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ARTHROPOD PARASITES OF COMMON REEDBUCK, *REDUNCA ARUNDINUM*, IN NATAL

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ABSTRACT

HORAK, I. G., KEEP, M. E., FLAMAND, J. R. B. & BOOMKER, J., 1988. Arthropod parasites of common reedbuck, *Redunca arundinum*, in Natal. *Onderstepoort Journal of Veterinary Research*, 55, 19–22 (1988)

Twenty-five common reedbuck, *Redunca arundinum*, from the Himeville region, 21 from the Eastern Shores Nature Reserve, 4 from the Charter's Creek Nature Reserve and 2 from the St Lucia Game Park, Natal were examined for arthropod parasites. The reedbuck from Himeville were infested with 4 ixodid tick species, those from the Eastern Shores with 7 species and those from Charter's Creek and St Lucia with 6 species. *Rhipicephalus evertsi evertsi* was the only tick common to the 4 localities.

The lice *Damalinia reduncae* and *Linognathus fahrenholzi* were present on the reedbuck from each locality.

In addition 3 red duiker, *Cephalophus natalensis*, and 2 bushbuck, *Tragelaphus scriptus*, from the Charter's Creek Nature Reserve plus 2 impala, *Aepyceros melampus*, from the St Lucia Game Park were examined for ixodid ticks. The red duiker were infested with 3 tick species and the bushbuck and impala with 4 each.

INTRODUCTION

Common reedbuck *(Redunca arundinum)* are medium-sized antelope, the adult males having a mass of about 80 kg and females 70 kg (Smithers, 1983). The southern subspecies *Redunca arundinum arundinum* occurs in southern Africa as far north as southern Angola and the Zambezi River (Howard, 1983), but because of their specialised habitat requirements their distribution within these limits is patchy and discontinuous. In South Africa they are found in the central parts of the Transvaal and are widespread in Natal below 2 100 m. They are also present in the Transkei and east of the Komgha District in the Cape Province (Smithers, 1983).

Reedbuck have 2 essential habitat requirements, namely cover in the form of long grass, reedbeds or rocks, and a water supply. They avoid woodland but will tolerate the occurrence of woody vegetation within their grassland habitat. They live in pairs or family parties and are territorial. They do not form herds. When food and water are readily available reedbuck are nocturnal, but they may become more active during daytime in winter. They are almost exclusively grazers although they may browse in winter when the nutritive value of the grasses is low. Thus they respond to favourable agricultural practices where pastures are artificially irrigated during the winter months. They can take advantage of this high quality grazing all the year round, which may result in abnormally high populations being present. They are not strictly seasonal breeders: a single young may be born at any time of the year, after a gestation period of about 7,5 months.

Howard (1983) required culled reedbuck for his extensive 3 year study of the species and the opportunity was taken during the latter part of this project to collect material for parasite investigation. Permission was also obtained to remove 27 reedbuck from the eastern and western shores of Lake St Lucia to investigate their parasites. The arthropod parasites recovered from these animals are discussed in this paper.

The ixodid ticks of common reedbuck from countries in Africa outside the Republic of South Africa are recorded by Theiler (1962) and Walker (1974), while those occurring in South Africa are listed by Theiler (1962) and Baker & Keep (1970). The lice infesting these animals are listed by Ledger (1980).

MATERIALS AND METHODS

Study sites

Himeville

The animals examined were taken from 5 adjacent farms near Himeville (29° 43′ S; 29° 36′ E) in Natal. The area is situated between 1 550 and 2 000 m above sea level. The total rainfall for the 13 months during which the reedbuck were collected was 1 220 mm, most of which fell between October and March. The study site lies within the Highland Sourveld bioclimatic groups (Phillips, 1973). According to Acocks (1975) it supports forest and scrub forest, but very little of this now remains. The dominant vegetation type today is *Themeda-Apochaete* grassland; artificial, often irrigated, annual permanent pastures, and croplands of maize and Japanese radish. Natural woody plants are principally *Leucosidea* scrub along the waterways and a few patches of *Protea* savanna on hill slopes. Exotic species are mainly gums *(Eucalyptus* spp.), wattle *(Acacia* spp.) and pines *(Pinus* spp.).

In addition to common reedbuck other antelope species occurring in the area are eland, *Taurotragus oryx;* mountain reedbuck, *Redunca fulvorufula;* grey rhebok, *Pelea capreolus;* oribi, *Ourebia ourebi;* blesbok, *Damaliscus dorcas phillipsi,* and common duiker, *Sylvicapra grimmia*. As the area is primarily utilized for farming, cattle, sheep, and to a lesser extent horses, are the principal large mammals, nearly all of which are regularly dipped in acaricidal compounds, at least in the summer months.

St Lucia

Most of the animals (21) from this area came from the Eastern Shores Nature Reserve. For comparative purposes 2 were taken from the St Lucia Game Park and 4 from the Charter's Creek Nature Reserve of Lake St Lucia.

The Eastern Shores Reserve occupies an area of approximately 250 km^2 at the southern end of the Mozambique coastal plain, between 27° 51′ and 28° 25′ S latitude and 32° 20′ and 32° 40′ E longitude. The habitat favoured by reedbuck consists of low-lying, seasonally inundated grassland, within the Zululand Palm Veld subdivision of Coastal Thornveld and Coastal communities (Acocks, 1975).

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TABLE 1 Arthropod parasites recovered from 25 reedbuck from the Himeville region of Natal

Arthropod species	Total numbers of arthropods recovered					Number of animals infested
Ixodid ticks	Larvae	Nymphae	Males	Females	Total	
Boophilus sp.	38	0	0	0	38	9
Ixodes sp.	110	8	0	2	120	9
Rhipicephalus evertsi evertsi	760	504	0	1	1 265	22
Rhipicephalus sp.	2	0	12	13	27	4
Total	910	512	12	16	1 450	
Lice	Nymphae		Adults		Total	
Damalinia reduncae	1 765		2 321		4 086	22
Linognathus fahrenholzi	136		320		456	14
Total	1 901		2 641		4 542	

TABLE 2 Arthropod parasites recovered from 21 reedbuck from the Eastern Shores Nature Reserve in Natal

Arthropod species	Total numbers of arthropods recovered					Number of animals infested
Ixodid ticks	Larvae	Nymphae	Males	Females	Total	
Amblyomma hebraeum	14	2	0	0	16	5
Amblyomma marmoreum	12	0	0	0	12	2
Boophilus decoloratus	250	4	4	0	258	10
Haempahysalis sp.	2	6	0	0	8	2
Rhipicephalus spp.	28	—	—	—	28	9
Rhipicephalus appendiculatus	—	6	4	0	10	5
Rhipicephalus muehlensi	—	6	2	0	8	4
Rhipicephalus evertsi evertsi	1 162	808	0	6	1 976	19
Total	1 468	832	10	6	2 316	
Lice	Nymphae		Adults		Total	
Damalinia reduncae	84		144		228	7
Linognathus fahrenholzi	16		10		26	4
Total	100		154		254	

TABLE 3 Arthropod parasites recovered from 6 reedbuck from the Charter's Creek Nature Reserve and the St Lucia Game Park

Arthropod species	Total numbers of arthropods recovered					Number of animals infested
Ixodid ticks	Larvae	Nymphae	Males	Females	Total	
Amblyomma hebraeum	34	0	0	0	34	1
Haemaphysalis sp.	46	6	0	0	52	2
Rhipicephalus spp.	7 400	—	—	—	7 400	6
Rhipicephalus appendiculatus	—	748	130	132	1 010	6
Rhipicephalus maculatus	—	252	0	0	252	4
Rhipicephalus muehlensi	—	84	2	0	86	3
Rhipicephalus evertsi evertsi	160	150	0	2	312	6
Total	7 640	1 240	132	134	9 146	
Lice	Nymphae		Adults		Total	
Damalinia reduncae	2		42		44	3
Linognathus fahrenholzi	32		8		40	1
Total	34		50		84	

The hottest month is February and the coolest July, and the total average rainfall is 1 109 mm. The wettest months are January to April and the driest July to September.

The population density of reedbuck on the Eastern Shores of Lake St Lucia (0,46 per ha) appears to be amongst the highest in Africa (Venter, 1979). Besides reedbuck, other major mammal species occurring in the Eastern Shores Reserve include hippopotamus *(Hippopotamus amphibius)*, numbering approximately 600; bushpig *(Potamochoerus porcus)*, and buffalo *(Syncerus caffer)*, numbering about 40 at the time of this study.

The St Lucia Game Park is an enclosed area at the southern end of the Eastern Shores Reserve containing, besides reedbuck, waterbuck *(Kobus ellipsiprymnus)*; blue wildebeest *(Connochaetes taurinus)*; impala *(Aepyceros melampus)*, and warthog *(Phacochoerus aethiopicus)*.

The Charter's Creek Nature Reserve lies immediately west of the Eastern Shores Reserve and consists of similar habitat to this reserve. Other mammals present there

TABLE 4 The tick burdens of red duiker, bushbuck and impala from the north-eastern regions of Natal

Date slaughtered	Numbers of ticks recovered																					
	Amblyomma hebraeum	*Boophilus decoloratus*				*Haema-physalis* spp.	*Haemaphysalis parmata*			*Haemaphysalis silacea*			*Rhipicephalus* spp.	*Rhipicephalus appendiculatus*			*Rhipicephalus muehlensi*			*Rhipicephalus evertsi evertsi*	
	L	L	N	M	F	L	N	M	F	N	M	F	L	N	M	F	N	M	F	L	N
Red duiker, Charter's Creek Nature Reserve																					
March 1983	16					104	48	64	8				256				64				
March 1983	8					8	40	8					272				88				
July 1984*							10	20	6				32				60	2			
Bushbuck, Charter's Creek Nature Reserve																					
March 1983						24	72	40	26	8	2	2	384				176	99	74		
March 1983	56					120	32				6		1 760				368	114	76		
Impala, St Lucia Game Park																					
May 1984		16	4	12	20								1 900	28	80	112	4	2		116	92
May 1984**		36	30	18	16								1 664	16	4	6		2		48	28

* *Amblyomma marmoreum* Larvae 2; *Rhipicephalus maculatus* Nymphae 8
** With the exception of this animal, which was a juvenile male, all the other antelope were adult males

L = Larvae
N = Nymphae
M = Males
F = Females

include bushbuck *(Tragelaphus scriptus);* nyala *(Tragelaphus angasii);* common duiker and steenbok *(Raphicerus campestris).* The reedbuck density there is much higher (0,86 per ha) than in the Eastern Shores Reserve.

Survey animals

At Himeville 2 reedbuck (1 adult and 1 subadult) were shot each month for 13 consecutive months from May 1983–May 1984. Two to 4 reedbuck were shot at 3–4 monthly intervals in the Eastern Shores Nature Reserve from March 1983–August 1984. Two reedbuck were shot in the St Lucia Game Park during May 1984 and 4 in the Charter's Creek region during August 1984.

In addition to the reedbuck, 3 red duiker, *Cephalophus natalensis,* and 2 bushbuck in the Charter's Creek region, and 2 impala in the St Lucia Game Park, were shot and examined for parasites.

Parasite recovery

Only 1 half of each animal was processed for arthropod recovery, otherwise the animals were treated as described by Horak, Meltzer & De Vos (1982). The tick burdens of these animals were determined as described by Horak, Potgieter, Walker, De Vos & Boomker (1983).

RESULTS

The parasite burdens of the 3 groups of reedbuck and of the red duiker, bushbuck and impala are summarized in Tables 1–4.

Twenty-five of the 26 reedbuck from Himeville were examined for ectoparasites. These animals harboured 4 ixodid tick species, of which *Rhipicephalus evertsi evertsi* was the most abundant and prevalent. With the exception of the 25 adult *Rhipicephalus* sp. from the lower legs and feet of the 2 animals examined during July 1983, only 3 adult ticks were recovered. The total tick burdens of the animals were also very low and no pattern of seasonal abundance could be determined.

Seven ixodid tick species were recovered from the reedbuck examined in the Eastern Shores Nature Reserve. *R. evertsi evertsi* was again the most abundant and most prevalent tick. Only 16 adult ticks were recovered and the total tick burdens of the reedbuck were low.

The reedbuck from the St Lucia Game Park and the Charter's Creek Nature Reserve were infested with 6 tick species. The total tick burdens of these animals were higher than those of the reedbuck from the other localities and they also harboured more adult ticks.

The lice *Damalinia reduncae* and *Linognathus fahrenholzi* were recovered from reedbuck examined at each of the study sites.

The red duiker were infested with 3 tick species, and the bushbuck and impala with 4 each.

DISCUSSION

In addition to the ticks we recovered from the reedbuck Baker & Keep (1970) list *Ixodes pilosus, Haemaphysalis aciculifer, Haemaphysalis silacea, Rhipicephalus pravus* and *Rhipicephalus simus* as being found on animals in Natal.

One of the reasons for determining the parasite burdens of the reedbuck in the Himeville district was to ascertain whether they served as a reservoir of ticks that could infest the domestic livestock utilizing the same pastures. The fact that fewer than 1 500 ticks in total

were recovered from the 25 reedbuck examined indicates that in this particular habitat they pose no threat to domestic animals.

The animals from the Eastern Shores Nature Reserve, although infested with a greater variety of tick species than those from Himeville, also harboured only small numbers of ticks of which very few were adult. This led us to believe that the reedbuck could be a tick resistant antelope species similar to the blue and black wildebeest (Horak, De Vos & Brown, 1983). It is, however, possible that the Himeville and Eastern Shores localities are situated in regions of low tick infestation and consequently the reedbuck from the St Lucia Game Park and Charter's Creek Nature Reserve, which we assumed to have higher tick populations, were examined. These animals harboured considerably larger numbers of ticks than the other reedbuck, which indicates that where reedbuck are found in regions of high tick abundance they are likely to carry fairly large numbers of these parasites. Although the reedbuck and impala were examined during the same month in the St Lucia Game Park, the reedbuck harboured no *B. decoloratus* while both the impala were infested. In respect of other species the tick burdens of these animals were similar.

The red duiker were shot at Charter's Creek during March 1983 and July 1984 and the bushbuck during March 1983. All these animals were infested with *Haemaphysalis parmata*, while the reedbuck shot at this locality during August 1984 were not infested. This difference could be due either to seasonal differences in the abundance of the ticks, or differences in host preference, or differences in the habitat preferences of the antelope. Theiler (1962) comments on this tick as follows, "A Central and West African tick of the Guinean region that ranges into the forested highlands of Eastern Africa". The only record for South Africa she gives is Durban, Natal where she felt it may have been a recent introduction. The recovery of *H. parmata* from the animals at Charter's Creek indicates either that it has spread there from the Durban region or that originally it was more wide-spread than Theiler (1962) thought. The bushbuck seems to be a favoured host of this tick because Theiler's (1945) description of this species is based on material collected from a bushbuck in Uganda.

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