

## A new Duiker from Rwanda

(*Mammalia, Bovidae*)

BY Colin GROVES AND Peter GRUBB

(Department of Physical Anthropology, University of Cambridge  
and Department of Zoology, University of Ghana)

### INTRODUCTION

The recent revival of interest in the systematics of larger mammals has revealed the incompleteness of our knowledge of their geographic variation and distribution. In this paper we report the existence of a distinctive new subspecies of *Cephalopus*, previously unknown because of its restricted range, coupled with the misidentification of specimens in collections.

The late Prof. H. Schouteden, in his checklist of the mammals of the countries now known as Zaïre, Rwanda and Burundi (1944 - 1946), recorded what he called « *Cephalopus spadix* (?) » from Rwanda. This locality record has since been added without comment to those previously known for *C. spadix* though it is some 1,000 km from the only securely known habitat of the species in the Usambaras, Uthungurus and Mt Kilimanjaro (Tanzania). It is noteworthy, however, that Schouteden queried the specific identity of his Rwandese example, a point missed by subsequent authors (e.g. Haldenorth, 1963).

In the course of a revision of the genus *Cephalopus* (in preparation), we have been able to study the « *C. spadix* (?) » specimen mentioned by Schouteden, together with others from Rwanda which had been registered in the Museum for Central Africa, Tervuren, since the publication of the latter's checklist. All specimens were sent to the museum by M. Arthur Lestrade. We found that they represent two *C. spadix* but an unnamed form of the smaller species *C. nigriceps*, widespread in Central Africa. In recognition of its collector we name the new subspecies:

**Cephalophus weynsi lestradei** subsp. nov.

Type: subadult male, Terruren R.G. 16.588 (skin) and 17.146 (skull).

Type locality: Kuwiringingi, Rugege forest, near Astrida, Rwanda; approx. 2°30'S - 29°25'E.

Material: 11 skins and 4 skulls, as listed below; all in Terruren.

16588 (skin) and 17146 (skull), evidently of same individual (according to catalogue): adult male, holotype;

22117 (skin): adult, sex unknown;

22118 (skin): adult, sex unknown;

22119 (skin): adult, sex unknown;

22120 (skin): adult, sex unknown;

22386 (skin and skull): young adult male;

22420 (skin): adult, sex unknown;

22421 (skin): young adult, sex unknown;

22430 (skin): juvenile, sex unknown;

23053 (skull): adult male;

23054 (skin): adult, sex unknown;

23055 (skin and skull): young adult female.

Diagnosis: A subspecies of *C. weynsi* of very dark colour, more or less dark grey-brown with varying degrees of red; a broad, well-marked but not sharply-bordered dorsal stripe, beginning on shoulders and extending to root of tail. Size less than *C. w. weynsi*, but greater than in *C. w. johnstoni*.

Distribution: According to informants at Rubengere, this duiker is found on the western slope of the ridge between the Zaïre and Nile basins (Lestrade, pers. comm.). All specimens in the Terruren museum are labelled « forest near Astrida », « Kuwiringingi », or « Rugege forest »; evidently these represent the same locality.

Elbl, Rahm, and Mathys (1966) record « *C. aff. spaldix* » (three specimens) from the forests of Uinka (2°30'S - 29°12'E) presumably also referable to *lestradei* and virtually topotypical.

Linnberg (1917) describes a « melanistic » skin from Kabwe, Rutshuru, the type locality of *C. w. rutshuricus*. His description indicates an animal not so intensely blackened as the Rwanda subspecies, but the position of Kabwe suggests it may be in or near the zone of intergradation of *lestradei* with neighbouring forms.

## DESCRIPTION

Overall colour dark grey-brown, suffused with red to a greater or less degree. The black dorsal stripe begins as a diffuse black area on the nape; it becomes thicker and more striking, though still not sharply-bordered, along the back, and on the rump tends to spread out diffusely, merging into the generally dark tones of the buttocks and haunches. The tail is thin, black, with a small but well-marked black and white terminal tuft. The intercornual crest (as indicated by 3 skins; the other 8 skins lack the head and neck) is well-developed and reddish-chestnut in colour, contrasting very strikingly with the brownish-black colour of the forehead. The hair on the neck is extremely sparse and very short; in 8 of the 9 skins in which sufficient of the neck remains, the hair-stream is reversed along the nuchal midline.

On the flanks and dorsum, the hairs are whitish or light grey at the base, followed by a black band, an ochery band, and (generally) a very short black tip. In the region of the dorsal stripe, the ochery band is absent and the basal portion is much shorter and less pale. In those skins in which the red tones are most marked (such as R.G. 22117 in which the dorsum is best characterised as a deep red-brown), the black medial bands of the hairs are dark grey; and not very well distinguished from the ochery bands.

The underside is dark grey; the groin and axillae are pale yellow-grey. Large inguinal pouches are present on all skins.

The legs are darker, browner than the body, becoming nearly black at the back of the hoofs. The main hoofs, both fore and hind, are 27 to 28 mm long; the false hoofs are 9 - 11 mm on the forefeet, 8.5 - 9 mm on the hindfeet (4 skins).

Two skins (R.G. 22430 and 22386) are those of half- or three-quarter-grown juveniles. In them, the contrast between the bands of the hairs is more striking than in the adults, with the ochery band being red-orange in tone. The overall effect is speckled, agouti: adults are all much duller, with no speckling.

## COMPARISONS

The resemblance of this race to *C. spaldix* is superficial only. Both are very dark, but *C. spaldix* is darker than *C. weynsi lestradei*, being a deep brown colour with little hint of red, and the dorsal stripe is much less clearly defined; the groin is white, the intercornual crest

narrow rather than chestnut; and there are apparently no inguinal glands. In both forms the neck-hair is very short and sparse. The skulls are quite different: that of *C. spadic* is considerably bigger with a flat forehead, very deep lacrimal fossae, and a deeply incised median notch on the hind border of the palate; in *C. w. lestradei*, in common with other races of *C. weynsi*, the forehead is well rounded, the lacrimal fossae are fairly shallow, and the median palatal notch is scarcely in advance of the two lateral ones. The horn-bases are swollen in races of *C. weynsi*, which is only slightly the case in *C. spadic*. In the females, the horns are large in *C. spadic* (not much shorter than those of males) whereas in *C. weynsi* (including the single female skull of *C. w. lestradei*) they are short, only one-third to one-half the length of the males.

In previously known subspecies of *C. weynsi*, the overall colour is a rather pale, washed-out reddish ochre, with rarely more than a slight darkening along the middle at the back. The limbs, for most of their length, are dark grey, with a white streak on the inner side of the upper segment of the forelimb. The underside is a paler version of the upper side, with often a greyish suffusion down the midline. The banding on the hair is very poorly marked, except in the young which are darker, browner and more speckled in appearance.

There appear to be two other subspecies of *C. weynsi*: *C. w. johnstoni* from extreme eastern Zaïre to Western Kenya; and *C. w. weynsi* from Zaïre, distinguishable by size alone. The latter is now known to extend south as far as the vicinity of Pangé, 3° S (Rahm, 1966), and there is a population still further south on Mt Kabobo, 5° S (Pigou-gine, 1966), which provisionally may be referred to *C. w. weynsi*. In spite of its wide range in Zaïre, *C. w. weynsi* exhibits no perceptible geographic variation.

We are unable to distinguish *C. ignifer* Thomas 1903, *C. weynsi rubricinctus* Lönnberg 1917 and *C. barbertoni* Kershaw 1923 from *C. johnstoni* Thomas 1901 (New synonyms, details of which will be reported elsewhere).

The hairs of the young of *C. w. weynsi* and *johnstoni* are, like those of *lestradei*, more contrastingly banded than the adults; but in these cases the overall effect is darker and browner than in the adults.

In cranial dimensions, *lestradei* lies between *weynsi* and *johnstoni*. Measurements of the adult *lestradei* skulls are mostly outside the ranges for those of the larger *weynsi* males, though the two are com-

parable in both tooth row length and horn length (table 1). The single female is not fully adult but nevertheless is comparable to female *weynsi*, though with a somewhat shorter rostral region.

*Lestradei* is nevertheless larger than *johnstoni*, measurements of greatest length and tooth row length for males being greater than any for male « *barbertoni* » (Mt Elgon); the single female is larger in all measurements when compared with fully adult female « *barbertoni* » (table 1).

To the west of the lower Congo (Zaïre) river occurs *C. callipygus*, a species closely related to *C. weynsi* but distinguished by a unique colour pattern, not easy to relate to that of *C. weynsi*. For this reason we are at present unwilling to consider the two to be conspecific, in the manner of Schwarz (1920).

The species, or subspecies-group, *harveyi*, united with *weynsi* in a species by St-Léger (1936) and Hattenorth (1963), is a rather different animal, and more closely related to *C. nigritrons*, a species sympatric with *C. weynsi* and *C. callipygus* over most of their ranges. The *C. weynsi callipygus* group are clearly distinguished from the *C. nigritrons harveyi* group by the very short-haired neck, the dull colouration with a tendency to form a dorsal stripe, the lack of a black face-blaze, the wholly red intercornual crest with no black in it, the tendency for reversal of the hair-stream along the midline of the neck (seen in over 50% of skins), and features of the skull and horns. Some of the characteristics of *C. weynsi* are shared by *C. spadic* and its giant relative *C. sibiriculator*, so that the superficial similarities between *C. spadic* and *C. w. lestradei* can be interpreted as the result of independent trends towards melanism — carried further in the former than in the latter — in two species which are not very distantly related.

#### MELANISM IN DUikers

There appear to have been four independent trends towards dark colouration in *Cephalophus*, three of them within the short-haired-necked group. The process has been taken furthest in the West African *C. niger* which is almost jet black; this is distinct enough to be able to coexist with *C. ogilbyi*, a non-melanistic member of the same group, as well as with *C. sibiriculator*. Next comes *C. spadic*, also different enough to rank as a distinct species but not sympatric with any other member of the same group. Least intensely melanised is *C. weynsi lestradei*, only subspecifically distinct.

Outside this group, melanism is found also in *C. walkeri*, still known by only a single skin from Malawi. Its relationships are obscure, and likely to remain so as long as only one skin from an animal of uncertain age and without skull is known; it may or may not be a melanistic individual of *C. natalensis* as suggested by St-Léger (1936).

The forests of Rwanda are relatively isolated and of a humid montane type and these factors may partly account for the differentiation of a distinctive melanistic subspecies of duiker. It may be observed that a melanistic bushbaby, *Galago crassicaudatus lestradei* Schouteden 1953, is also known from Rwanda. There has been no review of endemicity at the subspecific level for the area, but few other subspecies of mammals appear to be restricted to Rwanda.

POSTSCRIPT

This duiker is still hunted in Rwanda; the skins until recently were tanned in Gisenyi and sold as mats. This fact, together with its restricted distribution and the intense pressure of the human population on all remaining wilderness areas in Rwanda, suggest that it may already be severely threatened with extinction.

ACKNOWLEDGEMENTS

We are very grateful to Mr. Arthur Lestrade for information on the duikers he collected; to Dr. D.F.E. Thys van den Audenaerde for permission to study specimens under his charge; and to the staff of the Mammal Section, British Museum (Natural History) for access to comparative material.

Table 1. — Measurements of adult duiker skulls (means and ranges)

	Greatest length	Basal length	Upper tooth row length	Braincase width	Preorbital length	Postorbital length	Horn length
<i>Cephalophus weynsi weynsi</i>							
♂ ♂ (n = 9)	192.4 (195-204)	117.8 (173-184)	55.8 (53-59)	66.2 (74-72)	106.1 (102-110)	78.0 (76-80)	100.8 (87-111)
♀ ♀ (n = 10)	199.0 (195-207)	175.4 (172-179)	56.05 (53-59)	62.2 (60-64)	106.7 (102-112)	76.9 (71-84)	39.5 (33-55)
<i>C. w. johnstoni</i> (Mt. Elgon)							
♂ ♂ (n = 6)	179.7 (174-183)	161.2 (156-165)	50.3 (47-51)	63.2 (61-66)	92.5 (89-99)	73.2 (70-76)	93.6 (88-107)
♀ ♀ (n = 3)	131.0 (176-185)	161.3 (156-164)	51.0 (50-52)	57.0 (56-58)	95.7 (92-98)	69.3 (68-71)	36 (35-37)
<i>C. w. lestradei</i>							
MRAC 22.386 ♂	185	164	53	59	99	73	99
MRAC 17.146 ♂	191	170	58	63	102	75	101
MRAC 23.053 ♂	193	173	54	61	100	71	107
MRAC 23.055 (subadult ♀)	c.193	-	59	63	102	c.72	56
<i>C. spadix</i> (Usambara Mtns)							
BM 19.5.6.1 ♂	206	187	62	63	109	81	92
BM 19.5.6.2 ♂	220	195	64	64	118	86	105
Berlin (no no.) ♂	223	199	68	59	120	87	110
BM 19.2.3.2 ♀	217	196	63	62	117	84	71
<i>C. spadix</i> (Kilimanjaro)							
USNM 34707 ♂	235	-	67	-	-	-	-
Nairobi 3394 ♂	226	199	65	68	120	86	84

BIBLIOGRAPHY

- EHLB, E., RAHM U.H. & MATHYS, G., 1966. — Les mammifères et leurs  
tiques dans la forêt du Rugege (République Rwandaise). —  
*Acta tropica*, 23, 223 - 263.
- HULTENORIN, T., 1963. — Klassifikation der Säugetiere : Artiodactyla  
1 (18). — *Handbuch der Zoologie*, 8 (32), 1 - 167.
- LÖNNBERG, E., 1917. — Mammals collected in Central Africa by Captain  
E. Arrhenius. — *K. svenska Vetensk. Akad. Handl.*, 58, n° 2,  
110 pp.
- PRIGONNE, A., 1960. — La faune ornithologique du massif du Mont  
Kabobo. — *Ann. Mus. R. Congo Belge*, in-8°, 85, 7 - 46.
- RAHM, U., 1966. — Les mammifères de la forêt équatoriale de l'est du  
Congo. — *Ann. Mus. R. Afr. Centr.*, in-8°, 149, 39 - 121.
- ST-LÉGER, J., 1936. — A key to the species and subspecies of the sub-  
genus *Cephalophus*. — *Proc. zool. Soc. Lond.*, 1936, 209 - 228.
- SCHOOTEDEN, H., 1944 - 1946. — De zoogdieren van Belgisch Congo en  
van Ruanda-Urundi. — *Ann. Mus. R. Congo Belge*, in-4°, (2),  
SCHOOTEDEN, H., 1953. — Un Lémurien noir du Ruanda. — *Rev. Zool.  
Bot. afr.*, 48, 111 - 114.
- SCHWARZ, E., 1920. — Haustiere aus West- und Zentralafrika. — *Ergeb-  
nisse der zweiten deutschen Zentral-Afrika-Expedition 1910-  
1911*, 831 - 1044.