Anecdotal	-	-	Provincial conservation authorities
3	*5.1.3 Legislation*: harvesting and translocation regulation to prevent unsustainable offtake and/or hybridisation.	-	Anecdotal	-	-	-

provide a good alternative habitat in some areas (Howard 1986; O'Connor & Krüger 2003). Bush encroachment (such as valley bushveld), which they avoid, may also decrease Southern Reedbuck natural habitat. Fire mismanagement may also lead to habitat degradation if it reduces or removes the height of the grass or reed sward needed for cover. Sprouting grass is not enough for Southern Reedbuck to remain in an area (Skinner & Chimimba 2005).

Conservation

Southern Reedbuck occur in numerous protected areas within the assessment region, including iSimangaliso Wetland Park in KZN, and Kruger National Park in Limpopo. While no major interventions are currently necessary as long as they continue to be stable in protected areas, several interventions will benefit the species outside of protected areas: conservancy formation, especially bordering or close to existing protected areas, should be encouraged to protect the habitats on which this specie relies and to help mitigate the threat of poaching through cooperative security measures. Also, this may ensure the formation of viable subpopulation sizes outside protected areas. Biodiversity stewardship for this species should also be promoted as, for example, they can exist on dairy farms with rye grass pastures (I. Rushworth pers. comm. 2016). Fire management is possibly a key tool in ensuring persistence of Southern Reedbuck in the landscape, where fires should be patchy enough to conserve areas of tall grass or reed beds but extensive enough to prevent bush encroachment. Regulation of trophy hunting and translocation may be required to prevent overhunting, unsustainable offtake from natural subpopulations, and/or mixing of subspecies/ecotypes.

Recommendations for land managers and practitioners:

- Regulate translocation to avoid hybridisation between ecotypes and to regulate offtake.
- Sustainable utilisation of the species may encourage private landowner reintroductions and conservancy formation.
- Employ mosaic burning regimes on private lands.

Research priorities:

- Quantifying occupancy and subpopulation sizes/ trends across its range, especially on private lands. This includes determining the contribution of reintroductions and determining the factors limiting its presence in the landscape.
- Collation of long-term subpopulation trends from formally protected areas.
- Quantifying its spatial ecology across protected areas and agricultural landscapes (*sensu* O'Connor & Krüger 2003), especially in relation to land-use.
- Quantifying the level and impacts of illegal hunting on population persistence.
- Assessing the effects of wildlife ranching.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Create conservancies to protect vital wetland and tall grassland habitats.

Data Sources and Quality

Table 7. Information and interpretation qualifiers for the Southern Reedbuck (*Redunca arundinum*) assessment

Data sources	Field study (unpublished), indirect information (expert knowledge)
Data quality (max)	Inferred
Data quality (min)	Suspected
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.*