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PARASITES OF SOUTH AFRICAN WILDLIFE. VI. HELMINTHS OF BLUE DUIKERS, *CEPHALOPHUS MONTICOLA*, IN NATAL

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ABSTRACT

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The helminths of 3 blue duikers, *Cephalophus monticola*, from 3 nature reserves in Natal were collected, counted and identified. *Taenia hydatigena* larvae, a race of *Cooperia rotundispiculum, gongylonema* sp., *Setaria* sp., *Trichostrongylus anomalus, Trichostrongylus angistris, Trichostrongylus falculatus* and *Trichostrongylus rugatus* appear to be new parasite records for blue duikers in South Africa.

INTRODUCTION

Blue duikers are the smallest antelope found in Southern Africa, the males standing approximately 30 cm at the shoulder, with a mass, on average, of 4 kg. Females are slightly larger and have a mass of about 4,5 kg. Several subspecies occur, of which *Cephalophus monticola monticola* occurs in South Africa. They are found only in dense forests (Dorst & Dandelot, 1972; Smithers, 1983) and in South Africa are limited in their distribution to a narrow coastal strip extending from the Umfolozi River in Natal south to the vicinity of George in the Cape Province. Because of the rapid destruction of their specialized habitat they are becoming rare.

Blue duikers are exclusively browsers that feed on fine shoots and leaves, and particularly, on fallen fruits. They are apparently never found far from water (Smithers, 1983). Because of their elusive nature, little is known about their ecology.

Before 1986, the only recorded parasite from South African blue duiker was *Moniezia expansa* (Gough, 1908). The parasites of a blue duiker from the Tsitsikama Forest National Park (TFNP), eastern Cape Province, were listed by Boomker, Horak & De Vos (1986) and the helminths of another 3 animals, which have since become available, are recorded here.

MATERIALS AND METHODS

Collection sites

Kenneth Stainbank Nature Reserve (KSNR)

The reserve comprises 214 ha and is sited along the kloofs and gorges of the Little Umhlatuzana River, 14 km from the Durban city centre. The reserve contains Durban's largest remaining coastal forest and is the only sanctuary that contains a viable population of red duiker in an urban area. Blue duiker and bushbuck also occur in this reserve.

Kloof

Kloof is one of the northern suburbs of Durban, and because of the surrounding indigenous forest, blue duiker are sometimes found. Few, if any, other antelope occur here, because human habitation constitutes a danger to their existence.

Queen Elizabeth Park (QEP), Pietermaritzburg

Pietermaritzburg (29° 58′ S; 29° 52′ E) is situated in a region where the vegetation is classified as Ngongoni Veld with patches of Highland Sourveld and Dohne Sourveld at the higher altitudes (Acocks, 1988). The area is hilly, and indigenous forest occurs on the lower slopes and in the valleys. The summers are hot and often humid, and the winters are cold. Frost sometimes occurs.

The QEP comprises only 93 ha and is situated around the Natal Parks, Game and Fish Preservation Board headquarters, 8 km to the west of Pietermaritzburg. Blue duiker is one of the few species of antelope that occur in this reserve.

The antelope

One blue duiker was found dead in the KSNR, another was killed by a car in Kloof and yet a third was found dead in the QEP.

Parasite collection

All 3 the antelope were females and were processed for helminth recovery as described by Boomker, Horak & De Vos (1989). Digests of the gastrointestinal mucosa were, however, not done on the blue duiker from Kloof.

RESULTS

An amended parasite list for blue duikers is provided in Table 1, and the numbers of helminths recovered from each of the antelope are listed in Table 2.

Kenneth Stainbank Nature Reserve

Specimens of *Trichostrongylus angistris* and a few unidentifiable tapeworm fragments were the only parasites recovered. The nematode species constitutes a new recored for these antelope.

Kloof

One larval cestode and 5 nematode species were recovered from the blue duiker from this locality.

Queen Elizabeth Park

A *Cooperia rotundispiculum* race (Boomker, 1990) and *Trichostrongylus anomalus* which were recovered from this animal represent new parasite records for blue duikers.

DISCUSSION

The blue duiker, previously examined, from the Tsitsikama Forest National Park, Cape Province, (TFNP) had the largest helminth burden, but only 1 helminth species was recovered (Boomker *et al.*, 1986). The blue duiker from the KSNR harboured fewer worms than the animal from the TFNP, and

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TABLE 1 Amended list of the helminth parasites of blue duikers in the Republic of South Africa, with reference to the first record and the author of the description used to assist with the identification

Helminth species	First record	Identification
Cestodes		
Moniezia expansa (Rudolphi, 1810) R. Blanchard, 1891	Gough, 1908	Wardle & McLeod, 1952
Taenia hydatigena larvae	This study	Verster, 1969
Nematodes		
A race of *Cooperia rotundispiculum* Gibbons & Khalil, 1980	This study	This study
Gongylonema sp.	This study	Yorke & Maplestone, 1926
Setaria sp.	This study	Yeh, 1959
Trichostrongylus angistris Boomker & Vermaak, 1986	This study	Boomker & Vermaak, 1986a
Trichostrongylus anomalus Boomker & Vermaak, 1986	This study	Boomker & Vermaak, 1986b
Trichostrongylus axei (Cobbold, 1879) Looss, 1905	Boomker *et. al.*, 1986	Ransom, 1911
Trichostrongylus falculatus Ransom, 1911	This study	Ransom, 1911
Trichostrongylus rugatus Mönnig, 1925	This study	Mönnig, 1925

TABLE 2 Helminths recovered from blue duikers from different localities in South Africa

Locality and helminth species	Number of helminths recovered		
	Larvae	Adults	Total
Kenneth Stainbank (1 animal)			
Trichostrongylus angistris	0	21	21
Kloof (1 animal)			
Taenia hydatigena	5	#	5
Gongylonema sp. females	0	2	2
Setaria sp. females	0	2	2
Trichostrongylus angistris	0	2	2
Trichostrongylus falculatus	0	1	1
Trichostrongylus rugatus	0	1	1
Trichostrongylus spp. females	—	6	6
Queen Elizabeth Park (1 animal)			
Cooperia rotundispiculum race	0	16	16
Trichostrongylus anomalus	—	1	1
Trichostrongylus angistris	—	10	10
Trichostrongylus spp. females	—	2	2
Total burden (3 antelope)	5	64	69
Mean burden	2	21	23

— = Not applicable
= Not found in ruminants

again, only 1 helminth species was recovered. The blue duiker from Kloof had the largest number of helminth species yet recorded, but the total burden was smaller than that of the blue duikers from the 3 other reserves. The blue duiker from QEP had the second highest burden. The size of the burdens of all the blue duikers, however, are insignificant pathologically and would not adversely affect the animals in any way.

The TFNP falls within the non-seasonal rainfall area and optimal conditions for *Trichostrongylus axei* occur from March to September, a period of 7 months (Reinecke, 1983). The fact that this nematode was recovered indicates a previous contamination by domestic stock of the TFNP, and the parasites have probably subsequently been maintained by blue duikers and bushbuck. However, since the parasites of only 1 antelope from the TFNP have been collected, no further comments can be made.

The antelope from Natal harboured the largest variety of worms, most of which were *Trichostrongylus* spp. *T. anomalus* and *T. angistris* are parasites recently described (Boomker & Vermaak, 1986a, b) and nothing is known about their epidemiology. *Trichostrongylus falculatus* and *Trichostrongylus rugatus* are parasites of sheep in the summer rainfall areas, which includes the whole of Natal (Reinecke, 1983). Because so few blue duikers were available, no further comments can be made about the epidemiology of their nematode parasites.

The *Setaria* and the *Gongylonema* recovered from these animals could not be identified to species level, but both genera are known to occur in the other duiker species.

Taenia hydatigena is a common tapeworm of dogs (Verster, 1969) and larvae usually occur in ruminants. As Kloof is a residential area, it is not surprising that the duiker examined from there was infested.

Jooste (1984) recovered *Cooperia chabardi* (= *Cooperia chabaudi,* R. A. Jooste, personal communication, 1986), *Haemonchus lawrencei, Trichostrongylus axei,* a *Trichuris* sp., *Moniezia expansa* and *Stilesia hepatica* from 3 blue duikers from the eastern part of Zimbabwe. The highest burden was 38 worms, which is similar to the individual burdens of the 3 blue duikers in this survey but smaller than the burden of the duiker from the TFNP.

From the limited data available, it appears that blue duikers do not harbour large burdens, nor a large variety of helminths. This is probably because of their selective feeding habits and, to a lesser degree, the fact that they are solitary for most of their lives. Furthermore, the animals examined occurred in nature reserves that do not contain a large population or variety of antelope and the extent to which blue duiker may be infested with worms from other artiodactylids remains unknown.

Because these are incidental parasite collections, made as the animals became available, few comments on the biology of the helminths can be made. With the exception of the *Setaria* and *Gongylonema* spp., however, the nematodes listed in Table 1, should, at least at this stage, be considered definitive parasites of blue duikers.

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