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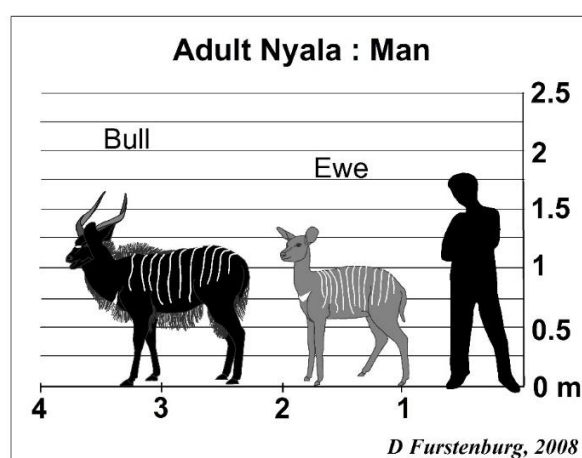
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## NYALA *Tragelaphus angasii*

Deon Furstenburg



### Speciation

The nyala antelope shows a marked sexual dimorphism in size with a large male and a much smaller female. As a result the male is known as a bull in common with the larger antelope species and the female a ewe in common with the smaller antelopes. Young males are camouflaged by their colour pattern which resembles that of a female. This protects them from the aggressive behaviour of the dominant male. Its popular name nyala, has its origins in the Ndebele name “*inyala*”. The nyala belongs to the family Bovidae, sub-family Bovinae, tribe Tragelaphini, genus *Tragelaphus* (spiral-horned antelope) consisting of eight species including the nyala *T. angasii* and the mountain nyala *T. buxtoni*. The nyala and the mountain nyala is completely different species and no sub-species of neither are recognised.

The nyala bull is one of the most colourful antelopes of the African continent. It is a medium sized antelope with a build similar to that of a bushbuck and the face of a kudu. The adult nyala bull weighs between 92-126 kg, has a shoulder height of 104-121 cm and an apron of exceptionally long hair. Their pelage colour varies from a light chestnut to a chocolate-brown that darkens with age to a dark greyish-black. There are 10-14 vertical, parallel, white stripes on the flanks. Nyala ewes are much smaller weighing only 54-68 kg and have a shoulder height of 82-106 cm. Ewes are often mistaken for bushbuck ewes. They are a bright, chestnut-

brown and lack the furry coat of the bull. The closely related mountain nyala of Ethiopia is similar to the kudu in appearance and build. It is found 2 740 m above sea level in the Chercher, Arusi, Bale and Amorro mountains, weighs 204-227 kg and has an average shoulder height of 134 cm.

Although uncommon and very rare, nyala can hybridise with both bushbuck and kudu as is the case for all of the tragelaphines.

Fig:



Fig:



Photo: Nyala bull in mixed bushveld (D. Furstenburg)

Occasionally nyala males are born without the genetic marker of the typical black colouring of adult bulls. Such colour variants recently found themselves a valued place in the commercial game markets and are referred to as nyala red-bulls.

Fig:



Fig:

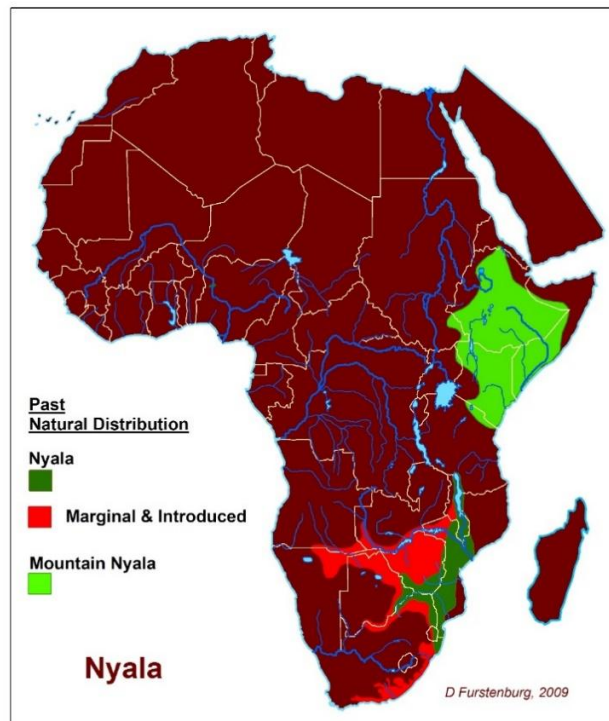


An estimated 3 year old nyala red-bull, Lower Sabie road, Kruger National Park, 2004 (Japie v Wyk)

### IUCN Conservation Status

- Nyala = Lower Risk, least concern (LR/lc).
- Mountain nyala = Endangered (EN)

Fig: Distribution map



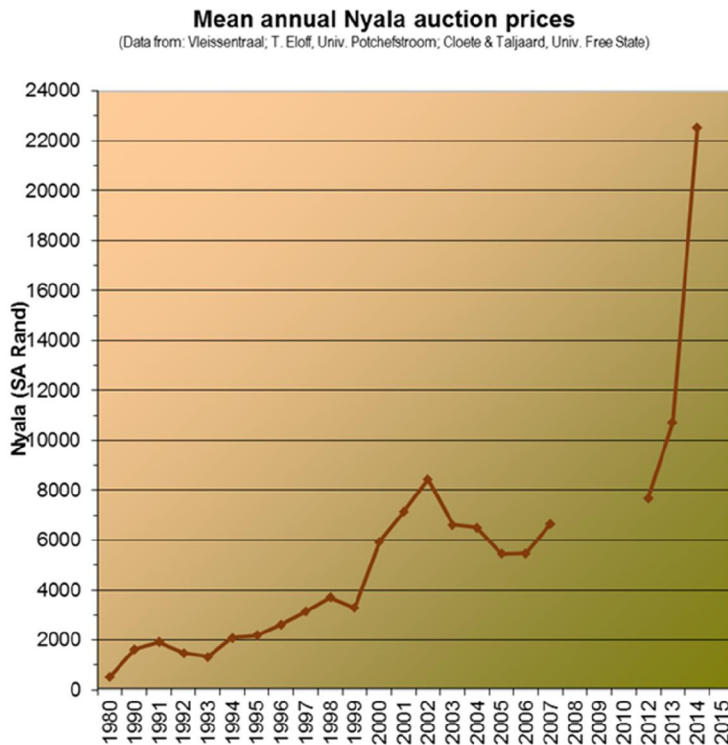
### Current distribution and numbers

The nyala occurs naturally in the south-eastern countries of Africa including Malawi, Mozambique, Zimbabwe, and in South Africa, in northern KwaZulu-Natal and along the banks and floodplains of the Limpopo River. Through the game industry nyala had been introduced to the major of South Africa as well as large areas of northern Namibia. At present, the largest introduced populations are to be found in the Great Fish River Valley of the Eastern Cape and in the George and Oudtshoorn districts of the Western Cape Province. On the former Double-Drift reserve near Grahamstown, former parks ranger Charles Tinley introduced a small population of nyala in the mid 1980s which grew to >300 by 2002. Except for a small population thriving on Tswalu reserve in the Kalahari in the Northern Cape, nyala are naturally restricted to environments that are both humid and well wooded.

While Nyala have been severely depleted in the past, total population numbers are now being estimated at 32 000 almost entirely restricted to protected areas and private and private land. Population trends are generally stable or increasing and its long-term survival will be enhanced by the current efforts to rehabilitate wildlife areas such as Gorongosa, Banhine and Zinave National Parks, Gaza Province and the Maputo reserve in Mozambique. Nyala has spread recently into the Tuli block farms of Botswana due the introductions on private farms on the South African border. In Swaziland nyala became extinct by the 1950s but since have

been successfully reintroduced. The numbers of the mountain nyala population has dropped critically to below 2 500 and is still declining.

Fig (a): Graph showing the increase in nyala prices



### Rowland Ward records and horn characteristics

Only adult bulls have well developed horns. These are lyre-shaped with two full spirals, are smooth and have distinctive white tips 6-8 cm long. Horn buds appear after six months and reach a length of 20 cm at 15 months. The first spiral is complete at two years and Rowland Ward minimum trophy quality is reached after five years. Occasionally ewes are found with rudimentary, malformed horns. A ewe with a mass of 114 kg and a trophy of 32.5" was once recorded in the Imfolozi Game Reserve in KwaZulu-Natal.

With the expansion of the game industry the last 20 years the overall quality of nyala has improved. The Rowland Ward maximum trophy size has increased from only 12 trophy entries exceeding 30" and the old record being 32<sup>7</sup>/<sub>8</sub>" (1902, P.I. Phelan, KwaZulu-Natal), adding 44 entries greater than 30" until the 27<sup>th</sup> edition of Rowland Ward including a 31<sup>3</sup>/<sub>4</sub>" (2007, D. Dusick, Ellisras), 32<sup>1</sup>/<sub>4</sub>" (2008, J. Atcheson, Komatipoort), 32<sup>3</sup>/<sub>4</sub>" (2008, J. Potgieter, Swaziland), 33" (2009, A.S.J.D. Murray, Hluhluwe) and the 2009 (now no 2) trophy of 33<sup>1</sup>/<sub>4</sub>" of Hendrik Ehlers. Lastly in 2010 the Rowland Ward no 1 trophy, 33<sup>3</sup>/<sub>8</sub>" of Alexander Sachs shot with a bow and arrow at Reebokfontein near Klerksdorp, 2010.

Fig:



Fig:



The  $32\frac{7}{8}$ " nyala trophy shot in 1902 by Paul I. Phelan in KwaZulu-Natal that was no 1 for 28 years

Fig:



A nyala bull apparently measured by a wildlife veterinarian as 35", not officially confirmed (Africahunting.com)

History was made in 2014 when a so-called nyala bull from Marken, measuring  $34\frac{5}{8}$ " was auctioned for R1,65 million at Oljaco Game Dealers Pens in Vaalwater. The animal showed obvious visual characteristics of being hybridized with a kudu. The animal was evaluated prior to auction by veterinarians only, hence lacking any inspection by zoological scientists. The outcome of the DNA analysis of the much doubted animal's bloodline was never shared in

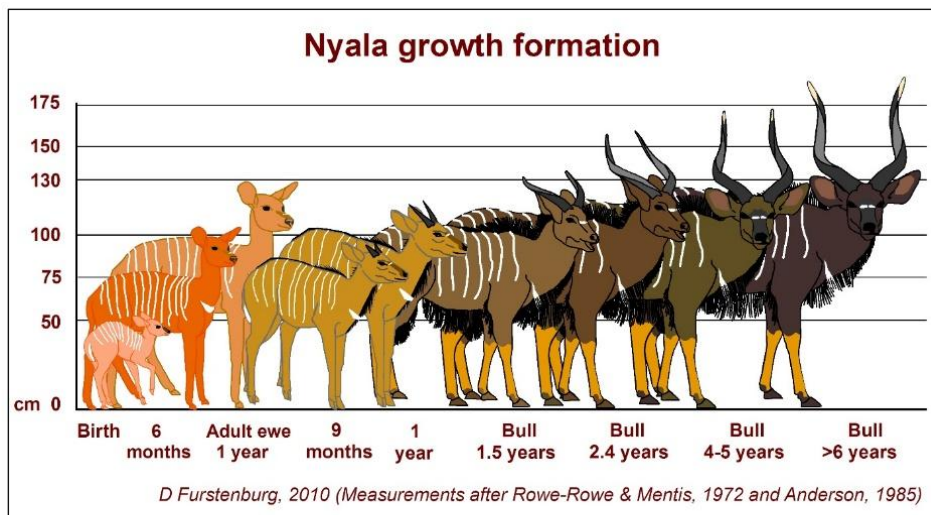
public media. To the authors knowledge the sale was later declared void being in doubt to the genetic purity of the species.

Fig:



A 34<sup>5</sup>/<sub>8</sub>" nyala-(kudu-crossed) bull auctioned at R 1,65 million in 2014 in Limpopo

Fig (illustration): Nyala growth with age



### Behaviour

Nyala are predominantly active during the day in optimal habitats, but become nocturnal in open, marginal habitats or with increased human interference. During daylight hours they tend to keep to thickets and move out at night to feed on adjacent, more open ecotones. Nyala crawl under obstacles rather than attempt to jump over them. However, when captured in bomas a bull can clear a canvas curtain of 1,8 m. Different nyala groups often gather together

in sharing a good fodder source, temporarily tolerating each other's presence with little aggression. No territorial behaviour but the home ranges of both bulls and ewes are permanent and overlap to a great extent. The size of home ranges depend on the suitability of the habitat and the abundance of fodder ranging from 15 ha in succulent valley bushveld, to 60 ha in the closed, sandy woodland of the Imfolozi Game Reserve and 400 ha in Mozambique. Nyala are not migratory and only shifts its home range slightly when bad conditions prevail. In severe conditions they will not leave the area but die in the vicinity. Young animals disperse to new areas when the stocking density becomes over crowded.

Nyala are semi-gregarious keeping as multi pairs or in small groups of 3-15. Bulls form groups of 2-8 with a hierarchy of dominance. Breeding families consist of 3-15 individuals including adult ewes, sub-adults and with or without 1-2 adult bulls. Single adult ewes often leave the group temporarily to guard their hidden lambs. Post mature bulls become solitary and often associate with other game species such as kudu, waterbuck and small impala groups. Group structures are unstable as members constantly interchange between groups. Mating is not seasonal and lambs are born throughout the year. Adult bulls (>3 years) frequently leave their groups and accompany a breeding family for several days for mating with ewes >1,5 years. More than one bull may join the same family. After mating, he remain for another 2-3 days before leaving to re-join a bull group. A single lamb of 4.2-5 kg is born after a gestation of 220 days and hidden for 2,5 weeks by the mother. The lamb weans at three months. In optimal conditions, a nyala ewe can give birth every 9-10 months. Young sub-adult males leave the breeding groups of their own violation between 1 and 2 years and join bull groups.

In common with bushbuck, nyala production and density is not a consequence of spatial needs but rather the result of the suitability of the habitat and the fodder supply. Natural nyala densities vary from 1,5 to 30 ha/animal. Recommended stocking is 2,5 ha/nyala at an annual rainfall of 550-650 mm. The natural mating ratio is 1 bull to 2-4 ewes to be raised to 7 ewes for maximum production. The maximum expected lifespan is 8 years for ewes and 11 years for bulls.

### **Habitat and dietary requirements**

Abundant shade, cover for refuge and nutritious browse are the essential elements and found mainly in thicket, closed woodland and riverine bush. Riverine woodland and floodplains with bushy clumps are preferred. Tropical conditions with a moist climate provide the most suitable environment. Nyala spend 70-90% of their life in thicket, however they also thrive in marginal habitats such as dry savannah providing that a mosaic of thicket bush-clumps exists and that permanent water is available within a radius of 800 m. A constant supply of fresh drinking water and a large diversity of browse and broadleaf forbs and a minimum of 15% thicket are essential. The less the thicket component of the habitat, the more nocturnal the nyala become. The grass layer must consist of short to medium height (4-23 cm) sweet grass species. Nyala cannot survive at below 300 mm rainfall, at temperatures below -2°C or in sourveld areas.



They have adapted well to the semi-arid sweet succulent valley bushveld of the eastern and southern Cape at 380-450 mm rainfall. Nyala occupy the same feeding niche as the bushbuck and, if allowed to overpopulate, tend to displace them. Nyala do not pose a threat to bushbuck if managed at lean stocking densities and, in common with them, are highly sensitive to captive handling and to droughts.

Fig:



Fig:



Most optimal habitat is sweet-veld riverine bush and thicket-clumps surrounding dams (D. Furstenburg)

Fig:



Fig:



Fig:



70-90% of nyalas lives are spend in thicket vegetation (D. Furstenburg)

Fig:



Introduced nyala thrives in the sweet succulent valley bushveld of the eastern Cape (D. Furstenburg)

Nyala are highly selective, mixed feeders eating a large variety (up to 108 species recorded in Mozambique) of sweet grasses, forbs and browse. In common with the impala, the nyala can change from 90% browsing to 70% grazing, particularly if it consists of short to medium (<23 cm) sweet grass species. In general, grass contributes 12-30% of the dietary intake. Important browse species include several *Acacia* spp, *Ziziphus mucronata*, *Grewia* spp, *Dichrostachys cinerea*, *Colophospermum mopanae*, *Capparis sepiaria*, *Spirostachys africana*, *Adansonia digitata*. Fruit, pods and flowers, the soft new growth of grass and broadleaf forbs are very important – dry grass are totally avoided. Nyala drink daily 3,5 litres fresh water. In very dry, marginal habitats a population may gradually adapt and become increasingly selective towards dietary moisture and drink less fresh water, but it reduces breeding and production potential. In dry periods nyala consume both wet and dry lucerne supplements. Fallen, dry pods are an important protein source during a dry winter. Take special note that nyala is extremely sensitive to change of and limited quality of nutrition; mortalities are common when translocated to marginal and/or less nutritional environment, e.g. from sweet veld to mixed or sour veld habitat.

Fig:



Fig:

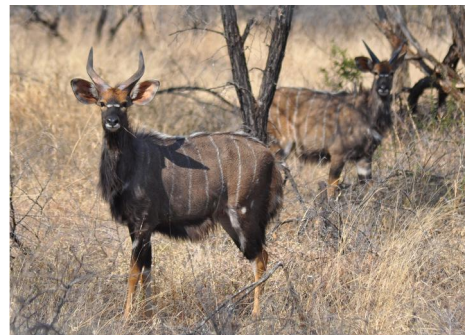


**Nyala thriving on broadleaf forbs in optimal riverine thicket (D. Furstenburg)**

Fig:



Fig:



**In marginal habitat, dry grass mixed-veld, nyala diet need be supplemented daily (D. Furstenburg)**

### **Breeding systems**

Intensive nyala production in camps of 50-100 ha has proved to be highly successful in both optimal and marginal habitats. They are extremely productive on planted pastures consisting of a mixture of 2-3 varieties. Having limited special need a nyala breeding herd can be kept in a camp as little as 3 ha providing that it is the only animal species in the camp and that adequate high nutrition supplement food are provided daily. The essence of nyala breeding is continued availability of high quality nutrition. Three to four breeding families with one breeding bull per family can be kept together in larger camps greater than 50 ha provided that fodder and nutrition are adequate and that all non-breeding bulls older than 2 years be removed from the camp. Nyala bulls are much more tolerant of each other than any other antelope species and often sharing the ewes of the same breeding family. Conflict and confrontations are generally only a visual display of power and with little aggression. Aggression is more common towards other animal species than to members of its own species, and mostly restricted to time of drinking and feeding from buckets at feeding stations.

Rotational 8 month stocking between 2 camps in systems where the camps are smaller than 20 ha is recommended. Other than for sable, eland, roan, buffalo, impala etc. rotational stocking with nyala has little effect on ecological veld condition but the main advantage of is bio-safety – the minimizing and control of parasites and diseases by prolonged periods of rest from game. Nyala habitat are generally moist and shady at the herbaceous layer favouring parasites and diseases, especially if such environment are continuously stocked with bush dwelling host animals such as nyala.

Nyala have proved to do well when sharing with other game species. Managing and sharing camps with multi-species need be done with uttermost caution; the following rules of advice:

- for multi-species sharing camps should be larger than 50 ha (preferably 75-150 ha )
- feeding stations need to be spaced in different habitat forms within the camp
- multiple feeding stations, one per species must be provided simultaneously (3 species – 3 stations etc.)
- feeding must be handed out at all feeding stations at the same time of day as to allow more aggressive and less aggressive animal species to feed with least inter-species conflict
- when rotating between camps all species must be moved simultaneously
- never mix any species in confined space as when using passive capture bomas
- when sharing multi species in camps a minimum of two drinking water holes must be available at all time. The author witnessed several instances where impala died in a camp where the only water was supplied inside a handling camp or boma (as being used to rotate animals between grazing camps) and a wildebeest bull or a sable bull claimed the boma / handling camp as a temporally territory preventing the impala from drinking.

As for all other game species provide one bucket per animal at feeding stations, and preferably placed in a full circle and minimum 5 m apart. Feeding stations and drinking holes must never be closer than 20 m from any fence or infrastructure if only nyala in the camp and at least 50 m away when the camp is shared with other game species, as to allow space for escape from inter animal conflict.

Nyala are easily handled and capture in permanent passive capture bomas. Feeding pellets inside a passive boma over time lure nyala to enter and exit at free will through gates as narrow as 1 m. Though, forced capturing chasing nyala into confined bomas are most often detrimental with high mortalities and injuries of trying to escape. Nyala generally react badly on forced handling and they are highly sensitive to transportation. When translocated it is recommended to nurture them at optimal conditions for extended period in a small camp (1,5 ha) before releasing in larger camps or free roaming.

Fig:



Fig:



**Small camp (4 ha each), one breeding herd per camp, rotational stocking system in the mixed bushveld of the Waterberg; daily concentrate supplements and semi-tamed from daily human presence (D. Furstenburg).**

Fig: a-i



A



B



C



D

E

F



G

H

I

Pictures (a) to (i) expressing different management parameters for nyala (photos D. Furstenburg):

- a) cattle drinking trough and lucerne feeding rack crumpled in fence corner, risk for animal fighting
- b) cattle drinking trough in camp corner, must be 20 m from fence or any infrastructure
- c) fixed feeding troughs can be used provided the camp is not shared with another animal species, provided there are sufficient space for all animals to feed simultaneously, and provided that the dung are picked up daily
- d) multiple feeding troughs above ground well-spaced apart and a drinking hole at ground level located in suitable nyala habitat
- e) feeding lucerne and pellets on a single pile on the ground for multiple nyala is utterly wrong, the dominant animal will every time benefit the best of the pellets, risk of competition fighting, risk of compaction of rumen from soil intake
- f) similar to (a) but sharing with blue-(golden) wildebeest, there must be at least 2 feeding stations at different localities supplied simultaneously at same time to separate the species at feeding time
- g) a 150 ha camp sharing nyala, kudu, wildebeest and gemsbok, 4 feeding stations are provided with single loose buckets (1 bucket per animal in the camp, spread between the 4 stations) limits inter-animal conflict
- h) nyala, sable and impala sharing a single feeding pile on ground (only feeding station in 25 ha camp), note the tension of the young sable bull towards the nyala bull – a recipe to disaster of fighting and lethal injury
- i) human contact with animals at feeding station – a recipe of disaster, human to be killed in due time and animals to become permanently aggressive towards humans (adopted lack of fear)

Fig:



Fig:



Fig:



Mobile boma erected for several weeks in nyala camp, and permanent passive boma that links 3 nyala camps, nyala are passively lured into bomas through 1 m entrance with pellets with great success, and darted once inside; most important is that the boma must contain sufficient shade (D. Furstenburg).

### Diseases and parasites

Nyala are highly sensitive to stress produced by rapid cold fronts accompanied by rain and wind. In a dry winter season, these conditions combined with poor nutrition result in severe hypothermia and mortality. Nyala are also severely affected by capture myopathy when handled and transported. Nyala is a carrier of *Theileria hippotrugi* which can affect other game like eland.

Thickets for sheltering nyala during cold spells are thus essential. Sudden changes of diet during capture and relocation may cause clostridial enteritis and death. This can be prevented by pre-treatment with slow-release penicillin. Other problem diseases are anthrax and bovine tuberculosis. Large tick loads have a negative impact on the body condition of nyala although they are not susceptible to the tickborn disease of heartwater. An efficient aid in the control of tick infections is a construction consisting of wooden pole laid across two upright posts with a strip of foam soaked in tick-dip attached underneath at the average back height of a sub-adult nyala. This is placed across footpaths, near feeding grounds or at drinking points and, as the nyala walk underneath their backs are sponged with dip. This method also works for other game species.

### Additional information

Comprehensive information on nyala biology by the same author is available on E-Book, the *Game Species Window*. [www.amazon.com](http://www.amazon.com). pp 9892-10166. Genetic advice on nyala breeding: Wildlife Stud Services [www.ws2.co.za](http://www.ws2.co.za) or Geo Wild Consultants ([www.geowild.co.za](http://www.geowild.co.za)).

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 <p><b>Deon Furstenburg</b> Wildlife Scientist - Risk Manager +27 72 575 3289</p> <p><i>Expert support to the wildlife industry</i></p>	f: 086 262 1032	  
	e: Deon@geowild.co.za	
	w: <a href="http://www.geowild.co.za">www.geowild.co.za</a>	
	a: 3 Kiaat Str, Overkruin, Heidelberg 1441	
	p: P O Box 1802, Heidelberg 1438	