

Blood Parasites of Game in Zululand. Further Report.

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IN a previous * paper a list of blood parasites found in game shot in the Hlabisa and Lower Umfolozi magisterial districts of Zululand were placed on record. This work has been continued and the results of the examination of blood, spleen, and gland smears of one hundred and seventy-six game animals from the Lower Umfolozi District are mentioned.

The investigation showed that trypanosomes could be demonstrated only in three animals, namely two bushbuck and one kudu. The trypanosomes found in the bushbuck were identified as *T. vivax*. Some of the trypanosomes seen in the kudu were *T. vivax* and the others were distorted, making it impossible to be identified.

Further observations were made in connection with members of the Family Babesidae and Theileridae in various animals.

For convenience the tabulated results of the examination of the game smears from the Lower Umfolozi District are sub-divided into (i) Empangeni, (ii) Umfolozi River. A plus sign means that parasites were present, a minus sign that no parasites were found and a circle that the smear was badly prepared.

Table I.—List of wild animals from Empangeni showing parasites.

Table II.—List of wild animals from Umfolozi River showing parasites.

* Blood Parasites of Game in Zululand. 17th Report D.V.S. and A.I.,
Union of S.A., 1931.

BLOOD PARASITES OF GAME IN ZULULAND.

TABLE I.—EMPANGENI.

Date.	Species of Wild Animal.	Sincar Number.	Microscopical Examination.									Remarks.		
			Small Piroplasma.			Trypanosoma.			Microfilaria.					
			Blood.	Spleen.	Gland.	Blood.	Spleen.	Gland.	Blood.	Spleen.	Gland.			
6.12.29	Bushbuck..	519	+	+	+	-	-	-	-	-	-	-	-	-
6.12.29	" ..	545	+	-	-	-	-	-	-	-	-	-	-	-
6.12.29	" ..	546	-	+	-	-	-	-	-	-	-	-	-	-
6.12.29	" ..	551	+	-	-	-	-	-	-	-	-	-	-	-
23.12.29	" ..	586	+	+	+	-	-	-	-	-	-	-	-	-
23.12.29	" ..	601	-	-	-	+	+	+	+	-	-	-	-	<i>T. vivax.</i>
23.12.29	" ..	624	-	-	-	+	○	○	-	-	-	-	-	<i>T. vivax.</i>
6.12.29	Duiker....	518	+	+	+	-	-	-	-	-	-	-	-	-
6.12.29	"	532	-	+	-	-	-	-	-	-	-	-	-	-
6.12.29	"	534	-	+	-	-	-	-	-	-	-	-	-	-
6.12.29	"	564	+	-	-	-	-	-	-	-	-	-	-	-
23.12.29	"	591	+	+	-	-	-	-	-	-	-	-	-	-
6.12.29	Waterbuck	526	+	+	+	-	-	-	-	-	-	-	-	-
6.12.29	" ..	553	-	+	-	-	-	-	-	-	-	-	-	-
6.12.29	" ..	583	+	+	+	-	-	-	-	-	-	-	-	-
25.12.29	" ..	595	-	-	-	-	-	-	-	-	+	-	-	-
23.12.29	Kudu.....	602	+	-	-	-	-	-	-	-	-	-	-	-
23.12.29	"	609	+	+	-	-	-	-	+	-	-	-	-	<i>T. vivax.</i> Possibly other trypanosomes.
6.12.29	Warthog...	550	-	-	-	-	-	-	-	-	-	+	-	-
6.12.29	" ..	558	-	-	-	-	-	-	-	-	-	+	-	-
6.12.29	" ..	582	+	-	-	-	-	-	-	-	-	-	-	-
23.12.29	" ..	584	-	-	-	-	-	-	-	-	-	+	-	-
23.12.29	" ..	598	-	-	-	-	-	-	-	-	+	-	-	-

TABLE II.—UMFOLOZI RIVER.

Date.	Species of Wild Animal.	Smear Number.	Microscopical Examination.									Remarks.			
			Small Piroplasma.			Trypanosoma.			Microfilaria.						
			Blood.	Spleen.	Gland.	Blood.	Spleen.	Gland.	Blood.	Spleen.	Gland.				
18. 11. 29	Zebra.....	499	+	+	-	-	-	-	-	-	-	-	-	-	Koch's bodies.
29. 10. 29	Bushbuck..	446	+	-	-	-	-	-	-	-	-	-	-	-	
18. 11. 29	" ..	469	-	+	+	-	-	-	-	○	-	-	-	○	
18. 11. 29	" ..	486	○	+	+	-	-	-	-	○	-	-	-	-	
18. 11. 29	Duiker....	458	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	"	447	+	+	-	-	-	-	-	-	-	-	-	-	
18. 11. 29	"	478	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	"	494	○	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	"	501	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	"	506	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	Waterbuck	449	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	" ..	455	+	+	○	-	-	-	-	-	-	-	-	-	
18. 11. 29	" ..	471	+	+	+	-	-	-	-	-	-	-	-	-	
18. 11. 29	" ..	472	+	+	-	-	-	-	-	-	-	-	-	-	
18. 11. 29	Warthog...	491	-	-	-	-	-	-	-	+	-	-	-	-	
18. 11. 29	" ..	492	-	-	-	-	-	-	-	-	+	-	-	-	
18. 11. 29	" ..	497	-	-	-	-	-	-	-	-	-	-	-	-	

Details regarding the species of animals, total number examined from the Lower Umfolozi District, the number showing small piroplasma, trypanosoma or microfilaria are given in the subjoined Table III.

TABLE III.

Animal.	Total number examined.	Number found infested with small Piroplasma.	Number found infested with Trypanosoma.	Number found infested with Microfilaria.
Zebra.....	24	1	-	-
Bushbuck.....	50	8	2	1
Duiker.....	36	11	-	-
Reedbuck.....	1	-	-	-
Kudu.....	5	2	1	-
Warthog.....	34	1	-	7
Steenbuck.....	5	-	-	-
Blue Wildebeest.....	5	-	-	-
Waterbuck.....	13	7	-	1
Buffalo.....	1	-	-	-
Wild Dog.....	2	-	-	-

Particulars concerning the species of animals, total number examined from Empangeni, the number showing either small piroplasma, trypanosoma, or microfilaria are given in the attached Table IV (a).

TABLE IV (a).

Animal.	Total number examined.	Number found infested with small Piroplasma.	Number found infested with Trypanosoma.	Number found infested with Microfilaria.
Zebra.....	15	—	—	—
Bushbuck.....	32	5	2	1
Duiker.....	22	5	—	—
Kudu.....	5	2	1	—
Warthog.....	22	1	—	4
Steenbuck.....	2	—	—	—
Blue Wildebeest.....	2	—	—	—
Waterbuck.....	6	3	—	1

Details regarding the species of animal, total number examined from Umfolozi River, the number showing either small piroplasma, trypanosoma or microfilaria are given in the following Table IV (b).

TABLE IV (b).

Animal.	Total number examined.	Number found infested with small Piroplasma.	Number found infested with Trypanosoma.	Number found infested with Microfilaria.
Zebra.....	9	1	—	—
Bushbuck.....	18	3	—	—
Duiker.....	14	6	—	—
Reedbuck.....	1	—	—	—
Warthog.....	12	—	—	3
Steenbuck.....	3	—	—	—
Blue Wildebeest.....	3	—	—	—
Waterbuck.....	7	4	—	—
Buffalo.....	1	—	—	—
Wild Dog.....	2	—	—	—

A list giving common and zoological names for the game animals dealt with is given in Table VIII of the Preliminary Report.

DISCUSSION.

1. *Zebra*.—Parasites resembling *N. equi* were found in the one zebra. Only one parasite per erythrocyte was seen.

2. *Bushbuck*.—Small piroplasms of the *Th. mutans* type could be demonstrated in seven animals. In another animal *Theileria*

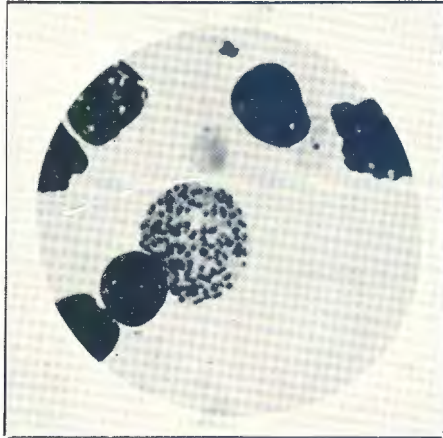


Fig. I. Bushbuck 486. Koch's bodies (agamont) found in gland smear. Magnification 1200 \times .

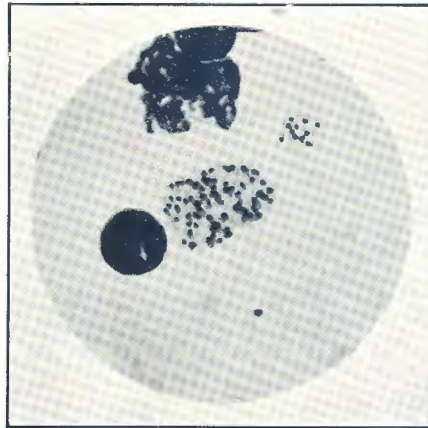


Fig. II. Bushbuck 486. Koch's bodies (gamont) found in gland smear. Magnification 1200 \times .

tragelaphi with Koch's bodies in the lymph gland smear was found. Both gamonts and agamonts lying either free or intracellular could be found in rare numbers. (See Figs. I and II.)

3. *Duiker*.—Parasites of the *Th. mutans* type were found in eleven animals. In one smear ovoid forms showing division into four producing the cross arrangements were seen, indicating that this is one way in which the parasite multiplies.

4. *Kudu*.—Two animals showed small piroplasms of the *Th. mutans* type. The mode of multiplication is still unknown.

5. *Waterbuck*.—In seven animals small piroplasms of the *Th. mutans* type could be demonstrated.

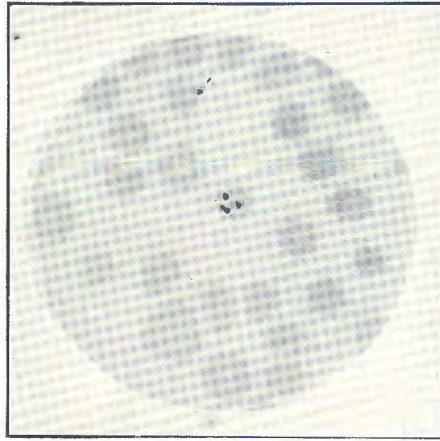


Fig. III. Warthog 582. Four small piroplasms in a single erythrocyte found in blood smear. Magnification 1200 \times .

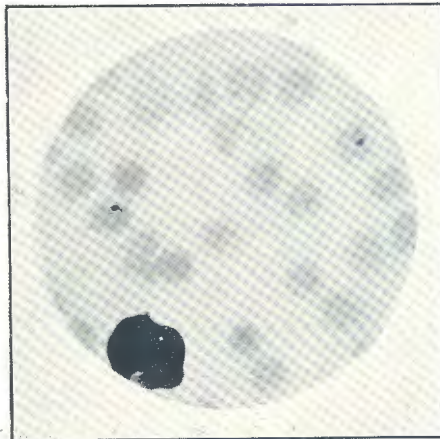


Fig. IV. Warthog 582. Small piroplasms found in Blood smear. Magnification 1200 \times .

6. *Warthog*.—In one warthog small piroplasms of the *Th. mutans* type could be found in the blood smears in very rare numbers. The organisms measured $0.5\mu-1.75\mu$ by $0.5\mu-1.0\mu$. The forms seen were ovoid and ring-shaped but more than one parasite was found in a single erythrocyte, except in one case, where four parasites were seen giving one the impression of a recent division. No mention of this parasite is made in the literature. (See Figs. III and IV.)

CONCLUSION.

1. *T. vivax* was found in three game animals, viz., two bushbuck and one kudu.
2. Small piroplasms were demonstrated in the zebra, bushbuck, duiker, kudu, waterbuck and warthog. The parasites in the last animal are mentioned for the first time.
3. Microfilaria were found in one bushbuck, one waterbuck and seven warthogs.

LITERATURE.

- NEITZ, W. O. (1931). Blood Parasites of Game in Zululand. Preliminary Report. *17th Report of the Director of Veterinary Services and Animal Industry, Union of South Africa, August, 1931.*