

## Haematological Values and Body Measurement of Gazella Dorcas, Reed Buck, Water Buck and Warthog

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### ABSTRACT

There is a lack of information of physiological parameters and reference values of wild animals which are necessary knowledge for the successful breeding and management of these animals. Laboratory examination was undertaken for determination of certain values of hematological parameters of blood of gazelle dorcas, reed buck, water buck and warthog and their physiological values. Normal values for hemoglobin, packed cell volume, total count of red blood cells, total count of white blood cells and differential count of white blood were obtained from blood of males of wild animals including Dorcas gazelles, Waterbuck, Reed buck and Warthog. The measurement of different parts of the body of these animals were also recorded.

**KEY WORDS:** Haematological Values, Body Measurement, Gazella Dorcas, Reedbuck, Waterbuck, Warthog

### INTRODUCTION

The main distribution of reedbuck and waterbuck populations is in southern of Africa. It is clear that the populations in Namibia are at the edge of the species range. The 'natural range' for reedbuck and waterbuck in Namibia is limited to the Caprivi. Dorcas gazelles may go their entire lives without drinking any water, obtaining all needed moisture from the plants which they eat. They can withstand very high temperatures, although during hot weather they are primarily active at dawn, dusk, and throughout the night. Herds wander over large areas searching for food, and tend to congregate in areas where recent rainfall has stimulated plant growth. (DRAFT, 2003). The distribution of the Dorcas gazelle in Savannas, semi-desert and true desert throughout northern Africa and western Arabia. (Pfenninger and Schwenk, 2007). The Warthog is a wild member of the pig family that lives in grassland, savanna, and woodland in Sub-Saharan Africa (Cumming, 2008 and Wilson et al., 2005). In the past it was commonly treated as a subspecies of *P. aethiopicus*, but today the scientific name is restricted to the Desert Warthog of northern Kenya, Somalia, and eastern Ethiopia (Wilson et al., 2005).

There is a little information about blood parameters in wild animals. Some research work was done in some wild animals like, Dorcas gazelle, Waterbuck and Reedbuck. Dremvo et al. (1974). Thomson's gazelles, Grant's gazelles, mountain Reedbuck in Kenya, their work included count of WBCs, RBCs, Hb estimation, Packed Cell Volume and measurement of some minerals in serum (Phosphorus, copper and magnesium). Cloudsely et al. (1965) outlined the physiological basis for survival of *Dorcas gazelle* in captivity. José et al. (2011) recorded studied in blood parameters of three species of endangered gazelle species: *Gazella dorcas*, *Gazelle dama* and *Gazelle curvieri*. Vahala et al. (1991) studied blood serum biochemical values and effect of sex and season on these parameters of mountain Reedbuck.

Warthogs range in size from 0.91 to 1.5 m in length and 50 to 75 kg in weight. A warthog is identifiable by the two pairs of tusks protruding from the mouth and curving upwards. The lower pair, which is far shorter than the upper pair, becomes razor sharp by rubbing against the upper pair every time the mouth is opened and closed. The upper canine teeth can grow to 23 cm and are of a squashed circle shape in cross section, almost rectangular, being about 4.5 cm, deep and 2.5 cm wide. The tusk will curve 90 degrees or more from the root and the tusk will not lie flat on a table, as it curves somewhat backwards as it grows. The tusks are used for digging, for combat with other hogs, and in defense against predators—the lower set can inflict severe wounds. (Anonymous, 2011). The Dorcas Gazelle is a small and common gazelle. The Dorcas Gazelle stands approximately 55-65 cm. Dorcas gazelle have a head and body length of 90-110 cm and a weight of 15-20 kg Anon, 2011. Males of Reedbuck have curved horns pointing forward and can weigh up

to 55 kg, Anon (2005, 2008). The Waterbuck is a large antelope found widely in Sub-Saharan Africa. It stands 120 to 136 centimeters at the shoulder. Males weigh 200–300 kg and females 160–200 kg, Kingdon, 1997.

The objective of this research work was to establish the normal physiological values and body measurement of gazella dorcas, reedbuck, waterbuck and warthog.

## MATERIALS AND METHODS

### Sample collection and body measurement

The four species studied were the Dorcas gazelle, reedbuck, waterbuck and warthog, the animals were captured with nets, immobilized by tying their legs together with a rope, and their eyes were covered with a cloth to tranquilize them. A 5 ml blood sample was taken from the jugular vein with disposable syringe. Forelegs were measured from the tarsal to the fetlock joint after flexing the knee and bending the hoof backwards. This part of the leg corresponds mostly to the metacarpal bone, so here after it is called the metacarpus. Similarly, the hind legs were measured from the hock to the fetlock joint after flexing the hock and bending the hoof backwards. As this part of the leg corresponds mostly to the metatarsal bone, hereafter it is called the metatarsus. Finally, ear length was also measured from the notch between the tragus and anti-tragus to the tip.

Blood samples were collected in tubes containing EDTA from jugular vein using disposable syringes. Hematological analyses were carried out according to the methods of Dacie and Lewis (1984). Blood was used to estimate total count of WBCs and RBCs using Neubauer technique, Packed Cell Volume, differential count of white blood cells and Hemoglobin concentration.

## RESULTS

Table 1 shows the hematological values for Dorcas gazelles, waterbuck, reedbuck and warthog. Dorcas gazelle 1, 2 showed more similar haematological values of the blood. The values of Reedbuck was comparable to that Dorcas gazelle except for PCV, monocytes and eosinophils. The characteristic feature of blood parameter of Waterbuck was the high level of PCV (75) and haemoglobin (85). The main feature of haematological parameter of Warthog was decreased values of WBCs and RBCs and increase of Hb (115%). Table 2 shows the values of measurement of some parts of the body of the above wild animals. Waterbuck showed high body length and Warthog showed low body length.

**Table 1.** Normal values of blood parameters of the dorcas gazelle, reedbuck, waterbuck and warthog

Animal	Dorcas gazelle 1	Dorcas gazelle 2	Reedbuck	Waterbuck	Warthog
Red blood cells ( $\times 10^4$ cell/mm <sup>3</sup> )	10.000.000	12.000.000	13.900.000	7.400.000	9.240.000
White blood cells ( $\times 50$ cell/mm <sup>3</sup> )	4.000	4.400	5.300	8.650	2.250
Packed Cell Volume (%)	28	30	60	75	51
Haemoglobin (%)	60	66.6	52	85	115
Lymphocyte (%)	58	57	68	57	40
Neutrophil (%)	25	27	20	35	58
Monocyte (%)	9	9	2	1	1
Eosinophil (%)	6	5	10	7	1
Basophil (%)	2	2	0	0	0

**Table 2.** The length in centimeter (cm) of some parts of the body of the waterbuck, reedbuck, warthog and dorcas gazelle

Animal	Waterbuck	Reedbuck	Warthog	Dorcas Gazelle
Ear length (cm)	28	5	5	7
Face length (cm)	51	20	9	25
Hind limb length (cm)	116	76	49	59
Fore limb length (cm)	111	64	43	55
Girth (cm)	150	68	60	80
Tail length (cm)	40	8	25	10
Upper tusk (cm)	-	-	3	-
Lower tusk (cm)	-	-	2	-

## DISCUSSION

There are very few data on blood analysis of wild animals in Africa. The blood obtained from wild animals they either be shot or immobilized. Most data are within limited reports (Fay, 1972). The blood picture is influenced in some wild animals by age, sex, pregnancy or lactation (Barakat and Abdel.Fattah, 1971; Wingfield and Tumbleson, 1973). This study shows significant relationships between dorcas gazelle, waterbuck, reedbuck and warthog in blood parameters. Although these parameters are often different in each of those three species of antelope, the results suggest

that difference among these species may be due to genetic variation inside one species, which may have its transitional effect on these parameters. Also the effect of environment may have its role as the present examined animals were living in zoo associated with the College. The different length of body regions was due to different age in the different species, the age of Dorcas gazelles was about 2 years, waterbuck and reedbuck from 2-3 years and the warthog from 8- 10 month. The value of Haemoglobin concentration in two Dorcas gazelles agrees with that found by Rietherk et al. (1994). According to Bush et al. (1981), the RBC count varies with age, sex, physiological state, temperature, time of the day and season. The blood parameters in Reedbuck were recorded by Drevemo et al. (1974) in some wild ruminants (Thomson's gazelle, Grant's gazelle, Blue wildebeest, Hartebeest, Eland, Buffalo and Giraffe, the values obtained are not in accord with the present findings. Generally the variation in haematological values associated with documented the normal values of wildlife environment should be taken in consideration when interpreting their results.

## CONCLUSION

Results of this study were on the blood parameters and body measurement in some wild animals, herbivorous (Dorcas gazelle, Reedbuck and Waterbuck) and omnivorous (Warthog).

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