Damaliscus pygargus phillipsi – Blesbok


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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 (2008)	Least Concern
TOPS listing (NEMBA)	None
CITES listing	None
Endemic	Yes

The common name, Blesbok, originates from '*Bles*', the Afrikaans word for a 'blaze', which symbolises the white facial marking running down from the animal's horns to its nose, broken only by the brown band above the eyes (Skinner & Chimimba 2005).

Taxonomy

Damaliscus pygargus phillipsi Harper 1939

ANIMALIA - CHORDATA - MAMMALIA - CETARTIODACTYLA - BOVIDAE - Damaliscus - *pygargus* - *phillipsi*

Synonyms: *Damaliscus dorcas spp. phillipsi* (Harper 1939)

Common names: Blesbok (English, Afrikaans), Inoni (Ndebele), Nônê (Sepedi, Sesotho, Setswana), Nônô (Sesotho), Liloni (Swati), Noni (Tsonga), Ilinqua (Xhosa), Inoni (Zulu)

Taxonomic status: Subspecies

Taxonomic notes: The species appeared in the 1996 IUCN Red List as *Damaliscus dorcas phillipsi*, but it is generally agreed that *D. pygargus phillipsi* is the correct name (see Grubb 1993). Although previously the Bontebok (*D. p. pygargus*) and the Blesbok were classified as separate species, these taxa are now recognised as subspecies of the same species, *D. pygargus* (Grubb 1993; Skinner & Chimimba 2005). These subspecies can be distinguished on the basis of their colour pattern (Fabricius et al. 1989). Hybridisation between these taxa threatens the genetic integrity of both subspecies (Skinner & Chimimba 2005).

Assessment Rationale

Listed as Least Concern, as Blesbok are abundant on both formally and privately protected land. We estimate a minimum mature population size of 54,426 individuals (using a 70% mature population structure) across 678 protected areas and wildlife ranches (counts between 2010 and 2016). There are at least an estimated 17,235 animals (counts between 2013 and 2016) on formally protected areas across the country, with the largest subpopulation occurring on Golden Gate Highlands National Park. The population has increased significantly over three generations (1990–2015) in formally protected areas across its range and is similarly suspected to have increased on private lands. Apart from hybridisation with Bontebok, there are currently no major threats to its long-term survival. Approximately 69% of Blesbok can be considered genetically pure (A. van Wyk & D. Dalton unpubl. data), and stricter translocation policies should be established to prevent the mixing of subspecies. Overall, this subspecies could become a keystone in the sustainable wildlife economy.

Distribution

Historically, the Blesbok ranged across the Highveld grasslands of the Free State and Gauteng provinces, extending into northwestern KwaZulu-Natal, and through parts of the Karoo in the Eastern and Northern Cape. Over 300 km separated the Blesbok from the historical range of the closely-related Bontebok (previously restricted to the Western Cape) (Skinner & Chimimba 2005). Despite large populations in the Highveld, the Blesbok was heavily exploited for meat, and by the late 19th century, Blesbok were extinct from KwaZulu-Natal and only about 2,000 individuals remained in South Africa (Skinner & Chimimba 2005).

More recently, Blesbok populations have recovered remarkably, especially on private land, and have been relocated across South Africa to regions both within and outside of its native range (for example, Power 2014). Although formerly present in western Lesotho, Blesbok were hunted to extinction in the country before 1900 (Lynch 1994). Swaziland is outside of the native historical range of Blesbok, however, extralimital introductions have occurred in Malolotja Nature Reserve and Mlilwane Wildlife Sanctuary (Monadjem 1998). Similarly, this species has been introduced to private game farms outside of its range in Zimbabwe, Botswana and Namibia (East 1999).

Population

Subpopulations are thriving in the various provinces where the species occurs and the total population is estimated to be at least 77,751 animals (2010–2016

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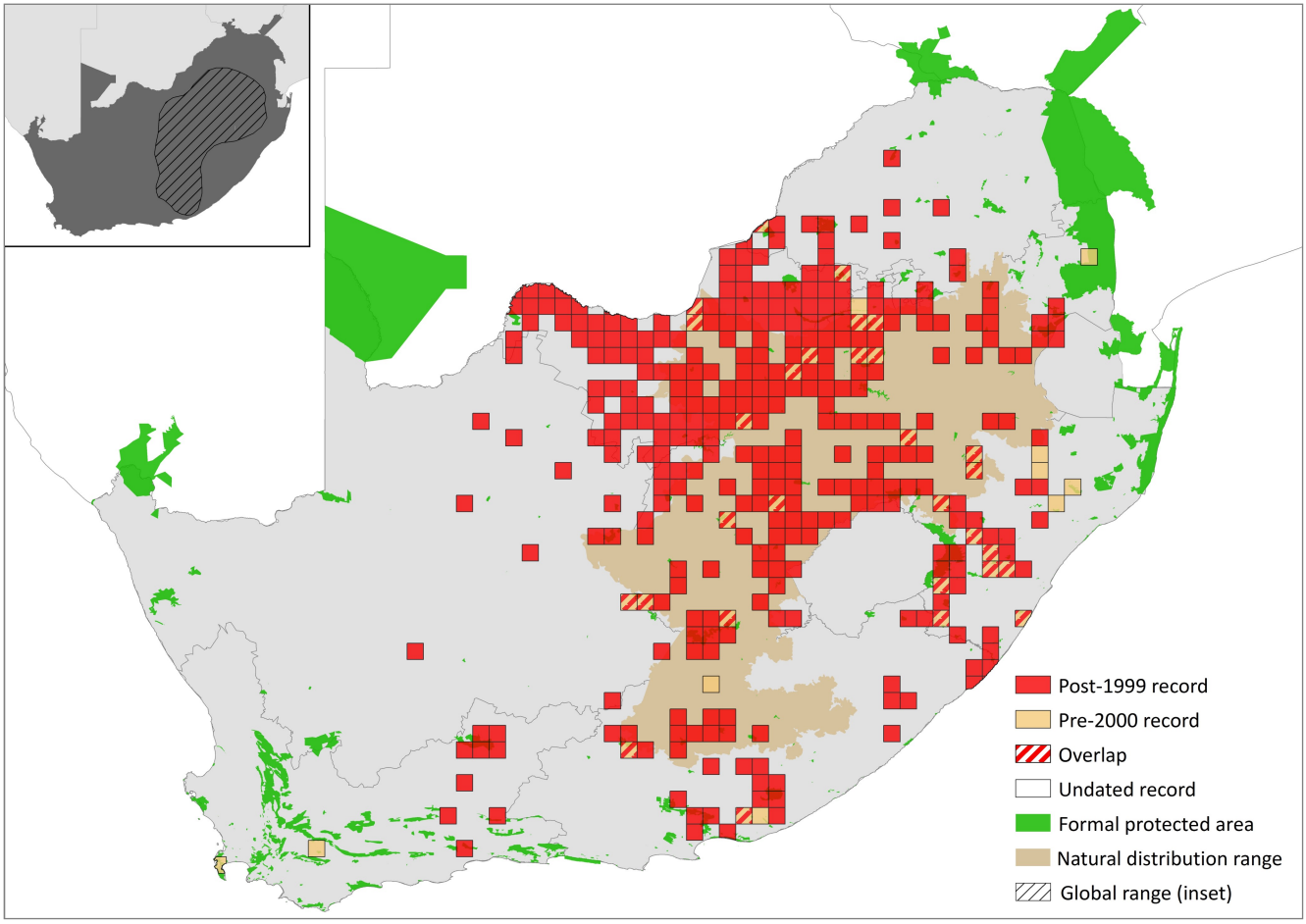

Figure 1. Distribution records for Blesbok (*Damaliscus pygargus phillipsi*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

counts) on both formally protected areas and wildlife ranches across the country (678 reserves or ranches). This would equate to 54,426 mature individuals using a 70% mature population structure. On formally protected areas alone, there were at least 17,235 animals counted between 2013 and 2016 (EWT unpubl. data). Thus, there are well over 10,000 mature individuals in the assessment region with no expectations of major declines in the near future. However, subpopulations have declined sharply in areas outside of their distributional range (Mkhambithi, Nduli and Luchaba Nature Reserves) due to the removal of extra-limital species from these reserves. The total population estimate is lower than what East (1999) estimated: 235,000–240,000 animals, of which 97% were thought to be on private farms and 3% in protected areas (East 1999). While the latter is likely an overestimate, the true population size probably falls between the two estimates. There are certainly greater numbers on private land than formally protected areas. For example, in North West Province, there were an estimated 1,483 Blesbok in provincial parks, while around 9,874 occurred on private farms in 2010 (Power 2014). However, more field surveys are needed to determine which private subpopulations can be considered wild and free-roaming.

Generation length has been calculated as 8.4 years, yielding a three-generation window of 25 years (1990–2015). Over three generations, the population is estimated to have increased. For example: in Camdeboo National Park (Eastern Cape) the subpopulation increased from 67 in 1990 to 189 in 2015 (Gaylard unpubl. data); in Golden Gate Highlands National Park (Free State) the subpopulation increased from 451 in 1994 to 8,785 in 2016 (including the incorporation of QwaQwa National Park) (Bissett et al. 2016); and in Bloemhof Dam Nature Reserve (North West) the subpopulation increased from 91 in 1999 to 919 in 2015 (Nel 2015). Other subpopulations on formally protected areas are mostly increasing or stable. For example, Suikerbosrand Nature Reserve in Gauteng has sustained a subpopulation of around 500 since 2004 (521 and 466 individuals in 2004 and 2014 respectively) and over the past recent decade, subpopulations of Blesbok in provincial nature reserves in the Eastern Cape have been increasing (D. Peinke unpubl. data). In Free State Province, the population in provincial protected areas increased by an average annual rate of 28.2% between 2004 and 2014 (E. Schulze unpubl. data).

Current population trend: Increasing

Continuing decline in mature individuals: No

Number of mature individuals in population: 47,633 (2013–2016 counts)

Number of mature individuals in largest subpopulation: 6,150 in Golden Gate Highlands National Park (2016 count).

Number of subpopulations: 90 in formally protected areas alone.

Severely fragmented: Yes. Most subpopulations exist in fenced reserves, requiring active translocation.

Habitats and Ecology

Grasslands are considered prime habitat for Blesbok, especially open plateau grasslands, characteristic of the South African Highveld, extending to altitudes of up to 2,000 m asl (East 1999). Blesbok have a preference for short grass, and depend largely on the availability of drinking water (David & Lloyd 2013). In Mountain Zebra National Park, they occur on grazing lawns where they help to maintain their preferred dietary short grass species. Blesbok feed nearly entirely on graminoids, and have a strong preference for burnt areas, often moving into burnt areas even before new grass growth is obvious (Skinner & Chimimba 2005). Blesbok feed selectively, often choosing contrasting grass species in burnt and unburnt habitats, and during different seasons. Blesbok showed a preference for *Themeda triandra*, *Eragrostis curvula*, *Chloromelas* spp. and *Setaria nigrirostris* within burnt habitats at Rietvlei Nature Reserve (du Plessis 1968).

Blesbok are diurnal, with activity peaking during the early mornings, late evenings and during cool, overcast conditions (Skinner & Chimimba 2005). They are gregarious, exhibit characteristic behaviour similar to Bontebok, whereby they will frequently stand in orientated groups with their heads directed towards the sun and their faces low to the ground (Skinner & Chimimba 2005). Similar to Bontebok, Blesbok form large bachelor herds, which peak in size during the autumn rut period, and will inhabit home ranges away from those of territorial males and their associated harem herd (consisting of up to 25 females) (Novellie 1975; Skinner & Chimimba 2005). Blesbok and Bontebok differ not only in colouration, but also in social structure, whereby Bontebok maintain the same herd structure throughout the year, while Blesbok exhibit clear seasonal variation in herd structure. Large aggregations of Blesbok form during cold, dry conditions between June and August, when herds of all ages and sexes come together. These aggregations will split up from September onwards, and male territoriality becomes apparent from November, peaking in April (Skinner & Chimimba 2005).

Blesbok generally mate in autumn, and young are typically born between November and January (Skinner et al. 1974). Territorial males herd females into their territories, occasionally circling them in an attempt to retain them, however, females will sporadically move from territory to territory (Skinner & Chimimba 2005). Young are born following the first summer rainfall events, when forage is adequate to maintain females during lactation (Marais 1988). Females have been recorded as sexually mature by about 2.5 years old (du Plessis 1968), and experience a gestation period of approximately 240 days (Skinner et al. 1974). Usually Blesbok give birth to a single calf, weighing 6–7 kg (Skinner & Chimimba 2005).

Ecosystem and cultural services: Blesbok are a flagship, endemic species for South Africa's Highveld grasslands, and are a valuable component of South Africa's commercial hunting industry.

Use and Trade

Blesbok are used for commercial trophy hunting on a national and international scale and by subsistence hunters for meat. They are also sold as live animals at game auctions. Blesbok are culled (for management purposes) commercially for meat, which is often more lucrative than live game sales. However, this is not predicted to have any negative effects on the population. The species has also recently been bred intensively for colour variants.

Wildlife ranching has greatly increased the population numbers and area of occupancy for this subspecies, which makes this a conservation success story, similar to the Bontebok. However, there are concerns that private landowners are mixing Bontebok and Blesbok on their properties and thereby facilitating hybridisation between the two subspecies. This threat should be monitored and translocation policies that prevent such mixing should be enforced.

Colour morphs occur naturally, however, these events are considered rare (Hetem et al. 2009). The evolutionary importance of the phenotypic trait "colouration" is well documented for many functions, including camouflage, mate selection, communication, regulation of

Table 2. Use and trade summary for the Blesbok (*Damaliscus pygargus phillipsi*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Subsistence hunting for meat (biltong hunting).	50%	Stable
Commercial use	Yes	Commercial trophy hunting on a national and international scale. Live animal sales at game auctions, and culled (for management purposes) for meat.	50%	Stable to increasing
Harvest from wild population	Yes	Live sales from protected areas.	30%	Stable to increasing
Harvest from ranched population	Yes	Majority of commercial trophy hunting on a national and international scale and live animal sales occur on private farmland.	60%	Stable to increasing
Harvest from captive population	Yes	Selective breeding for rare colour variants supposedly for the hunting industry.	10%	Increasing

Table 3. Possible net effects of wildlife ranching on the Blesbok (*Damaliscus pygargus phillipsi*) and subsequent management recommendations

Net effect	Unknown
Data quality	Inferred
Rationale	Wildlife ranching has increased population size but there are concerns that selective breeding and hybridisation with Bontebok could negatively impact population resilience.
Management recommendation	Regulate selective breeding practices on private lands, especially within the indigenous range. Monitor and regulate veld burning practices with Blesbok social structure in mind, as grassland burning can cause disruptions in the social organisation of Blesbok herds. This is attributed to the movement of Blesbok herds in response to fresh sprouting grass following a burn. In order to avoid hybridisation between Blesbok and Bontebok, these species should not be kept within the same enclosures. Additionally, the movement of existing putative hybrids should be rigorously controlled.

physiological processes, ultra-violet protection and defence against parasites. However, in addition to environmental adaptation, artificial selection has altered the coat colour design of species due to human interference (Cieslak et al. 2011), and colour morphs are currently being bred by private landowners for the purpose of financial gain. Thus far, several thousand alleles have been described from approximately 150 identified coat colour-associated genes (Cieslak et al. 2011). Coat colour-associated mutations connected to several serious disorders has been reported (Reissmann & Ludwig 2013). Most of these disorders have been identified in humans, laboratory animals and domestic animals. Additional research into the effect of colour variants in wild subpopulations is thus needed. Additionally, the selective breeding of colour morphs could result in decreased genetic diversity and inbreeding in Blesbok populations. Lastly, the effect of releasing colour morphs and carriers of colour morph genes into the wild population would have to be determined, which may occur if the colour morph market crashes in the future.

Threats

Although hybridisation is currently a priority in the rarer subspecies, Bontebok, and is likely to affect Bontebok more than it does Blesbok, the proportion of hybridisation in the Blesbok population is currently unknown and further research is required to identify hybrid Blesbok.

Breeding of colour variants that may be associated with deleterious mutations may, if released in large numbers, reduce effective population size and can affect wild populations if carriers are released into formally protected areas. Additionally, selective breeding may result in reduced heterozygosity, inbreeding and bottlenecks. Inbreeding contributes to the decline and eventual extinction of small and isolated subpopulations. There is also ample evidence of fitness reduction due to inbreeding (inbreeding depression) and a decrease in reproductive performance (Amos & Balmford 2001). Populations that have passed through a severe bottleneck can show a markedly reduced ability to respond to change, particularly in the face of novel challenges.

Current habitat trend: Stable. Generally, it is assumed that any threat to grasslands will have an influence on the subspecies. However, where Blesbok occur, habitat quality and quantity appears largely stable although the ongoing expansion of development, specifically human settlements and agriculture, is resulting in grasslands becoming more and more fragmented, which implies that Blesbok habitat becomes fragmented. However, the effect of grassland area loss might be mitigated by the fact that Blesbok subpopulations are thriving in already established nature reserves. Additionally, Blesbok appear to do well with less favourable grazing conditions on old lands and disturbed areas, as they are very adaptable and have a preference for short grass.

Conservation

This species occurs within a number of formally and privately protected areas across a number of provinces in South Africa. The economic value and popularity of the Blesbok on private farms has enabled this subspecies to re-occupy large areas of its original range, although substantial extra-limital subpopulations of the Blesbok have also been established on private land outside its natural range in South Africa and elsewhere. The

Table 4. Threats to the Blesbok (*Damaliscus pygargus phillipsi*) 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	*8.2.2 Problematic Native Species/Diseases*: hybridisation with Bontebok decreases genetic integrity of the population.	van Wyk et al. 2013	Empirical	National	Increasing, due to the movement of both subspecies across the country.
2	*2.3.2 Small-holder Grazing, Ranching or Farming*: selective breeding for colour variants decreases genetic integrity of the population.	-	Anecdotal	-	Increasing
3	*2.1 Annual & Perennial Non-timber Crops* and *2.3 Livestock Farming & Ranching*: loss of grassland habitat.	-	Anecdotal	-	Stable

Table 5. Conservation interventions for the Blesbok (*Damaliscus pygargus phillipsi*) 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	*5.2 Policy & Regulations* and *5.3 Private Sector Standards & Codes*: identification of hybrids through DNA analysis and the restriction of movement of known hybrids.	van Wyk et al. 2013	Anecdotal	-	-	-

identification of current hybrid populations and the restriction of movement of hybrids are suggested as key actions to conserve the subspecies.

Recommendations for land managers and practitioners:

- Hybrid subpopulations need to be identified and carefully managed.
- Sustainable commercial and other utilisation of this subspecies should be continued. Blesbok meat should be promoted as a low-carbon alternative to beef.

Research priorities:

- The extent of hybridisation with Bontebok in existing subpopulations, especially on private land.
- Identification of colour variant genes as well as determining if these alleles have coat-colour associated mutations that have deleterious effect. Currently at auctions the following colour variants are being sold: copper Blesbok, yellow Blesbok, white Blesbok and saddleback Blesbok.
- Determine risks associated with release of intensively and selectively bred animals (colour variants) into the wild population.
- Quantifying the harvest rates and use of this species, and determining its value as a source of sustainable protein for local communities.

Encouraged citizen actions:

- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially outside protected areas.
- Do not hunt or buy hybrids between Blesbok and Bontebok, Red Hartebeest (*Alcelaphus buselaphus caama*) and Tsessebe (*Damaliscus lunatus*) or colour variants.
- Report suspected hybrid subpopulations to the provincial conservation authorities.

Data Sources and Quality

Table 6. Information and interpretation qualifiers for the Blesbok (*Damaliscus pygargus phillipsi*) assessment

Data sources	Field study (unpublished)
Data quality (max)	Estimated
Data quality (min)	Estimated
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.*