Kobus ellipsiprymnus ellipsiprymnus – Waterbuck

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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

*Watch-list Threat

> "No more ruggedly handsome animal in all of Africa" – Earnest Hemingway

Taxonomy

Kobus ellipsiprymnus (Ogilbyi 1833)

ANIMALIA - CHORDATA - MAMMALIA - CETARTIODACTYLA - BOVIDAE - *Kobus* - *ellipsiprymnus*

Synonyms: No Synonyms

Common names: Common Waterbuck (English), Waterbok, Kringgat (Afrikaans), Isidumuka (Ndebele), Phitlwa, Tomoga, Tumuga, Sekwêlê, Kwêlêkwêlê (Sepedi), Phitlwa (Sesotho), Letimoga, Motumoga, Tumoga (Setswana), Phiva, Isiphiva, Liphiva (Swati), Mhitlwa, Phiva (Tsonga), Phidwa, Phi, Dwa, Ngwele-ngwele (Venda), Isiphiva, Iphiva (Zulu)

Taxonomic status: Sub-species

Taxonomic notes: Although previously regarded as separate species, the Defassa Waterbuck and the Common Waterbuck are now listed as the subspecies *Kobus ellipsiprymnus defassa* and *K. e. ellipsiprymnus*, respectively. These subspecies can be distinguished by differences in coat colouration, rump patterns, genetics (Lorenzen et al. 2006) and geographic range. Their distributions overlap somewhat in East Africa, where genetically intermediate populations exist, suggesting a high degree of hybridisation in the Nairobi National Park population in Kenya (Lorenzen et al. 2006).

Assessment Rationale

This subspecies is widespread and common throughout the assessment region. For example, there are an estimated 3,763–8,907 individuals (2012 count) in Kruger National Park (KNP) alone. Within the natural range, the mature population size (assuming a 70% mature population structure) is estimated to be at least 14,392–17,993 animals on 386 protected areas and ranches (counts between 2012 and 2015). The population is thought to be stable or increasing through reintroduction across its range (and outside of its natural range) on private lands. While globally the subspecies is thought to be declining slowly, there are no major identified threats that could cause range-wide decline or any evidence for decline within the assessment region. Thus we retain the Least Concern listing. Potential local threats, including bushmeat poaching and hybridisation with exotic subspecies through unregulated translocation, should be quantified. Additionally, increasing spells of drought due to climate change represent an emerging threat to this subspecies as stochastic population models predict that Waterbuck will be one of the species at highest risk from future increase in droughts periods. Such threats should be monitored.

Regional population effects: Dispersal through the transfrontier parks, such as the Greater Mapungubwe Transfrontier Conservation Area and the Greater Kruger Transfrontier Park is suspected. Anecdotal evidence suggests that this species evades fence boundaries by dispersing along waterways.

Distribution

The former range of this species expanded across much of sub-Saharan Africa; however, overexploitation led to large-scale range contraction and restriction to protected areas and areas with extremely low human density (IUCN SSC Antelope Specialist Group 2016).

Kobus e. defassa has a much broader distribution compared to that of *K. e. ellipsiprymnus*, occurring across much of central and eastern Africa, extending somewhat into western Africa to Senegal (although they are now extinct in The Gambia) (Spinage 2013). The Waterbuck extends from East Africa, where its range overlaps with that of the Defassa Waterbuck, through Mozambique, Zambia, Zimbabwe, Botswana, Namibia and into South Africa (Skinner & Chimimba 2005). In Namibia, this species was previously restricted to the Caprivi Strip, but has been more recently introduced onto private lands in the north of the country (Skinner & Chimimba 2005). Significant range contraction occurred historically in Zimbabwe and due to the civil war in Mozambique, but recent reintroduced into parts of their former range have taken place (Skinner & Chimimba 2005).

Within the assessment region, the Waterbuck was previously restricted to the savannah woodlands of northeastern South Africa, with the range extending
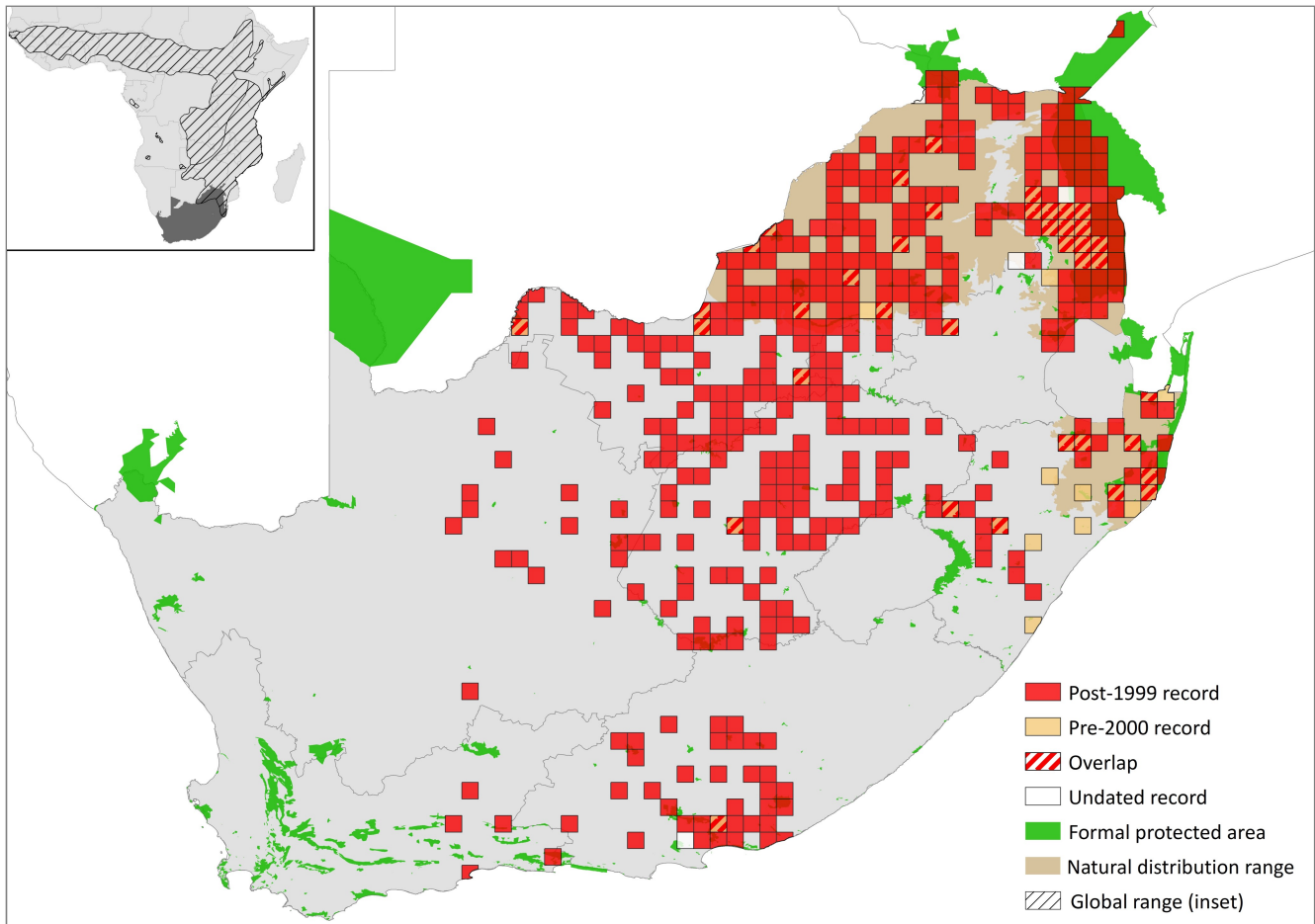
Figure 1. Distribution records for Waterbuck (*Kobus ellipsiprymnus ellipsiprymnus*) within the assessment region

Table 1. Countries of occurrence within southern Africa

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

westwards along the Limpopo River, and reaching its southern limit around Hluhluwe-iMfolozi Park in KwaZulu-Natal. However, recent introductions onto protected areas and private lands outside of their native range, as well as reintroductions throughout their former range, have occurred across a number of provinces in South Africa (Figure 1). For example, while it occurred historically in the northern bushveld areas of North West Province (Rautenbach 1982) (in which it has been reintroduced), it has been introduced in other areas of the province where a number of escapees from ranches have created free-roaming subpopulations (Buijs 2010; Power 2014). In Swaziland, their native range was limited to the northeast of the country, however they have been introduced onto reserves in the middleveld and lowveld regions of Swaziland (Skinner & Chimimba 2005).

Population

A global population of approximately 200,000 Waterbuck has been estimated, comprising about 95,000 Defassa Waterbuck and 105,000 Waterbuck (East 1999). No recent global population estimate is available (IUCN SSC Antelope Specialist Group 2016). Within the assessment region, there were an estimated (using distance sampling; 2012 count) 3,763–8,907 animals in KNP alone (Ferreira et al. 2013). Across the entire country, there are estimated to be 29,163–38,070 animals on 607 protected areas and ranches (counts between 2012 and 2015), but this includes a number of extra-limital subpopulations. Within the natural range alone, there are estimated to be 20,560–25,704 animals on 386 protected areas and ranches (counts between 2012 and 2015), which corresponds to 14,392–17,993 mature animals using a 70% mature population structure. Within formally protected areas alone inside the natural range, there are an estimated 7,497–12,623 animals (counts between 2012 and 2015; 33 protected areas), which corresponds to 5,236–8,836 mature animals. These may well be underestimates as not all counts for all protected areas are available and some areas are under-counted. However, we infer that there are over 10,000 mature individuals throughout the natural range in total.

Generation length is calculated as 7.1 years, yielding a three generation window of *c*. 21 years (1994–2015). Over this period, the population is inferred to be stable or increasing on formally protected areas. For example, on Botsalano Game Reserve, Borakalalo Nature Reserve, Kgaswane Mountain Reserve and Pilanesberg National Park in North West province, subpopulations have been

stable since 1999 (Nel 2015); and KwaZulu-Natal protected areas are also largely stable or increasing (Ezemvelo KZN Wildlife unpubl. data). However, there are local declines in some areas. For example, the subpopulation in Mafikeng Nature Reserve, North West, has declined from 125 in 1999 to 67 in 2015 (Nel 2015). On Free State provincial protected areas (extra-limital), the population has increased from 50 in 2004 to 388 in 2014 at an average annual growth rate of 44% (E. Schulze unpubl. data). Subpopulations on private land are also suspected to be stable. Globally, the subspecies is suspected to be declining (IUCN SSC Antelope Specialist Group 2016).

Within favourable habitats, populations of Waterbuck can reach relatively high densities, for example in Lake Nakuru National Park, Kenya, densities of more than 10 individuals / km² were recorded (East 1999). However, in other areas, aerial surveys produced density estimates of 0.05–0.15 individuals / km², and higher estimates of 0.2–0.9 individuals / km² have been documented in certain habitats (East 1999). Ground surveys in areas where Waterbuck are particularly common produced density estimates of 0.4–1.5 individuals / km². In favourable habitat, although this species may be locally abundant, Waterbuck do not constitute a large proportion of the antelope community, due to their strict water requirements (Melton 1997).

Current population trend: Stable

Continuing decline in mature individuals: No

Number of mature individuals in population: 14,392–17,993

Number of mature individuals in largest subpopulation: 2,634–6,235 animals in KNP

Number of subpopulations: 33 formally protected subpopulations

Severely fragmented: No. While most subpopulations occur in fenced reserves or ranches, this subspecies can use waterways to disperse.

Habitats and Ecology

As their name indicates, this species is restricted to well-watered habitats, having remarkably high water requirements (Taylor et al. 1969). Preferring dense woody vegetation of savannah woodlands and forest-savannah mosaics (Melton 1997; East 1999), Waterbuck are commonly associated with floodplain and vlei regions (Skinner & Chimimba 2005). Along the Zambezi River, they are often found along the rocky hills in the vicinity of the river (Skinner & Chimimba 2005), and in Ethiopia they have been recorded up to 2,100 m asl (Yalden et al. 1996). Although dependent on water, they are not as aquatic as the Lechwe, *Kobus leche*, but also not as independent as the Kob, *Kobus kob* (Spinage 2013). The Waterbuck persist in drier regimes than the Defassa Waterbuck (Spinage 2013).

Waterbuck are classified as grazers, with a more diversified diet in the wet season and a less diversified diet at the end of the dry season. Waterbuck have been observed to occasionally include browse material (up to 35% of the diet in the Defassa Waterbuck in Benin) in their diet during the dry season (Kassa et al. 2008). They have been observed supplementing their diet with Umbrella Thorn, *Vachellia* (previously *Acacia*) *tortilis*, as well as

Andre Botha

Marula, *Sclerocarya birrea*, fruits. Hoffmann (1973) described Waterbuck as efficient in fibre digestion, and thus roughage feeders. In Hluhluwe-iMfolozi Park (previously Umfolozi Game Reserve), Melton (1978) found that, due to restricted forage in the dry season, Waterbuck were out-competed by Nyala, *Tragelaphus angasii*, and Impala, *Aepyceros melampus*. This, in combination with high tick infestation, resulted in significant Waterbuck calf mortality during the 1970s. However, following the reduction of other antelope during a management response to drought conditions in the 1980s, Waterbuck populations began to stabilise (Melton 1997).

Waterbuck are gregarious, forming herds of usually less than 10 individuals comprising of either bachelor males, or females and young (Melton 1997). Solitary territorial males will defend territories of up to about 2 km² of prime habitat in close vicinity to water, and female herds commonly form home ranges that encompass several territorial males (Melton 1997). Waterbuck breed throughout the year, although calves in the KNP and Hluhluwe-iMfolozi Park are most commonly born between October and March (Pienaar 1963; Fairall 1968; Melton 1983). The gestation period of Waterbuck is approximately 280 days (Spinage 1982), and during parturition the female will leave the herd to give birth to one or, occasionally, two calves (Skinner & Chimimba 2005). For the first 3–4 weeks of their lives, the calf is hidden from predators in tall grass or underbush, where the mother returns frequently to feed and clean her calf (Skinner & Chimimba 2005). Calves are weaned after approximately 276 days (Spinage 1982).

Ecosystem and cultural services: Although historical records proposed that Waterbuck were unfavourable prey for both predators and humans alike, due to their musky smell, this statement is considered erroneous, as Waterbuck are commonly preyed upon by both (Melton 1997). In Mpumalanga and KwaZulu-Natal, 60–80% of Waterbuck predation events were attributed to lions, *Panthera leo*, however, this species is also a valuable prey species for Spotted Hyena (*Crocuta crocuta*), Leopard

Table 2. Use and trade summary for the Waterbuck (*Kobus ellipsiprymnus ellipsiprymnus*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Bushmeat	Unknown	Stable
Commercial use	Yes	Meat, trophies and live animal sales	Unknown	Increasing
Harvest from wild population	Yes	Bushmeat	Unknown	Unknown
Harvest from ranched population	Yes	Meat, trophies and live animal sales	Unknown	Unknown
Harvest from captive population	Yes	Meat, trophies and live animal sales	Unknown	Increasing

Table 3. Possible net effects of wildlife ranching on the Waterbuck (*Kobus ellipsiprymnus ellipsiprymnus*) and subsequent management recommendations

Net effect	Positive
Data quality	Anecdotal
Rationale	Wildlife ranching and the private sector have generally had a positive effect on this species as it has been widely reintroduced onto private properties within its natural distribution range, although many subpopulations have been established outside the range.
Management recommendation	This subspecies is highly dependent on permanent water sources and high quality forage, thus management should focus on habitat restoration of wetlands and associated vegetation.

(*Panthera pardus*), Cheetah (*Acinonyx jabatus*) and Nile Crocodile (*Crocodylus niloticus*) (Melton 1997).

Use and Trade

Waterbuck are used for food, trophy hunting and live animal sales. The proportion of animals from wild populations and from private ranches is unknown. Trophy hunting, if well controlled, will pose no threat to the species. The live trade will increase its area of occupancy as it is relocated to private reserves.

Threats

Globally, Waterbuck have been eliminated throughout much of their range from hunting (Spinage 2013), and are thought to be declining (especially Defassa Waterbuck) at a slow but significant rate (IUCN SSC Antelope Specialist Group 2016). Within the assessment region, however, this subspecies is well protected. Waterbuck are prevalent on many private farms and tend to be increasing in many areas. There are local declines with drought impacts, which result in a change in habitat quality and forage availability and may be exacerbated by climate change in the future. Waterbuck are susceptible to poaching due to their sedentary nature and association with agricultural

lands and several population declines, some of them severe, have been documented in other parts of its range (IUCN SSC Antelope Specialist Group 2016). Within the assessment region, bushmeat hunting, often with domestic dogs (*Canis familiaris*), along protected area boundaries may also cause local declines. For example, it is quite heavily impacted by poaching in Borakalalo Nature Reserve, North West (Nel 2015).

Current habitat trend: Declining. With an increase in drought intensity predicted with climate change, water dependent species such as Waterbuck may be at risk. The results of predictive stochastic population models under different climate change scenarios show that Waterbuck will be one of the species at highest risk from future increase in droughts periods (Duncan et al. 2012). The study even goes as far as suggesting that according to their model simulations, Waterbuck have a high probability of low population growth rates even under the current climatic conditions (Duncan et al. 2012).

Conservation

The majority of the population lives in protected areas within the assessment region. Important subpopulations of Waterbuck occur in KNP and Hluhluwe-iMfolozi Park, and

Table 4. Threats to the Waterbuck (*Kobus ellipsiprymnus ellipsiprymnus*) 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	*11.2 Droughts:* climate change increasing drought rate.	Duncan et al. 2012	Simulation	National	Predictive stochastic population models suggest that Waterbuck will be extremely vulnerable to future increases in drought intensity as a result of climate change.
2	*5.1.1 Hunting & Collecting* Terrestrial Animals: local declines due to bushmeat hunting.	Melton 1997	Anecdotal	National	Increasing possibly with settlement expansion
		Nel 2015	Empirical	Local	

Table 5. Conservation interventions for the Waterbuck (*Kobus ellipsiprymnus ellipsiprymnus*) 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	*1.1 Site/Area Protection*: protected area expansion along key corridors.	-	Anecdotal	-	-	-
2	*1.2 Resource & Habitat Protection:* wetland conservation through biodiversity stewardship and private land.	-	Anecdotal	-	-	-

there are also extensive numbers on private land (East 1999). As the effects of drought associated with climate change are unpredictable and not controllable, no specific interventions are necessary for this subspecies at present. However, protected area expansion, especially transfrontier protected areas, will benefit Waterbuck in the assessment region by facilitating dispersal and thus allowing for adaption to climate change. Biodiversity stewardship schemes that protect wetlands and associated vegetation will also conserve key resource areas needed by this subspecies.

Recommendations for land managers and practitioners:

- This species requires ongoing monitoring and possible improvement of assessments on private land to provide better indication of population trends.
- Extra-limital subpopulations in formally protected areas should be removed, such as in Molopo Nature Reserve, North West (Power 2014).

Research priorities:

- Basic ecological research is needed, as most of the existing literature are studies done during the 1960s to 1980s on Defassa Waterbuck, thus detailed information on the Waterbuck is lacking.
- Studies quantifying the severity of putative threats to enable conservation planning.

Encouraged citizen actions:

- Landowners should create conservancies for this species and engage local stakeholders to create sustainable, wildlife-based rural economies.
- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP), especially of free-roaming herds outside protected areas and private lands.

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